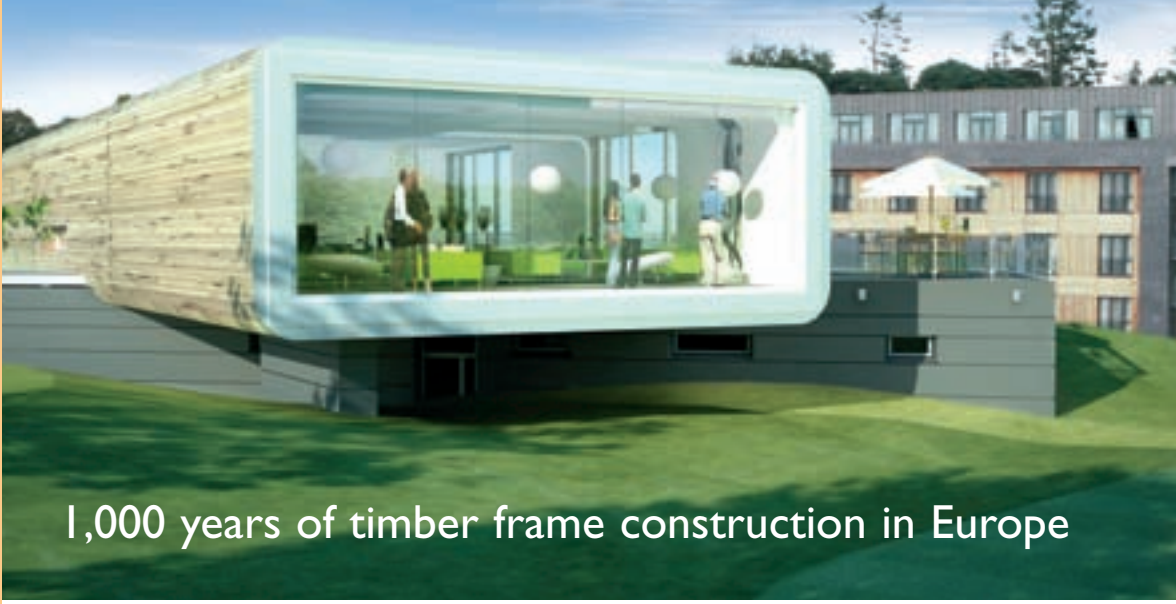




Detail of house built from oak sourced in Mellifont Park at the junction of Laurence Street and Shop Street, Drogheda. Built in 1570, it lasted 254 years before being demolished by Drogheda Corporation

From The Irish Woods Since Tudor Times, Eileen McCracken

Timber frame construction is regarded as the most innovative and versatile building system. In Ireland, its use has been extended from domestic and office construction to a range of other innovative and creative buildings such as hospitals, bowling pavilions and equestrian centres. This golf clubhouse in Castlemartyr, County Cork is now under construction.



1,000 years of timber frame construction in Europe



Various framing techniques have been used in Eastern Europe since the 11th century. In Europe, timber frame construction was commonly used in medieval times for churches, houses and barns. Timber buildings still survive in Scandinavia (above) dating to the 13th century.

Useful Links

- Coford - www.coford.ie
- Woodspec - www.woodspec.ie
- NSAI - www.nsai.ie
- Wood Marketing Federation - www.wood.ie
- Timber Frame Central: www.timberframecentral.ie
- Think Timber Frame: www.thinktimberframe.ie

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Timber Frame Construction



Timber frame construction is suitable for conventional houses or apartment blocks

Timber is the oldest construction material in the world, first used in the primeval forest as rough shelters and huts. The Chinese and the Japanese designed and built sophisticated modular timber building systems over 1,000 years ago.

In Europe, timber frame construction was commonly used in medieval times for churches, houses and barns. Timber buildings still survive in Scandinavia dating to the 13th century and various framing techniques have been used in Eastern Europe since the 11th century.

Timber houses were also built in Ireland especially during the Elizabethan period when wood replaced wattle and clay houses. Dennis Taaffe, the traveller praised a house in Drogheda, built in oak in 1570 which survived for 254 years. In Britain, Elizabethan houses were framed with massive upright, vertical timbers.



Meanwhile the log cabin was widely used in the USA and Canada where rapid colonisation required the construction of a large quantity of residential accommodation in a very short

time. The use of finished timber produced by sawmills then took over and timber frame construction became the norm.

Today, timber frame construction is a tried, tested and trusted building system used throughout the modern world. Over 70% of the developed world's population live in timber frame housing and in countries such as the US and Canada it accounts for 90% of low rise buildings.

