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OPEN PANEL FRAME CONSTRUCTION
timber
INFORMATION FOR SELF-BUILDERS

Open panel timber frame construction

Open panel construction is the most widely and readily available method of timber frame construction available in the UK. It has been used here for around three or four decades, and its popularity is because it is easy to put together both when the prefabricated parts are made on site. In the factory the essential materials are softwood studs, to form the main structure, and a rigid board such as plywood or OSB to provide bracing, which are nailed together. The frame is constructed in a series of panels, designed for easy delivery and assembly. The studs and the panels fixed to them are both crucial elements of the structure and if either is damaged or missing, the strength of the panel is reduced. Likewise, if the studs or the panels are not fixed together to the precise specifications calculated, the frame would not perform in the way that is expected. The name 'open panel' derives from the fact that when the panels arrive on the site one side is open and unboarded. It is usually left open until the building is weather tight at which point service runs and the insulation are put into position. After the placing of the insulation, the open side is closed in with a sheet of plasterboard or a gypsum-fibre board such as Fermacell, with a vapour control layer on its inside.

Features of an open panel timber frame

- Fast construction on site
- Can be clad in any material
- Easy to transport – robust and damage easily repaired
- Cost effective use of the materials
- Suitable for self builders
- High level of insulation possible
- Limited alterations on site are possible

In common with most timber frame types, the panels carry out the main load-bearing work and are in an identical location within the structure to the blockwork inner leaf of a masonry cavity-wall construction. In the past in the UK, the studs used have almost universally been 900mm by 38mm in size. However, with the implementation of building regulations that demand increasingly high levels of insulation, the deeper studs of 140mm are more often being used. This is because the voids between the studs are filled with insulation and deeper studs mean that more can be fitted within the structure. Because warm air from the house carries moisture, the internal lining of an outside wall usually has a vapour control layer incorporated into it, such as a foil backing to the plasterboard. To allow for any vapour that does find its way into the spaces between the studs where the insulation is, the outer sheathing of an external wall is covered with a breather membrane, that keeps out water (such as rain) but allows vapour-laden air to pass through to the outside of the frame.

The timber and structure of an open frame are not usually exposed and would not look very attractive even if this were possible. Beyond the breather membrane, the cladding is a matter of choice rather than having to be compatible with the frame. Typical claddings include softwood boarding, tiles, render and a separate masonry leaf. If the latter is used, only an expert eye will be able to spot that there is a timber frame concealed behind it.