





Mixed Glazed Systems

FOR EDUCATION FACILITIES

by Mark Mitchell

Whether in an entryway to an alumni center, a hallway linking classrooms, or a multi-use learning area, daylighting can play an important role in improving the comfort and functionality of a variety of educational spaces—and can be a cost-effective way to reduce energy consumption. While there are various ways to deliver sunlight into interior spaces, one of the easiest and most budget-friendly methods is through light-transmitting wall systems. And one way of transforming a standard window or curtainwall system into something versatile and eye-catching is by incorporating multiple types of glazing into one cohesive unit—a mixed glazed system.

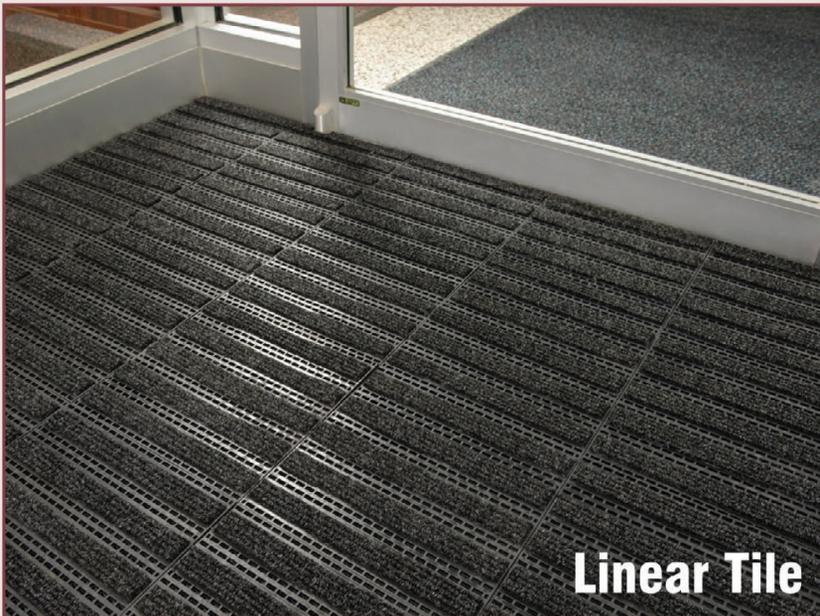


Finding A Balance

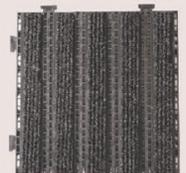
There are numerous options to consider when choosing a daylighting system for a typical commercial building, but education-focused spaces can present even more challenges. Will students and staff be spending long periods of time in the space? Will the building's orientation cause too much sun penetration and excess solar heat gain during certain hours of the day? Will glare cause issues with computer screens and phones? Are there safety and privacy concerns? Each individual space may have different requirements and different answers to all of these questions. That's where mixed glazed wall systems offer huge benefits, as they provide natural light while also addressing concerns about sun control, privacy, ventilation and more.

For example, in the case of a typical classroom space that has access to an exterior wall, the easiest way to incorporate daylighting is through a window or via a curtainwall system. But with glazing, ease doesn't always translate to usability. Typical glass glazing is durable, provides unfettered views to the outdoors, and can come in operable versions to help with ventilation control,

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Photo by Rachel Smaller

but it also comes with some drawbacks. Due to its transparent nature, large sections of glass allow for an influx of uncontrolled natural light that can cause issues for HVAC systems, forcing them to over-compensate for the solar heat gain. Therefore, shading devices are usually required to control the direct penetration of the sun's rays, reduce solar heat gain, and prevent glare. Blinds and other related shading methods may also be necessary for security purposes to control lines of sight into the building and keep private areas from public view. Glass systems can also be more costly to purchase and install due to their size and handling restrictions.

The alternative to glass is often a system that utilizes glazing materials such as a translucent FRP panel (made with fiberglass reinforced face sheets and an aluminum grid core) or polycarbonate multi-wall, which diffuse light into interior spaces but keep glare and hot-spots at bay. Translucent systems are often less expensive than glass, lighter in weight (which can make for easier installation), and come in a variety of configurations and colors for even more flexibility. A downside to translucent glazing materials, however, is their defining feature—their translucency. The inability to obtain views to the outdoors can be a deal breaker for some, and in specific cases—such as in campus stores, entryways to public spaces and athletic centers—it's imperative that lines of sight remain open between indoor and outdoor spaces.

