

Regal Home Inspections, LLC

Find of the Week 2/2/2019

If I was to give this week's find a humorous yet descriptive name I might call it, "Severed Ties" or something like that. In the process of home construction, after the foundation is created, the framing contractor builds the frame of the house erecting the beams, joists, studs that make up the walls, etc. Then, not necessarily in this order but the electrical work gets done, plumbing, insulation, etc. Bit by bit the house is built as was done at this location.

When it comes to the framing of the house, generally accepted construction practices include the fact that wall studs (the "2 by 4" that make up the walls) be on 16 inch center. The center of adjacent studs are 16 inches apart. For floor joists, the same, general practice exists. The floor joists (The structural elements that are important to the floor's structural integrity) are also (Nearly always) 16 inches apart measured from the center of one joist to the other. This is generally referred to as, "16 inches on center". An often used phrase.

However, when the plumbers came in to run their drain and waste pipes AFTER the framers did their job, below the location where the plumber wanted to run a vertical pipe existed a joist. The proper practice should be for someone to create what's called a, "Plumber's box" as shown in the adjacent illustration. A plumber's box is a modification of the joist structure and design that creates space for the pipes WITHOUT decreasing the strength or compromising the integrity of the floor's intended structure.



In this house, a joist was not only notched (Which, within certain parameters is allowed) but the joist was severed. Completely cut in half. Now because this was in a crawl space, no one probably never noticed. This particular house had recently undergone an inspection for its sale but that sale fell through. I was told of a couple of other reasons why the previous deal fell through (Roof issues for example) but this severed joist was not stated. A plumber's

box would be easy to have done originally and it's not that difficult to add now. From a home inspection and report writing perspective, because this structural element was

severed, the finding was classified as, in accordance with NJ home inspection standards of practice as a, "Material Defect". It is structural and could compromise the integrity of the structure and safety of the occupants when objectively considered. While not necessarily in this case, a bathtub, for example, could be above this severed joist. A cast iron tub weighs 200 pounds or more. A bathtub with a volume of water that's 2' wide by 5' long by 1.5' deep works out to about 168 gallons which equals about 1300 lbs. Add a 150 pound person inside that tub and now this severed joist is holding up about 1650 pounds. This is how structural failures occur. Too much weight and inadequate structure.

In conclusion, structural elements are necessary. They are there for a reason and the size and type of the structural elements have likely either been engineered for that application or are the basic, design elements as required by construction standards (also know as, "Code"). To correct this defect, a plumber's box should be constructed to re-establish the design intent of the architect or engineer's original construction requirements.