Wood Rot!

TIM,

Why does wood rot? I have always understood that wood rot is the enemy of homeowners, but why does some wood rot in the first place?

Newly completed homes seemingly all look the same. The fresh paint and sparkling finishes are remarkably attractive. While they may all look the same in the beginning, homes – just like people – can have beauty that is only skin deep.

Poor construction methods can cause homes to begin a rot/decay process far too soon, while others last for many decades or even centuries.

I have written many articles over the years about the importance of proper building techniques and moisture-prevention methods that stand the test of time, but today we want to focus on the mechanics of wood decay in a bit more detail and hopefully shed light on the "why" behind wood rot in homes.

THE MECHANICS OF ROT

There are a number of different types of decay fungi, all of which rot wood by secreting enzymes or producing chemical reactions that break down the wood's cell walls. Decay becomes apparent when the wood changes color, becoming either darker or lighter than surrounding wood. As decay advances, the wood develops checks and cracks in the discolored area and becomes obviously softer or more brittle than solid wood.

Rot fungi are living organisms that need four things to survive.

- **Food (wood)**
- **Favorable temperatures (above 32°F to around 100°F)**
- **Oxygen**
- **Water**

The latter condition is by far the most important for wood frame buildings: If we remove the exposure to moisture, the rot will stop almost immediately. Therefore, the best way to combat rot is to keep the wood dry.

New wood needs to be at around 28% moisture content before decay fungus can grab hold and start growing. That's very wet, close to saturation in most woods, but it doesn't mean the whole board needs to be completely soaked. A board that remains wet on one side and is continuously exposed to a high moisture content can begin to rot. As the rot advances and breaks down the wet side of the board, more of the board will be exposed to that high moisture content. Eventually, it will rot through.

If the moisture source is removed, the fungus goes dormant below a moisture content of about 22%, and as long as the moisture content is maintained below this level, the wood will not continue to rot. But decay fungus can reactivate and begin growing when the moisture source is reintroduced and content again rises above 22%.

The solution to rot and decay in homes today is simple. If the building is kept dry, the rot will not begin and the structure will remain strong and steadfast against the elements. If we allow a moisture source to creep in, the hungry fungus begins eating away at the wood in our homes and structural failures quickly begin. Fortunately, the solution begins with an experienced builder who is well versed in the study of building science and water infiltration. With the right builder at your side, your new home will continue to look beautiful and serve you and your family for decades or even centuries to come. **BG**

CERTIFIED GREEN PROFESSIONAL™

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