



05: INTERIOR GLASS PARTITIONS

by Joseph DeAngelis, AIA, LEED AP, and Amanda Gibney Weko



DEVIL'S DETAIL

AN OFFICE WITH A VIEW

The growing popularity of interior glass – and tax implications of demountable partitions – have dramatically increased the use of glazing in commercial interiors. Glass offers visual openness with the benefits of acoustic privacy, while maximizing natural light. As owners strive to increase building efficiency, glass partitions enable an attractive, modern look in less space than traditional framed and sheathed walls.

Glass work has long been trusted to professional glaziers due to its inherent construction challenges and fragility. Glass requires specialized equipment, safety protocol, and understanding of the metal systems that anchor it in place and sealants necessary to ensure its appearance and performance. AGI glaziers undergo rigorous training to learn glass best practices and jobsite safety.



Traditional glazing systems are found in CSI Division 8: Doors and Windows. However, most interior demountable glass partitions are found in CSI Division 10: Furniture, Fixtures, and Equipment. AGI member glaziers perform work in both divisions.

DEMOUNTABLE GLASS

Demountable systems are made of non-load-bearing, non-permanent glass partitions that can be removed when a tenant vacates a space. They can also be rearranged easily to offer a client workplace flexibility. Demountable partitions are considered a tenant's personal property, such as furniture, qualifying for an accelerated seven-year tax depreciation versus 39 years for stick-built permanent walls.



Qualifications for the acceleration tax depreciation include:

- Not intended to remain permanently in place
- Installed and removed quickly and with little expense
- No damage to building upon removal
- Non load bearing
- Serves the passive function of protecting tenant assets
- Not installed during building construction
- Not meant to remain when a tenant leaves

Top: Hangley Aronchik Segal Pudlin & Schiller, PC;
Bottom: Duke Realty; Glazing for both by Synergy Glass and Door; images © Sarah R. Bloom Photography



SYSTEMS FURNITURE

Office furniture manufacturers have embraced the look of glazing and begun offering demountable glass partitions as part of systems furniture collections. A professional glazier does not install glass provided by a furniture dealer. Instead, the glass is part of the furniture package. Furniture installers are not specifically trained or equipped to handle or install commercial glass.

Systems furniture manufacturers cannot provide fully custom glass. When architects specify glazing as part of a furniture package, they miss out on the creativity and customization offered by professional glaziers. Systems installed by glaziers qualify for accelerated depreciation. Demountable systems do not have to be purchased from a furniture dealer to qualify.

SYSTEM TYPES

Demountable interior glass wall systems are available as stick built or unitized. Stick-built systems are constructed in place by a glazier. Unitized systems are prefabricated in a factory and then assembled on site. Systems furniture glass products ascribe to the unitized approach; glass products are prefabricated and assembled along with other systems furniture products such as cubicles or solid wall panels.

Framed systems provide strength, allow for larger openings, and create jambs for doors to pivot and slide. Vertical posts can be incorporated at the joints or the glass can be butt-glazed for a uniform appearance.



A framed system with mullions on all four sides of the lites

Frameless systems provide a clean look with no visible metal. The glass is typically butt-glazed with silicone for sound absorption. Polycarbonate, a hard, H-shaped, translucent plastic, can also be used to provide a nearly invisible seal with a smaller joint. Frameless systems utilize a small amount of metal at the base or top, typically between 1 and 1.5." Installation variations can produce different aesthetic effects. Concealing the metal mounts in the ceiling or floor provides full floor-to-ceiling glass.



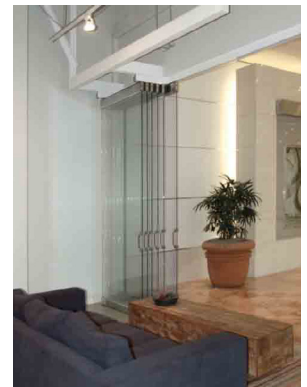
A frameless system



Concealed ceiling mount glass



Sliding door



Stacked partitions

Movable walls allow the end-user to physically move the glass partitions. Panels can fold or stack, enabling an adaptable space with flexibility for multiple uses. The photo above (lower right) shows a movable wall system with the partitions stacked.



Patch fittings with pivoting doors

DOORS

Interior glass partitions generally incorporate one of three types of doors: pivoting, sliding, or hinged. Pivoting doors allow the least visible hardware. Patch fittings with floor and overhead closers are commonly used. Hardware can be mounted directly to the glass. Closers can be concealed in the ceiling or floor. Sliding doors are ideal for creating an open look while still offering privacy when needed. Since they require no additional floor space for opening, they can be used for larger doors. Hinged doors are ideal for demising walls and glass returns; they offer self-closing and hold-open features.

For many years, pivoting doors were preferred for commercial use. A pivoting door requires at least nine square feet for the door swing. As real estate owners seek to avoid unusable floor space, sliding doors are replacing pivoting doors.

Manufacturers suggest sliding doors be kept open when not in use to avoid the risk of injury from people who unknowingly step forward after grasping

the pull; this can lead to forehead imprints or worse, depending on the individual's movement. Soft-break and soft-close mechanisms can be used to soften the door's action. These devices slow the opening or closing over the last four inches, compensating for overly ambitious users and the weight of heavy glass doors.



Full rails with panic hardware

HARDWARE

Hardware has progressed considerably with the advent of mid-panel locks, which come in a variety of shapes, sizes, and lock configurations. Although still used in many systems, floor locks require keying at the base. While the lock can be concealed and flush with the floor, it requires the user to physically bend down to unlock the door. This can be difficult for some users or women in dress attire and heels. Locking ladder pulls are becoming popular; these use top locks in lieu of floor keepers and offer security and beauty without a large lock footprint.

Electronic access control devices can manage traffic flows and personnel access to sensitive areas. Panic devices can be installed to meet exiting code requirements of buildings with large occupant loads.



Door locks

Hardware finishes also vary. The most popular are clear anodized and satin stainless steel, but finishes can be matched to wood trim, millwork, or furnishings in the space.



Red back-painted glass on a cleat system

GLASS

Three types of glass are most commonly used: clear tempered, low iron tempered, and double glazed. Low iron tempered offers the least amount of color. Clear tempered has a greenish tint. Glass can be laminated and finished in a multitude of ways to support a designer's aesthetic goals. Back-painted glass panels offer dramatic effect with modest cost implications.

Most systems use 0.5" monolithic glass, which can accommodate heights of 9'-6" to 10.' As the height decreases, the glass thickness can be reduced to 0.375." Depending on the application, glass can be as thin as 0.25."

Double glazed glass is similar to insulated glass units used on building exteriors. Two panes of glass are separated by a sealed air space. Double glazed glass offers superior sound reduction in areas where a high degree of acoustic separation is required.

For acoustic purposes, glass is classified by Sound Transmission Class (STC) rating. STC is a numeric score of how well the partition attenuates sound. STC 30 is the lowest rating, where normal speech is unintelligible. At STC 38, loud speech becomes unintelligible. Higher STC ratings are achieved with laminated glass.

Monolithic Glass	Laminated Glass
1/8" thick = STC 30	
1/4" thick = STC 31	1/4" thick = STC 35
3/8" thick = STC 34	3/8" thick = STC 36
1/2" thick = STC 36	1/2" thick = STC 38
5/8" thick = STC 38	5/8" thick = STC 40
3/4" thick = STC 39	3/4" thick = STC 41

Glass thickness in large part dictates the system's limitations due to weight. Depending on the door hardware, the glass height, width, and weight have accepted maximum sizes. Full rail hardware can support a door up to 205 pounds, while a door with patch fittings can only support up to 194 pounds. This translates to a door of about 9'-0" maximum size.

SEEING IT ALL

Glazing contractors are a valuable resource for designers considering demountable glass partition systems. A multitude of glazing and framing options in both stick built and unitized systems offer aesthetic variety while optimizing sustainability and functionality in the commercial interior environment in less space than traditional framed and sheathed walls.

AGI glaziers welcome the opportunity to partner with architects early in the design process when recommendations can maximize value and price. AGI glaziers collaborate with designers to develop, document, and fabricate custom solutions that meet aesthetic and functional goals without compromising budget.

Alone or in partnership with products manufacturers, AGI glaziers provide meaningful information for glazing decisions from cut sheets to cost analysis:

- Shop drawings
- CSI specifications
- CAD documentation and/or BIM integration
- Sound Transmission Class (STC) acoustical test results and other current statistics

AGI glaziers offer professional guidance and technical support. From rigorous training to a focus on quality, AGI members provide one source for all facets of a glass project. AGI contractors are full-service, offering field measurements and design through fabrication, installation, and maintenance.

- Clear Tempered
- Low-Iron Tempered
- Double Glazed



Low-iron glass over regular glass

About the Devil's Details

The AGI educational series illustrates and describes common glazing challenges as a means to communicate best practices for the design and construction industry, not as a sole source for design guidance. AGI recommends design professionals consult with an AGI contractor regarding specific project challenges. AGI contractor profiles may be accessed at www.theagi.org. To share a devilish detail of your own, contact info@theagi.org.