



Planning & Development Services

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CONSTRUCTION TIP SHEET #10 Post Frame Buildings

April 2019

This Tip Sheet reflects code requirements of the 2015 International Residential Code (IRC) with
Washington State Energy Code

What is a post frame building?

A post frame building, sometimes referred to as a pole barn, is a structure constructed with wooden posts, usually with concrete cast around the posts for stabilization in lieu of a continuous concrete foundation. The primary difference between a post frame building and a conventionally framed building is the posts are the main support point for the walls and roof. This Tip Sheet outlines some code requirements for non-commercial post frame buildings.

Is engineering required for a post frame building?

Yes, engineering is required. There is no provision in the International Residential Code (IRC) for prescriptive post frame construction.

Can an existing post frame building be converted to a residence?

Yes, it can. However, most post frame buildings are designed to a Category I risk factor, meaning the building design is based on limited occupancy or for animals and not for human habitation. The building would have to be analyzed by an engineer and redesigned to meet a Category II risk factor, the same as a stick-framed house.

May I add a bathroom/plumbing to a post frame building or install rough plumbing for future use?

Plumbing may be installed in a post frame building if it meets the following criteria.

1. A water source must be available and approved
2. A septic system must be approved and installed
3. The bathroom or plumbed area must be insulated per the Washington State Energy Code
4. A heat source must be installed to prevent the plumbing from freezing
5. A fan with a minimum of 50 CFM must be installed and vented to the exterior
6. Additional inspections would be required for:
 - a) Underground plumbing
 - b) Slab insulation
 - c) Rough plumbing, Mechanical
 - d) Insulation

Rough plumbing for future use may be approved once water and septic systems are approved and plans reflect the installation of future plumbing drains. Final construction of a bathroom or other interior improvement would require a separate building permit.

What if I want to install heat in a post frame building?

The building must comply with “low energy” insulation requirements for semi-heated spaces.

Slab Floor	R-10 at perimeter of building and between heated and unheated spaces
Walls	R-19
Ceilings	R -36

What inspections are typically required for a post frame buildings?

1. Post hole inspection(s):
 - a. All post holes (corners, sidewalls and any center supports) must be dug to depth
 - b. If reinforced concrete “punch pads” are required, rebar grids to be tied and placed in holes with minimum 3” clearance from all soil. Inspection for rebar will be the first inspection. After concrete is cast. Place poles in holes and brace to complete post holes inspection.
 - c. If unreinforced concrete “punch pads” are required, install poured concrete, bag of concrete, or concrete block. Alternately, secure posts to provide clearance above soil at bottom of hole
 - d. Posts placed in holes and braced. If posts are not set in place, a special inspection report will be required that certifies the post-to-soil clearances and proper placement of concrete or sand footing material
 - e. If designed for compacted sand footings, the amount of sand equivalent to all hole sizes must be on site (approximately 1 cubic yard per hole)

2. Framing inspection – Poles up, wall girts in place along with trusses and purlins. If there will be no interior wall or ceiling finishes, the framing inspection may be combined with the final inspection.

3. Final inspection –
 - a. Windows
 - b. Doors
 - c. Encapsulated insulation
 - d. Metal/sheathed walls and ceiling
 - e. Truss bracing completed
 - f. Interior slab cast to constrain posts, if required by engineer
 - g. 3’x3’ door landing(s)
 - h. Gutters installed