

Romancing the Home

Whether your interest is in having a new home built, or in architectural history, or simply in country living, the maxim “what was old is

new again” was never more true than in the ancient art of timber frame construction — which has undergone a fascinating metamorphosis.

For thousands of years humans kept their thatched roof homes upright by pushing posts into the ground. The first “technological breakthrough” in home construction, the use of stone foundations and strong, rigid mortise and tenon joints held together by oak pegs, came about 1200 AD.

The beauty of these buildings, still appreciated today, is the large open interior spaces afforded by a strong exterior frame. The large Open Hall was used by everyone on the farm as a dining and general living area. It was open to the thatched roof through which escaped the smoke from a fire. The ground floor was made of beaten earth mixed with clay. Animal blood, or beaten chalk and soured milk, was used as a hardener.

Beyond any remote consideration of sanitation, there was another rub. The openings in these post frame buildings were filled with wattle and daub panels. The wattle was formed by springing oversize staves vertically into slots in the rails and weaving lengths of split wood through them. Then, wet clay with straw, cow hair or cow-dung, (the daub) was thrown against both sides of the wattle and a thin coat of plaster was applied and limewashed. The panels kept the wind out, but were easily smashed and soon spawned the criminal offense we call “breaking and entering.”

During the last few hundred years timber framing became unfashionable among aspiring people, and both the interior and exterior were often completely plastered to hide it — sometimes to the extent that slashes were hacked into the timbers to help the plaster to stick. And, somewhere in the early 1800s, things started to change. In America the need to build fast for a rapidly westward expanding population fueled the transition to what today is known as stick frame construction (you know, studs 16 inches on center and all that). Heavy post and beam engineering was relegated to the barn, where there remained a need for large open spaces.

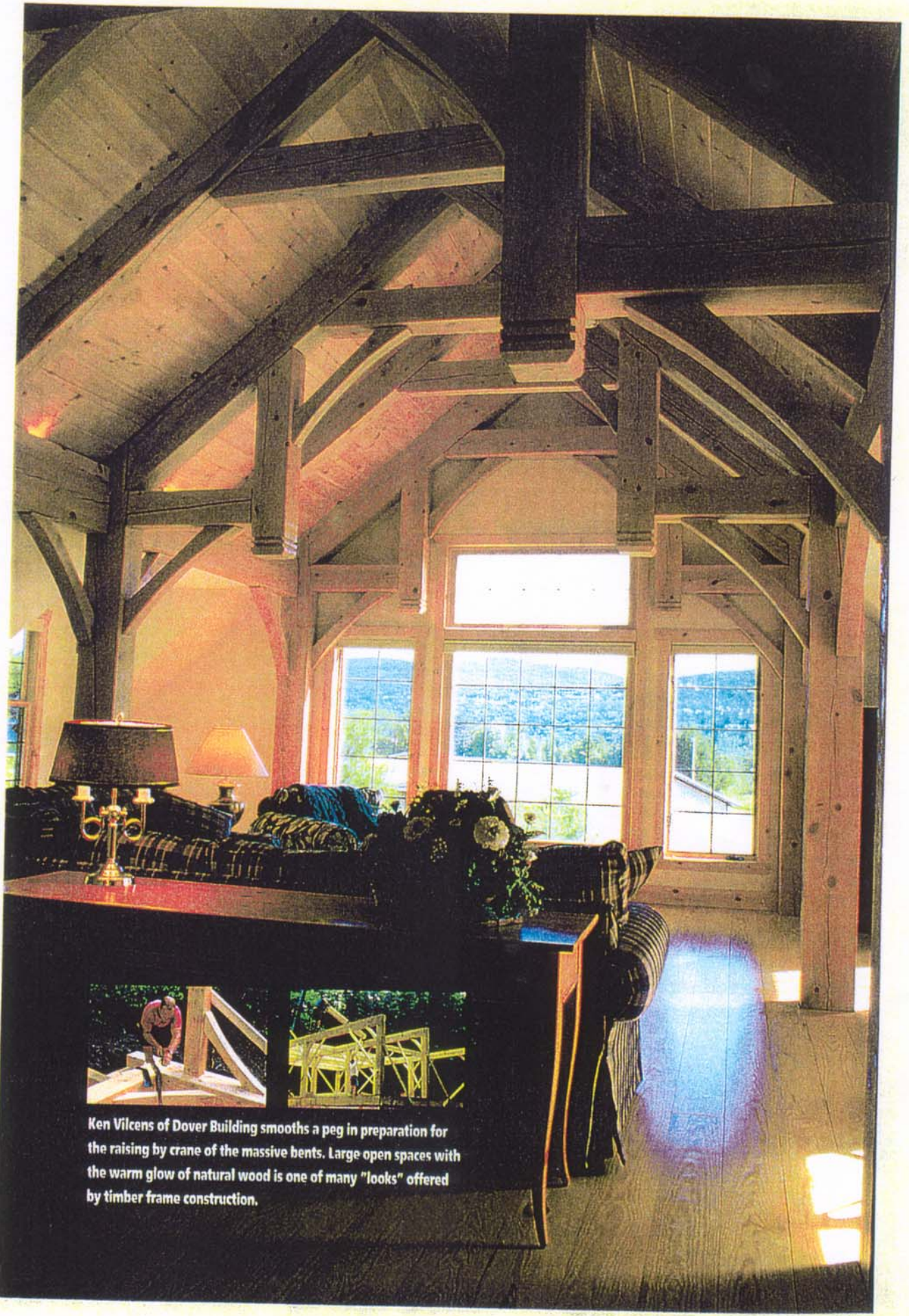
Barns thus kept the timber frame idea alive long enough for people to reconsider. Some folks even began to study barns and old heavy post and beam structures. Today, the warmth of huge wood timbers with sometimes ornately carved supporting members has gained favor among those who enjoy the option of large open living spaces in a dwelling that can look at home in a rural landscape like Southern Vermont. And the recent development of strong, rigid stress skin insulation panels to replace wattle and daub has added to the appeal.

