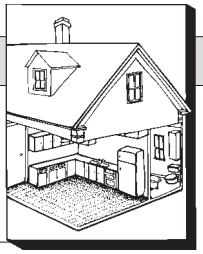

"Mirror, Mirror On the Wall"

by Paul Turpin

Some years ago, I was introduced to the magic that mirrors can create while dining at a local restaurant. Throughout our dinner I had the impression that we were in one of a number of cozy little chambers partitioned off from each other by low walls. It wasn't until the end of the meal that I realized I'd been fooled. The restaurant was just the small, single room we were in. But the top three feet of the room's 10-foot walls were covered with mirrors creating the illusion of multiple rooms.

Covering a large part of a wall with mirrors creates spaciousness and brings in light. Bathrooms are good places to use this kind of magic since they tend to be small and dark. Yet most of us never get beyond the medicine cabinet mirror or, perhaps, a full length mirror in the dressing area.

The Geometry of Mirrors

The most successful applications I've seen place the mirror parallel to the path of travel in a room, rather than facing it. That makes the predominant view oblique. Seeing yourself directly reflected in a space-creating mirror actually reduces the illusion of spaciousness. It makes you conscious of the plane of the mirror, instead of drawing your eye to the reflected space. Oblique-reflecting mirrors, on the other hand, are transparent: They disappear. The illusion of space is created as your eye ranges past the surface of the mirror into the distance of the reflection.

The bedroom and bathroom shown in Figure 1 were added onto the back of a two-bedroom, one-bath home about 20 years ago. When we remodeled the bathroom a couple of years ago, we installed a glass patio door at one end to serve as a passage from the bedroom to the yard and to let in more light. We placed a 4x8-foot, floor-to-ceiling mirror perpendicular to the patio door. The mirror reflects both the outside view and the interior of the bedroom. This arrangement was so convincing that one visitor started to walk into the mirror, thinking it was the opening to another room.

The bathroom in Figure 2 was small and cramped with a stall shower, a tub, and a tiny vanity with two narrow windows flanking a medicine cabinet. We axed the shower stall and made a combined tub/shower arrangement. That enabled us to put wall-to-wall glass block above a wider vanity. We then flanked the block with mirrors carefully set to keep the reflected proportion of the end mortar joint consistent with the field, giving an illusion of 14 feet of continuous glass block.

The geometry of creating space with mirrors is something anyone who's shot billiards knows intuitively. The angle of approach equals the angle of reflection. In both Figure 1 and Figure 2, the line of sight to the mirror (A to B) is the same angle relative to the mirror as the mirror is to the object reflected (B to C). The illusion of space happens when the eye goes past the mirror surface and sees the unbroken distance of the reflection (A to D).

Mirror Mechanics

Mirrors are glass with a reflective silver coating on one side covered by a protective coating, usually some kind of paint or epoxy. When glass is manufactured, only 1/4-inch-thick glass is inspected for optical clarity. The clearest, best glass is set aside as silvering quality, sometimes called *select*. Any glass thicker than 1/4-inch is not totally transparent since it has some color of its own. You might notice it at the edges of thick glass tabletops, for instance.

Builders who order thinner mirrors, 3/16 of an inch or less, in hopes of saving on material costs are actually getting inferior quality mirrors. At the same time, cost savings are dubious, at only about 5% between the 1/8-inch and the 1/4-inch thicknesses ($1.90 versus $2 per square foot at the wholesale level).

The silvering on mirrors is susceptible to damage from chemical attack in two areas: the protective back coating and the edges. In hanging the mirrors, use a mastic that is made especially for mirrors, since the solvents in ordinary adhesives may degrade the protective coating.

Moisture is the primary culprit in attacking the mirror edges, although it is the minerals and chemicals in water that are destructive, not the water itself. Glass cleaners are also destructive if they run down the face of the mirror and soak the edges. In some cases, the glazier can apply a

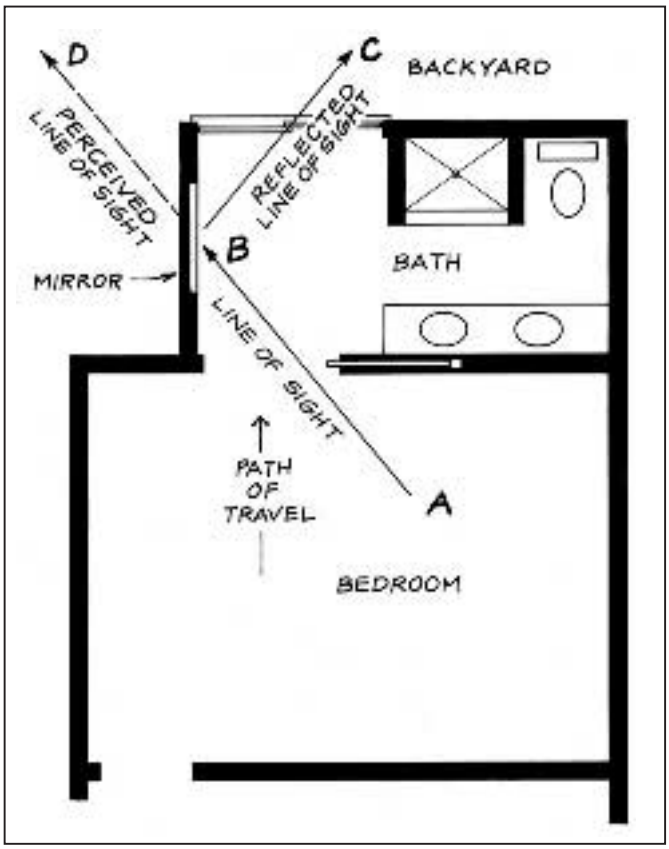

Figure 1. *The 4x8-foot, floor-to-ceiling mirror in this bathroom, set parallel to the path of travel, reflects both the outside view and the interior of the bedroom. This brings in light and gives the room a feeling of spaciousness.*

