

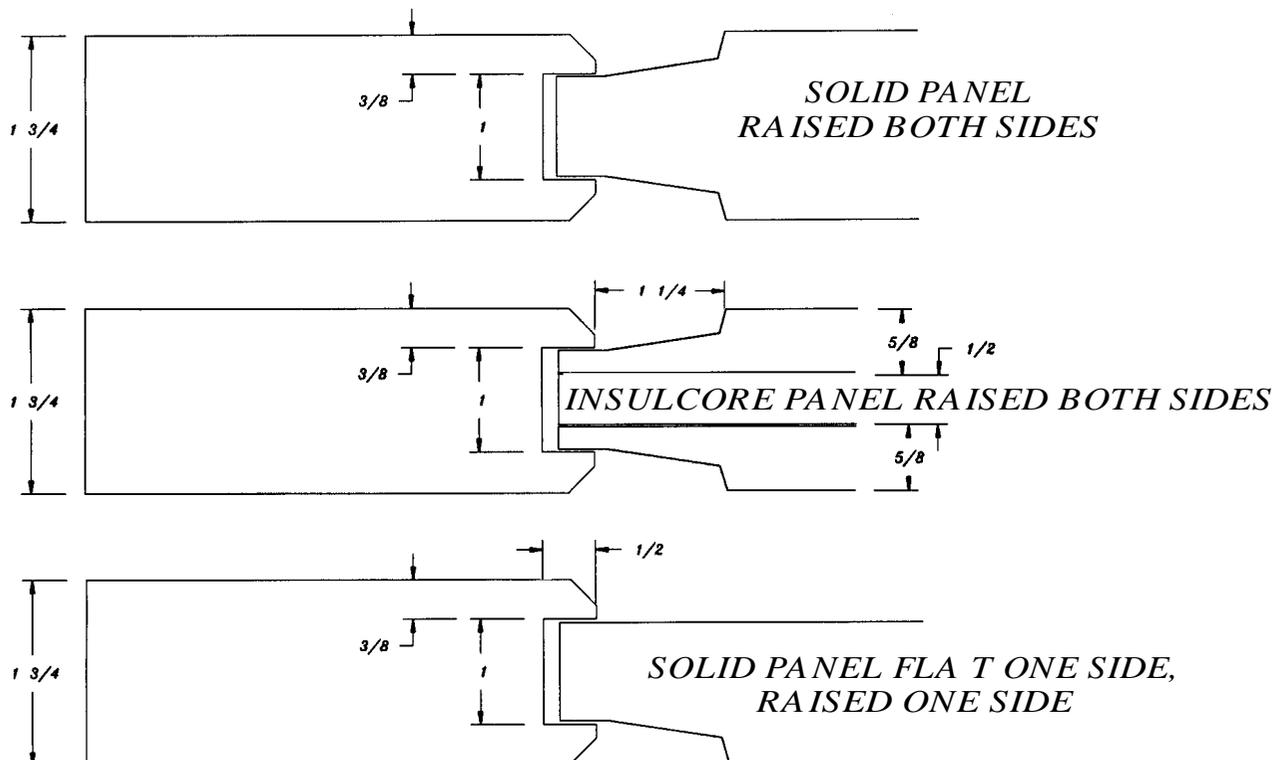
PANELS, PLANKS, LOUVERS & VENEERS

Generally, wooden panels are Raised or Flat Panels, Planks, Louvers or Veneers.

PANELS:

Panels are usually raised or flat on one side or the other. Panels can be constructed of lumber core with veneer out covering or solid lumber. There are applicable situations for either application. Panels, whatever the construction, are usually included in a mortise and tenon frame and allowed to expand and contract within the frame. Because all wood moves, frame and panel construction has been used since the advent of woodworking to minimize warping caused by the uneven absorption of moisture within the cells of wood fiber which, in turn, causes panel expansion and contraction.

Woodstone's INSULCORE panel is especially suited for extreme conditions. The INSULCORE system contains Two Wooden Panels separated by Insulating Foam Sheathing or a layer of construction fiber building paper (ie: Tar Paper, Rosin Paper, TYVEC or TYPAR). This construction method allows the exterior panel to expand and/or contract in relation to the exterior conditions and the interior panel to concurrently expand and/or contract in relation to, often differing, interior conditions. Stress on the wood fibers of the panels is reduced thereby preventing cracks in the wood or glue joints of each panel. The INSULCORE panel with Insulating Sheathing further increases the overall insulating value of the door by several hundred percent.