In Ireland, timber frame market share has increased from 10% to 30% since the mid 1990s. It makes economic and environmental sense to further increase market share to the levels achieved in countries with similar climates to Ireland, such as Scotland where the timber frame market share is 73%.

Disclaimer: Whilst every attempt has been made to ensure the accuracy and reliability of the information contained in this document, the Wood Marketing Federation gives no undertaking to that effect and no responsibility can be accepted for reliance on this information.
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Building in Timber Frame

Timber frame is a system of building in which the inner leaf load bearing structure is built from engineered wooden panels under strictly controlled manufacturing conditions. The panels are made of lightweight softwood from sustainably managed forests and are stiffened or strengthened using sheathing panel materials such as oriented strand board (OSB) or plywood. During manufacture the timber frame is covered internally by plasterboard and filled with high performance, non-combustible insulation while breather membranes and vapour barriers

are also incorporated. The panels are then transported to site and erected. The outer leaf of the wall, which can be of any standard finish such as stone, brick, render or timber, completes the structure.

From a builder's perspective the timber frame building system reduces labour costs, enhances site efficiency and reduces waste. Because the greater part of the building is factory manufactured, time on site is greatly reduced. Erection is quick and the whole structure can be weather proofed within a week. There is no drying out period which allows the follow on trades such as

plumbers, electricians, plasterers and painters to complete their part of the process speedily. The early handover of the completed building therefore benefits cash flow and profitability.

For the occupier, timber frame provides benefits in the form of living comfort and lower heating bills derived from the high levels of insulation. Timber frame buildings reach comfort temperatures rapidly as the low thermal capacity linings absorb less heat than masonry walls and therefore surface and air temperatures rise swiftly.

Timber frame houses in most instances look the same as conventional buildings. The outer leaf can be in timber or timber mixed with other material. In most instances the building has a standard finish such as stone, brick, render or timber.



SOME FREQUENTLY ASKED QUESTIONS ABOUT TIMBER FRAME CONSTRUCTION

Are timber frame homes quiet?

Yes. Modern timber frame systems enjoy better acoustic insulation qualities than traditional methods of construction and fully conform to Irish building regulations.

Are timber frame homes expensive to heat?

No. The nature and flexibility of timber frame construction mean it is easier to control characteristics such as airtightness, insulation and ventilation. External walls constructed using timber may only have half the thickness of a brick or concrete wall but will provide a much higher thermal insulation value, while also avoiding thermal bridging associated with other construction materials. Heating a timber frame home is more responsive and the airtight environment allows the homeowner more control.

Independent studies have calculated that home heating savings of 30% are achievable over other methods of construction.

Are you more at risk from fire in a timber frame house?

No. All buildings - regardless of the method of construction - must meet the minimum fire performance criteria as laid down in the building regulations. No exception is made for timber frame. Timber frame complies fully with Irish Building Regulations in relation to fire and is so referenced in the Technical Guidance Documents.

How do lenders and insurance companies view timber frame?

The same principals apply for a timber frame home as for any other home with regard to mortgage applications and insurance packages.

As a dry form of construction a new timber frame building can be decorated earlier than a masonry building. Because the walls have been manufactured to strict tolerances they will be "square" thus making wallpapering, tiling and floor covering easier.

Timber Frame and the Environment

The government's National Climate Change Strategy requires a wide range of actions to reduce greenhouse gas emissions with residential construction a target area.

In July 2008 changes were made in the building regulations to provide for a 40% improvement in energy efficiency and a 40% reduction in CO₂ emissions. The government is further committed

to increasing those targets to 60% in 2010 with the ultimate aim of achieving a zero carbon standard for new houses in the medium to long term.

As regards energy efficiency a well insulated and airtight timber frame home can already achieve an A3 Building Energy Rating because it is manufactured under strictly controlled conditions. With additional insulation and renewable energy technology an A2 rating or better can easily be achieved.

In addition timber is both a renewable resource and a carbon neutral material. A recent study carried out by the Edinburgh Centre for Carbon Management Ltd has shown that greenhouse gas emissions associated with the embodied energy of construction

materials are lower if the timber content is increased. The study demonstrated that it is possible to achieve an 86% reduction in greenhouse gas emissions by increasing the amount of timber specified in a building.

Versatility in timber frame

The versatility of timber frame means that it can be designed to meet many diverse demands. In the non-residential sector projects in Ireland have included schools, nursing homes, hospitals, sports halls, shops and offices. Recently others have been even more adventurous with timber frame being their construction method of choice for a waste management facility, a bowling pavilion and an equestrian centre.