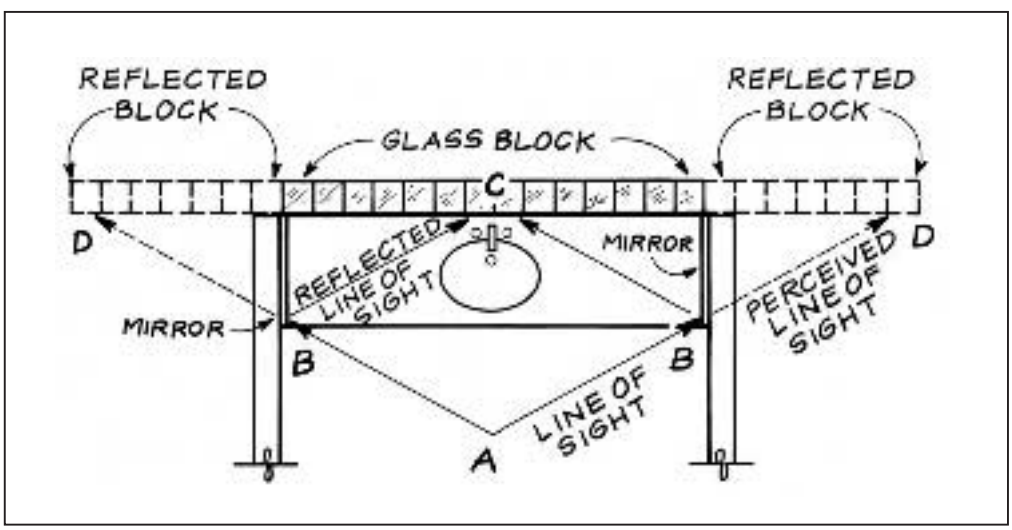

Figure 2. *The mirrors flanking the glass block in this bathroom give the illusion of 14 feet of continuous glass block — twice the actual width.*

clear varnish to the edges for protection.

Most of this was news to me and reconfirms my feeling that glazing specialists really are specialists. Callbacks because of imperfect glass or ruined silvering are something no one needs. Good glazing contractors who warrant their work are worth using.

Mounting Mirrors

The primary methods of setting and securing mirrors are mechanical restraints and mastics. Mechanical restraints include frames and mirror clips. In some cases, the bottom edge is set into a J-channel.

Mastics may be slow setting or fast setting. The slow-setting variety is thick and sticky, like roofing cement. It takes about three days to fully cure. Fast-setting mastics, available in caulking-gun tubes, set up within a day. Both varieties remain slightly pliable when fully cured.

Mastic is put on in thick globs rather than spread like floor mastics. The thickness of the globs enables the installer to adjust the mirror into a true plane (remember, no wall is truly flat). This is crucial, unless you're furnishing a carnival fun-house. Also, the thickness and spacing of the globs leaves an air space behind the mirror which may help preserve the silvering.

Another mounting method is to use a combination of slow-set mastic and double-sided foam tape. The tape provides the instant adhesion to hold the mirror in place while giving the mastic time to set. The tape should not be used by itself because it will degrade in a few years.

Combinations of mechanical and mastic supports can be used for larger mirrors. These include setting the mirror into a supporting channel and sticking it to the mounting surface with mastic.

If the mirror has to be cut or shaped to fit the space, I use 1/8-inch plywood to make a template. If the shape of the space is complex I first make a rough cut template (with plenty of slop) and tack it into place. Then I take small pieces of plywood and carefully fit each corner or critical edge. When the fit is good, I trace the position of the fine-tuned template piece onto the rough template. Then I take down the rough template and trace the whole outline onto a fresh sheet of plywood. Once this is carefully tested, I give it to the glazier.

Polishing the Illusion

Here are some little touches that help maintain an illusion of spaciousness:

- Have the mirror reflect something interesting. The mirror in Figure 1 brings backyard landscaping and more light into the master bedroom.
- Make the mirror as large as possible. The width of the mirror is especially important since it will seem narrower when viewed from an oblique angle.
- To distract attention from the mass of the mirror itself avoid frames and set the mirror as flush as possible to the wall. In Figure 1, I embedded the mirror in a second layer of 1/4-inch drywall to hide the thickness of the mirror.
- Make the mirror plumb and square to whatever it is reflecting (floor or wall or both). Remember the mirror doubles any divergence and that can skew the angles reflected and draw attention back to the surface of the mirror.

At first glance, installing large mirrors may seem expensive and time-consuming. But consider what they're achieving for the cost. In Figure 1, I achieved the equivalent of a 4x8 window with no structural or finishing costs. The bathroom in Figure 2, was even more successful: The owner put a rose trellis outside, and what was once a dark, cramped room is now a kaleidoscope of light and color. ■

Paul Turpin is a Los Angeles remodeling contractor who specializes in kitchen and bath design and remodeling.