

The Commercial Inspector

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ask the inspector

Q. Why are piggyback trusses used, and what exactly are they?

A. Piggyback trusses are used when the height of a roof on a commercial building requires trusses that exceed the limit allowed by a state or province's transportation department for transport on a truck. Piggyback trusses are too large to be manufactured, shipped and erected in one piece, so the building or truss designer may choose to design trusses in two or more pieces to be assembled at the job site.



Thus, a piggyback wood truss system is generally used for wood-framed buildings with a long span or high pitch. These trusses are engineered and manufactured using metal plate connectors that connect the wood members of the truss. In general terms, a supporting or carrying truss that is topped with a smaller, supported (cap) truss carried directly on top of the supporting truss is often referred to as a piggyback truss assembly.

Correct installation and bracing is very important to the structural integrity of piggyback trusses. Truss and building designers usually have plans or drawings with permanent bracing specifications. Lateral bracing is a common method used in the installation process. Diagonal bracing

snapshots from the field

What's Wrong With This Photo?



The photo above shows the gap between the piggyback trusses and the sheathing laps — approximately 3 inches with no 2x4 connection support on angle chords. In this case, there should be at least one 6-foot-long 2x4 fastened to the side of the angle chords of the trusses. This board should be centered on the gap.

is also needed to keep the lateral bracing from shifting and possibly buckling. In some installations, solid plywood sheathing will be installed to serve as both lateral and diagonal bracing.

maintenance matters

Notching or Cutting Trusses Can Greatly Affect Structural Integrity

Sometimes inexperienced building owners or contractors may cut, core or notch a truss to make room to run plumbing, electrical components, ductwork, sound systems

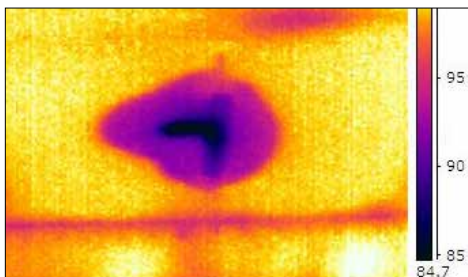
or security systems. Trusses are the major support component within a given structure and typically consist of rafters, posts and struts that support a roof. Simply put, if you notch or cut a truss, you are damaging the structural support of your building. When it comes to roof trusses, you absolutely cannot cut, notch or drill through them.

Structural engineers have found that questions about truss repair are the most frequently asked among structural topics. If you have a truss that is cut or notched, then it is imperative that you contact a structural engineer to properly repair the truss. The engineer will be expensive, but when the structural integrity of your commercial building is in question, it's well worth the cost.

for your information

Uses for Infrared Imaging on Commercial Buildings

Infrared inspections, thermal imaging or thermography allows qualified technicians or inspectors to peer deeper into a building and reveal problems that cannot be seen with the human eye. Using infrared wavelengths, an infrared camera measures the thermal signature of an area and converts the data into a visual image that colorizes heat. Thermographers can scan areas as small as an electrical box or as large as an entire building envelope. Infrared imaging has a variety of uses at a commercial property site:



- » Locate thermal heat loss from missing insulation or air leaks
- » Check temperature distribution
- » Locate radiant heating wires or pipes

- » Locate overheated bearings and gear boxes on equipment and conveyor belt systems
- » Locate leaks on flat and low sloping roofs
- » Locate leaks underground or under concrete
- » Locate moisture infiltration and possible microbial growth

Infrared imaging can be a useful resource to identify potential or existing problems in a commercial building. Your professional NPI commercial building inspector can either perform the infrared inspection for you or put you in contact with a local specialist who offers the service.

did you know?

What Is Pervious Concrete?

Pervious concrete — or porous concrete — pavement is a permeable pavement that serves two purposes: first, as a pavement surface, and second, to improve storm-water management. Pervious concrete is created with narrowly graded coarse aggregate that

is coated in a thin layer of cement paste or mortar. Because pervious concrete is porous, it allows water to penetrate through rather than trapping the water on top of the concrete or allowing it to flood off during times of heavy rains. Pervious concrete offers several benefits:

- » Eliminates untreated storm water and creates zero runoff
- » Provides 20 to 40 years of little or no maintenance for residential and commercial buildings
- » Allows for more effective use of land by preventing the need for expensive storm-water drainage systems and wet pond retention systems
- » Because the color is lighter and the pervious concrete is more reflective, property owners need less lighting, resulting in energy savings
- » Increases driver safety because water is absorbed into the concrete, eliminating pools of water that cause automobiles to hydroplane

Pervious concrete may cost up to 25 percent more than regular concrete for the original installation, but the added benefits actually make it more economical. Commercial building owners will find that pervious concrete requires little to no maintenance other than sweeping or pressure-washing it to remove loose or stuck debris.