

Structural Restorations – Tom & Brad Green, Colonial Restorations

We are fortunate to live in New England, which has one of the largest inventories of antique homes in the nation. On Dec. 15 Tom and Brad Green of Colonial restorations (www.cr1981.com) spoke at ASHI about their business in structural restoration and repair of historic timber frame buildings. Timber framing, also called "post-and-beam, is the method of building using joined timbers with joints secured by large wooden pegs. Tom and Brad, a father son team, have been the business since 1981.

From a home inspector perspective, Brad and Tom lead with the notion that in order to diagnose a problem you should first familiarize yourself with the structure. They argue that in order to know what is going on, you need to understand the components and what they do. Their helpful checklist for inspecting post and beam is below:

Starting in the cellar:

- Are the timbers of good size? Are they sagging?
- What is the span of the joists?
- Are the vertical supports adequate? On good footings?
- Sills: Are they original? Are they full size beams? Are they fully supported by an even foundation?
- Are the sills sitting plumb or are they rolling outwards?
- Can you get a probe under the sill towards the lower outside edge?
- Are the sills compressing around the foundation?
- Is the joinery tight between the sill and beams?

First floor:

- Are the posts protruding into the living space? Is it a balloon frame or has part of the post been removed to have square corners?
- How thick are the window jambs? Is it a plank frame?
- Are there indications that the house was built in two or more sections?
- What beams, if any, are exposed? What do they suggest?
- Are the walls spreading? Or racking?
- Do the floors sag? How much?
- Are there cracks in the plaster? Especially diagonally going up from a window or a door.

On the second floor, look for:

- Are sags on the second floor the same as on the first floor?
- Any beams exposed.
- Is it a gunstock post? If it is a gunstock post, does the roof framing follow with principal rafters, small purlins and vertical sheathing?

Finally, in the attic:

- What type of roof structure? Common rafters: are they original or has the house grown in size with a newer roof? Principal rafters with secondary rafters? Principal rafters with mini purlins? How are rafters attached at the ridge line (mortise & tenon, 5 sided ridge pole, flat ridge pole, merely angle cut and nailed)?
- How are the rafters attached at the top plate? Birds mouth, nailed, joined (tenon into tie beam)?
- Is there evidence that the rafters are slipping off the top plate?
- Are the top plates spreading causing a dip in the ridge line?

The Greens paid special attention to sills. We all poke, prod, bang and dig at sills. The Greens pointed out a few interesting things: They said that sills rot on the lower outside edge, thus causing a roll forward as the rot compresses. A visible bulge may be present as a result. They cautioned that from their perspective, the best place to find this kind of rot is deep under the outer sheathing.

Keep these ideas in mind when inspecting one of these carefully crafted homes. And if, or when you find a problem, you know who the experts are to contact, Tom and Brad Green of Colonial Restorations out of Brookfield, Mass. 508-867-4400.

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