

Timber Frame home construction costs are about 15% to 20% more to build than a standard stick frame construction. However, the advantages are great. The structural insulated panels we use in all of our timber frame homes provide unsurpassed Energy Efficiency. *Goshen Timber Frames* has provided the following information:

### *ADVANTAGES OF A TIMBER FRAME HOME:*

**\*\* Beauty:** the vaulted ceilings and exposed beams of a timber frame create warmth and charm in any style, traditional or contemporary.

**\*\*Strength:** the oversized timbers used in building the frame mean that your home will be much stronger and last longer than an ordinary house. Some timber frame structures in Europe and Japan are a thousand years old.

**\*\*Openness & light:** the frame carries all the structural weight of the house, allowing for large expanses of window and open interiors that flow from one room into the next.

**\*\*Energy efficiency:** structural insulated panels (SIP's) wrap the frame, creating an exceptionally tight home with higher than normal R-Values.

## Insulated Panel Systems

Not many years ago a 2 X 4 stick-built house with R-11 fiberglass insulation was considered adequate. Those days are history. Insulation options have greatly improved so that **R-26** walls and **R-40** roofs are easily attainable.

One of the best methods for building a highly energy efficient home is to use an insulated panel system. These may be structural (structural insulated panels are called SIP's) or non-structural. The latter are used to enclose timber frames. SIP's are used for non-timber framed additions in a hybrid home. The panels are constructed of foam insulation – expanded polystyrene (EPS) or polyurethane – sandwiched between two layers of 7/16-inch oriented strand board (OSB). The panels employ a tongue and groove connecting system that forms an interlocking, uninterrupted insulation barrier against heat loss, heat gain or air infiltration.

Insulated panels have proven to be much more energy efficient than stick framed wall and roof systems. In a stick framed wall, the wood studs result in a cold spot at regular intervals, since wood is not a good insulating material and has a R-Value of about 1 per inch. This means that each 2 X 6 stud provides a mere R-6 of insulation. In addition, the fiber glass batts tend to have gaps, to get crimped or compressed, and to loosen around electrical outlets and pipes. These cause drafts and greatly reduce the overall insulating value of the batts. So although the batts may be an R-11 or an R-17, actual whole wall performance will be much lower.

Panels have a continuous foam core that do not allow for drafts, cold spots, and reduced insulation value. As a result, they have much better whole wall performance. They enable you to purchase a smaller HVAC system from the outset, providing immediate savings. You continue to save from 40%-60% on heating and cooling costs, year after year. At the same time, your home will be much cozier and draft-free in the winter and cooler in the summer.

COURTESY OF:

