

Preserved Wood Foundations

Although preserved wood foundations are a relatively new concept for the general public, wood has been used for pilings (support for buildings) and various other underground applications for many years. Engineers, researchers and builders have a great deal of experience with the performance of both treated and untreated wood used in the ground.

In the early 1960s, preserved wood used for foundations was researched heavily, but the concept only gained acceptance in the mid 1970s. Since then, hundreds of thousands of houses have been built on preserved wood foundations. Preserved wood foundations are sometimes called permanent wood foundations or PWFs.

More Than Meets the Eye

To the uninitiated, building a foundation out of wood seems risky since wood, water and soil contact can rot wood, even if the wood is treated. A PWF design is not simply using wood instead of concrete. The design depends on a building system that keeps water away from the foundation. The entire foundation sits on, and is surrounded by, gravel and free-draining soil.

Benefits

The proponents of PWFs claim the following benefits over traditional materials:

- **A dry basement** – basement leakage, dampness and mildew are common in houses with traditional foundations. Since dampness is incompatible with PWFs, the design relies on maintaining dry soil around the foundation.
- **A finished basement** – since PWF walls are wood, finishing the basement is a snap, with insulation placed between the wall studs, and drywall attached directly on top. Try that with concrete!
- **A warmer basement** – PWF is warmer and more energy efficient for two reasons: wood is a better insulator than concrete, the foundation wall studs provide a large cavity for insulation.

Problems

This system does not tolerate poor building practice or inexperienced builders. Strict design and a high level of supervision are required. Problems fall into two general categories:

Dampness due to an inadequate or non-performing drainage system. A specialist should investigate at the first sign of dampness.

Structural problems resulting from soil pressure on the foundation walls. Any evidence of movement or failure of the structure requires a specialist in PWFs.

Inspection

Inspection of a home with a PWF presents special challenges as many of the critical components and details are not visible for inspection. The foundation drainage system is underground so it can't be evaluated and the critical structural details of the foundation are usually concealed behind finished surfaces. If a home inspector finds any evidence of dampness, or of non-performance of the structure, a specialist is required.

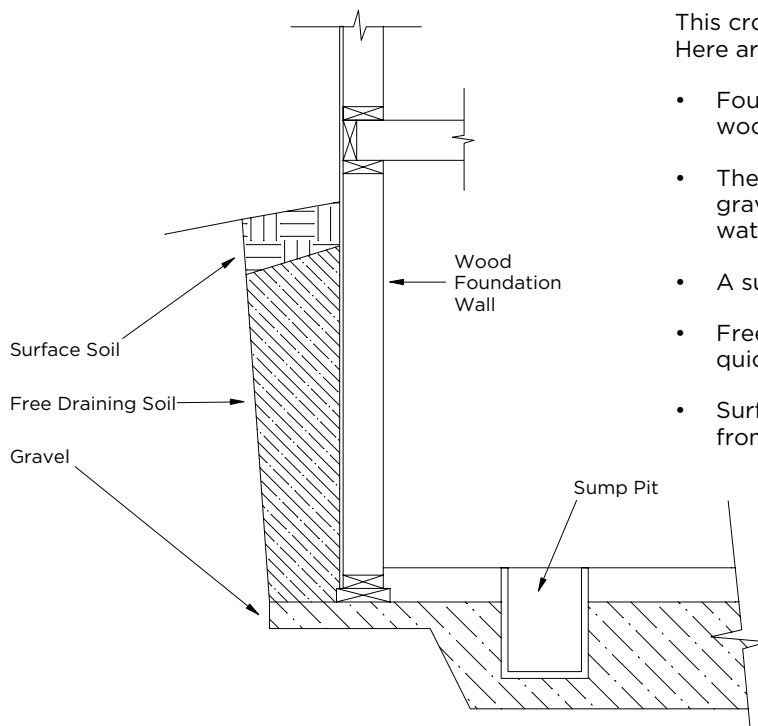
Homeowner Tips

Although a comprehensive drainage system is built right into the design and construction of the PWF, homeowners should still be vigilant and diligent about proper surface water drainage: The surrounding land should slope away from the home; gutters and downspouts should be kept clean and in good repair and should discharge well away from the house. If basement dampness is detected, search for an interior water source such as an air conditioner or a high efficiency furnace. If an inside water source is not found, an expert should be consulted.

Contact a PWF specialist if you notice any of the following: Unusual curves; bows or movement of the foundation or foundation wall; bulges in the basement floor; if the foundation walls are not plumb or the floors are not level.

Any structural modifications to the foundation should be done by a professional.

Treated wood for PWFs has a higher grade treatment; it is not the same as treated wood used for decks and fences. Wood for PWFs will have a stamp with the letters "PWF."



This cross-section shows a simplified PWF. Here are some of the key features:

- Foundation wall is made of preserved wood.
- The entire structure sits on a bed of gravel. The gravel quickly deals with water.
- A sump pit to collect excess water.
- Free draining soil backfill. Water drains quickly to the gravel bed.
- Surface soil sloped to shed water away from the building.