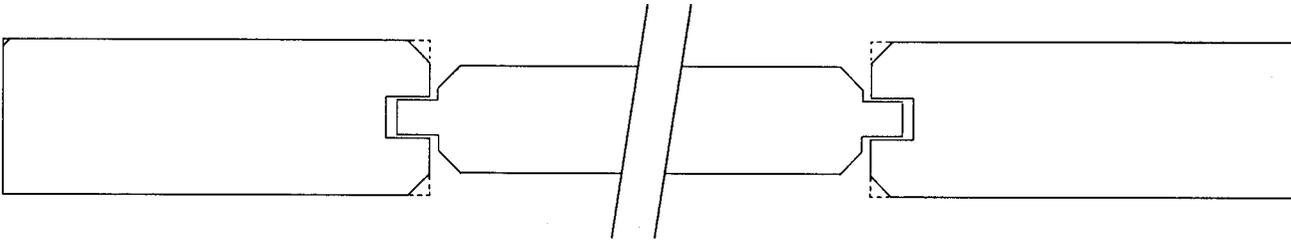
The INSULCORE panel method can also be used in conjunction with fire rated sheetrock as a sandwiched laminate. Finishing that includes fire retardant in combination with this method can be used for natural wood fire rated doors.

IMPORTANT NOTE: There are no implied performance standards on any Woodstone doors or windows. Because all units are manufactured on a custom basis, performance requirements are determined by submitting appropriate test units to ASTM performance testing procedures on a project by project basis. See Woodstone's Performance Certification section for further information.

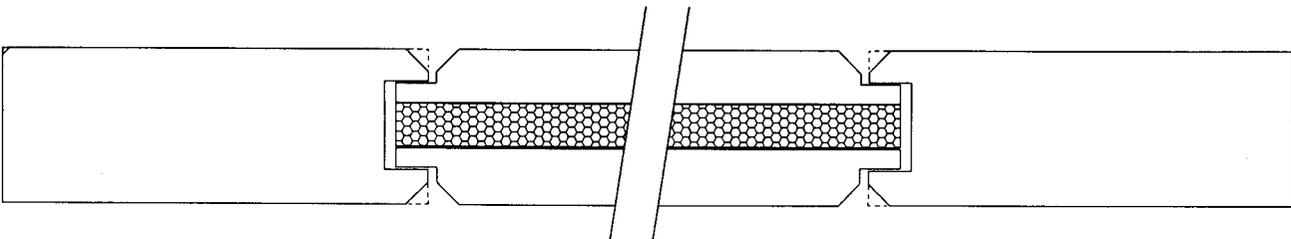
PLANKS :

Plank construction is often incorporated in door frames in much the same way as panels. Planks are usually splined, tung & groove or shiplap boards. The space between each board is usually a V-Groove molding, although variations are available.

V-GROOVE TUNG & GROOVE SOLID PLANK PANELS



V-GROOVE TUNG & GROOVE INSULCORE PLANK PANELS



LOUVERS :

Louvers are another method of filling in a framed opening. Generally, louvers are used on interior or exterior shutters, gabled vents and interior doors. Louvers can be fixed or they can be operable. Operable louvers open and close in much the same way as a venetian blind. Fixed louvers are often used in conjunction with insect screening for air ventilation.

VENEERS :

Wood veneers are commonly used in door construction and rarely used in window construction. Woodstone generally does not use veneer laminations unless specified. Veneers, by their nature, do not resist wear and tear as well as solid lumber. Veneers can withstand only limited sanding and refinishing. Exterior applications risk delamination if proper sealants are not used.

Common uses for veneers include laminated door stiles and panel construction demanding careful grain matching of exotic or otherwise expensive wood. Veneer construction has continued to expand, especially with regard to hardwood doors. Raised panel laminating techniques have significantly improved allowing the use of less expensive core materials while maintaining the appearance of the clear grained hardwood.

The primary reason for using veneers is to cut costs and enhance unique naturally occurring grain patterns. Many veneered doors consist, primarily, of plywood, common grade lumber, chip or particle board cores covered with thin laminates. Veneered door stiles allow the use of less expensive short finger jointed waste wood. On the other hand, carefully bookmatched veneer panels are often used in very exclusive paneling projects.

See the section on MOLDING PROFILES for Panel-in-Frame illustrations.