For these reasons, many education-related spaces, and especially those with ever-changing functions, a combination of glazing materials can provide just the right mix of light control and views.

The Benefits Of Mixed Glazed Systems

Let's dive a little deeper into a few options and configurations that can enhance the overall look of a facility and give it both function and eye-catching design.

The most typical mixed glazed configuration features translucent glazing above and glass below, as this set-up effectively controls direct sunlight during the peak sunlight hours of the day. The top section of translucent glazing acts to defuse the sun's rays, while the transparent area at the bottom of the system allows for many advantages, including views to the outdoors and, if operable windows are incorporated, ventilation control opportunities for occupants. This combination of translucent and transparent materials effectively eliminates the need for exterior shading devices and is an excellent solution for learning spaces, faculty offices, art and design spaces, libraries, computer rooms, athletic facilities and more.

The reverse of this configuration—translucent glazing below and glass above—can also be effective if direct sunlight isn't an issue (such as on a north facing wall). In this set-up, the transparent glazing allows for views of exterior features and the sky while the lower translucent section helps to defuse natural light throughout the space. This configuration can also be effective for restrooms and locker rooms where privacy is key but keeping the space open and bright is important.

For those who like to think outside the box, translucent and transparent glazing can be mixed in multiple ways. Creating a patchwork of glass in a wall of translucent panels, for example, is a great way to bring a unique design element into a space while still capitalizing on the benefits of exterior views. This configuration can be a great solution for hallways, transitional spaces, lobbies, and entryways. A more deliberate placement of fixed or operable glass in a wall of translucent glazing can also be an effective way to "frame" a unique landscape feature like a pond or monument. Interior design elements, such as a sculpture or 3D art piece, can also be framed for viewing from exterior walkways or roads.

The unique mix of translucent and transparent materials allows for some creative lighting applications as well, especially during evening hours. Whether it's back-lighting behind company signage, colored lighting to create an eye-catching architectural focal point, or a column of illuminated glazing to call out a building's entrance, mixed glazed configurations offer a wide range of possibilities.

Keep in mind that custom daylighting products are highly technical and engineered for your building's specific geographical location and physical characteristics. If you run into questions or concerns when choosing or configuring a system, don't be afraid to speak directly with a daylighting manufacturer to discuss how their products can benefit your unique space. They can often suggest a solution that will be an ideal match for both your requirements and budget.

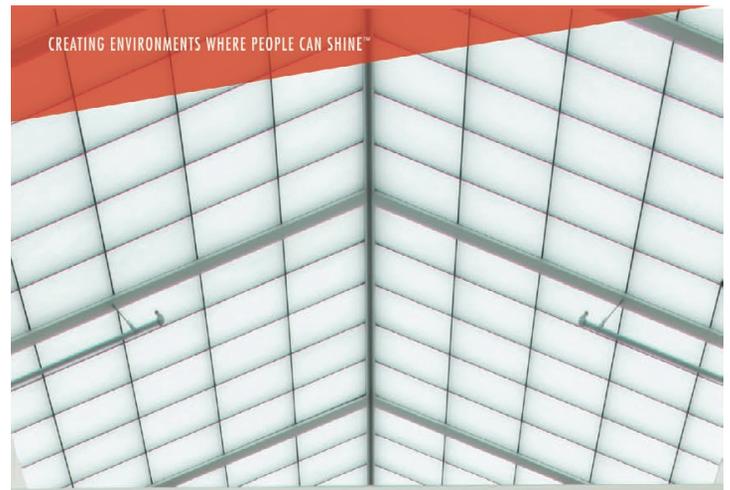
Endless Versatility

While systems with a single glazing material are a cost-effective investment, mixed glazed systems provide the versatility and flexibility that modern educational spaces demand—resulting in a unique combination that is both eye-catching and practical.



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