Something old, something new

Down Captain Copeland Road in East Dover, set back in the woods, the hum of a gas generator and whine of a drill blur 20th century technology with the raising of a timber frame



Bob North, III, and Howard Dix employ a mix of modern and traditional tools to fine-fit the joinery of a new timber frame home.



Ken Vilcens of Dover Building smooths a peg in preparation for the raising by crane of the massive bents. Large open spaces with the warm glow of natural wood is one of many "looks" offered by timber frame construction.

home. Three men chisel mortise joints to fit perfectly into 10"x12" and 8"x12" beams, and pound oak pegs. A crane towers above them, ready to raise the heavy pre-cut frames.

As a youth, Ken Vilcens built a pole barn for his parents culminating in an Amish-style raising in one weekend. Thus began his fascination with timber frame construction. Bob North, III, worked for a Colorado firm specializing in custom timber frame buildings. Together they formed Dover Building in late 1985. Howard Dix, crane operator and chairman of the Whitingham School Board, works with them.

The structure is raised in bents first, then in units. The last bent built is the first up. The crane is used because a bent can weigh over a ton — and because of incredible stress in the raising this is a true test of how well the bent is built.

Vilcens, the company's designer, has explored the construction methods and histories of many timber frame structures.

"Structurally, all the support comes from the exoskeleton," explains Dover Building Marketing Director Larry Tollen. "No internal load bearing walls are needed for support — walls you cannot do without in traditional stick frame construction. This results in tremendous open spaces."

The look is different, too. Each beam is chamfered and sanded, exposed beams are hand oiled and rubbed with penetrating rosewood and tongue oils. This slows the drying process and brings out the grain. Hammer beam, king and queen trusses and knee braces can be elegantly decorative. This craftsmanship adds to the resale value of a home, and the air-tight stress skin insulated panels can considerably reduce heating bills.



"There is no better energy efficient building," says realtor Bob North, II. "The advent of stress skin panels is bringing (timber frame construction) back into the limelight."

Stress skin panels generally consist of two exterior skins adhered to a rigid plastic foam core. They come in a variety of sizes and thickness, from two inches to twelve inches thick, and in sizes from the standard four feet by eight feet to eight feet by 24 feet — ideal for exterior walls and roofs of low-rise residential and commercial buildings.

In home building the skins of a panel are commonly plywood and gypsum board. The rigid foam core is usually expanded polystyrene. Panels are light and erected quickly, and any of the usual exterior finishes for walls and roofs can be applied to the sheathing. The strength of a stressed skin panel compares with that of an I-beam — structurally superior to conventional stud frame structures.*

The foam plastic core provides insulation. A 4 1/2 inch thick stress skin panel wall replaces the 2 x 4 stud wall, also 4 1/2 inches thick overall. Both have 3 1/2 inches of insulation, but the panel wall has insulation R-values in the range of 14 to 25. The stud wall with fiberglass batts only has R-values of 11 to 15, and the overall R-value of the stud wall must be downgraded by 15 to 18 percent because there is no insulation in the area taken up by framing.

Urs Joder, of Joder Building Corporation in Londonderry, is keenly interested in old buildings and their restoration. He's been at it for 30 years and about 1/3 of his business is erecting Timber Peg post and beam homes.

"It is a lot easier to control the quality of timber frame insulation than that put between studs, cavities and other complicated spaces of stick framing, where there can be a tremendous amount of leaks," says Joder. "We have really a continuous layer of uninterrupted insulation throughout the house. This matters to me, and we pay extreme attention to it."

He also appreciates the aesthetics of post and beam.

"When you are moving into a rural area, why not an Adirondack cabin ... something to scale, tying more into the natural beauty. Why not use local products such as Vermont slate?"

What was old is new again. For a sample of timber frame building see the Commercial Building on Putney Road, in Brattleboro. It is the largest commercial structure of this type in New England. ~