

## DOORS & WINDOWS, GLAZING

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**Doors:** Exterior doors shall be of aluminum, stainless steel or galvanized steel construction. Interior doors shall generally be hollow metal doors with steel frames. Interior doors which are wood must be solid core construction. Construction must be ANSIWDMA Custom Grade Extra Heavy Duty with Structural Composite Lumber or solid stave core. Particle Core and Medium Density Fiberboard cores are not permitted. Doors edges must feature matching hardwood bands finished at the factory with edge before face construction.

Wood veneer, mineral core fire rated doors shall not be used. We have experienced significant problems with the narrow hardwood band on the hinge edge delaminating from the core. The only circumstances under which mineral core wood fire rated doors may be used are if the door(s) is on a magnetic hold open and is always open except when a fire alarm device causes the magnetic hold open to close the doors, or if the door is to a mechanical or electrical room and is normally locked. Under any conditions other than those described above, a variance must be requested if it is desired to use a wood door in a rated application.

Doors with more than 40-50% glazing shall be metal frame construction, or solid lumber construction. All glass doors shall not be used. Full glass doors must be of stile and rail construction that will permit the use of standard door hardware complying with *Section 08 71 00 – Door Hardware*. Door stile shall be a minimum of 5-inch.

**Windows:** Windows shall be of the highest quality available, with a proven balance mechanism. Casement sash windows shall be avoided due to high maintenance costs of crank operated rotary devices. All windows shall be securable, preferably with locks, especially those located on ground/lower floors. Security screens or gratings shall be considered for installation where additional security is needed.

In buildings which are listed on the National Register of Historic Places or eligible to be listed on the National Register of Historic Places, existing wood windows shall be replaced with aluminum clad wood windows.

**Glazed Curtain Walls:** Glazed curtain walls shall be of true “curtain wall” construction, as

opposed to “storefront” construction. All glazing systems shall have fully captured glass with pressure plates at all glass edges and snap on mullion covers. No structural sealant glazed systems or exposed sealant joint systems are permitted. Structural glazing systems, the design of which does not facilitate convenient pane replacement, shall not be permitted.

**Exterior Glazing:** All exterior glazing shall be of the insulated double pane type that incorporates metal framing separated by a thermal break that is “locked” into the extrusions, not merely a sealant. Triple glazed units may be used, provided the size is limited. See *Section 08 81 00 – Glass Glazing* for information on size limitations. The use of “Low-E” exterior glazing is encouraged for energy conservation and occupant comfort. While colored glass is discouraged, any colors or tints that are used shall be standard colors readily available from a variety of manufacturers. Custom tints shall not be used because it is virtually impossible to match the color years later when a piece needs to be replaced. Tinted glazing shall be pyrolytic, not applied film. Glazing in more vulnerable locations (e.g. doors, ground/lower floor windows and curtain walls, etc.) shall be of especially durable construction (e.g. laminated glass, tempered glass, wire glass, or polycarbonate) even if not specifically required by code.

In buildings which are listed on the National Register of Historic Places or which are eligible to be listed on the National Register of Historic Places, insulated glazing shall be clear glazing with a Visible Light Transmittance (VLT) of 70% or greater and an Exterior Light Reflectance (ELR) of 15% or less.

**Special Construction:** Special exterior window/glazing construction shall be employed as appropriate in conjunction with a winter interior design relative humidity greater than 35% and/or a summer interior design space temperature less than 65 degrees F.

**Natural Lighting vs. Energy Conservation:** Full advantage shall be taken of opportunities to provide natural lighting. However, full compliance with the current revision of

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ASHRAE Standard 90.1 and approved addenda shall not be sacrificed in the process.

**Large Expanses:** Large expanses of exterior glazing, particularly on building faces exposed to solar gain (especially on west exposures) shall be carefully planned and designed with special consideration for potential summer heat gain, winter heat loss, glare and wind loading issues.

**Skylights:** Skylights are strongly discouraged. When skylights are incorporated into the design of a building, care should be taken in the design of such a system to provide a secure, weather-tight installation. Light monitors or clerestories shall be used instead of skylights to the extent possible.

**Canopies:** Glass canopies are not permitted. All canopies shall slope away from the building.