SOME ASPECTS OF MARKETING PRESERVED WOOD FOUNDATIONS

by

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You may hear various figures for the numbers of PWFs in Canada today. I have heard anywhere from 40,000 to over 100,000 PWFs installed to date. I think you should realize that there is no national agency either CMHC or Stats Canada that keeps records on the number of PWFs installed. The numbers bantered around are derived from taking the production of PWF material produced by certified producers and dividing by a fudge factor of the amount of PWF material in a 1,200 square foot home and coming up with the number of PWF basements. If you take those production volumes and divide by that fudge factor you end up with about 80,000 PWFs in Canada. There may be some inaccuracy in the production volumes quoted, and not all PWF material produced ends up in a preserved wood foundation, and also the fudge factor for a 1,200 square foot home may not be realistic, especially today. That comment is not meant to be negative, it is simply to show that in terms of marketing we do not have an accurate handle on the number of PWFs in Canada.

This is the first slide you have seen today of a preserved wood foundation. As you can see, it is a wood frame construction system consisting of studs, top and bottom plates, and plywood sheathing on the outside of the walls. Now I said it was wood frame construction but there is one big difference that is crucial to the long term performance of this system. That is, the wood material has been treated with a preservative to withstand decay and insect attack. Because the foundation is a wood frame system, it allows us to do some neat things and provide some features and benefits that are not available with conventional foundation systems.

A preserved wood foundation can be fabricated in plant or built on site. There are several advantages to fabricating a PWF in the plant, among them being a higher degree of quality control that can be achieved.

In this photo you see the workers installing the certified PWF plywood on top of the treated studs. The advantage of fabricating the PWF in the plant is that workers are working in a controlled environment and, conceivably, can turn out a product with a higher degree of quality.

Once all the panels are fabricated, they are simply placed on a trailer and then trucked to site. Panels are normally numbered so that the builders erect the panels in sequence once on site.

One advantage of PWF construction is that the foundations can be erected quicker. This applies to both types of systems, whether the PWF is prefabricated or built on site. However, even quicker erection can be obtained using prefabricated panels.

One of the construction methods employed with the PWF that increases the time savings in construction is the use of a wood footing. The construction standard for PWFs allows the use of either a concrete footing placed directly on undisturbed soil, or a concrete footing placed on a gravel pad, or a preserved wood footing. The footing is normally the next size larger than the wall stud and is laid directly on top of the gravel pad, butted and nailed.

The use of a wood footing allows the builder to level the excavation, lay out the footings, and level the footings in about one and a half hours. And here you see the perimeter footings for this foundation. This particular foundation was started at 8:00 a.m. that morning, and by about 9:30 all the footings were in place and levelled and ready to accept the walls.

Once the footings are in place the wall panels, in this case prefabricated panels, are carried into place and erected. The panels are simply joined together using a double top-plate system and the foundation walls constructed.

And by about noon, the entire foundation is up. You can see this results in considerable time savings since we have spent only four hours on site at this point.

Another advantage of PWF construction is that the same trades can be used for the entire structure.

This particular builder employs only carpenters who install the foundation and the super-structure of the home.

There is no need to have other trades in constructing the basement, like formers and masonry people.

Another advantage of the preserved wood foundation is all weather construction. I normally like to say all year round construction rather than all weather construction since there are certain days when construction cannot take place. However, the fact that PWFs can be built all year round once the excavation has been dug, allows the builder to take advantage of slower building periods throughout the year.

Preserved wood foundations can be built in the winter season providing the excavation has been complete. You will note the snow in the background in this particular photo as it was taken on December 14th a few years ago.

One of the features of the preserved wood foundation is that it has good drainage. A builder once explained to me that there are three important factors for a wood foundation: the

first is drainage, the second is drainage, and the third is drainage.

The whole key to the long term performance of the preserved wood foundation is the fact that it is well drained. The function of the drainage system of the PWF is to direct and keep water away from the foundation. There are essentially three components to this drainage system. The first is a gravel pad that extends over the entire building area and at least one foot beyond the building line. The standard currently requires a minimum of five inches of gravel as the drainage pad. However, in sites that may be wetter than normal a deeper gravel pad should be used. The function of the gravel pad is essentially to insulate the foundation from the undisturbed soil beneath and provide a water holding capacity so that in the event of an influx of ground water, the water is kept away from the foundation while the sump pumps are evacuating the water. Coupled with the gravel pad is porous, well-draining backfill materials placed against the foundation walls. This material allows water to quickly move down into the gravel pad, rather than rest against the foundation walls.

The second component of the drainage system is the butyl caulking applied to the plywood joints on the outside of the preserved wood foundation. The caulking serves to seal the joints between the plywood panels. Both the horizontal and vertical joints must be caulked.

The third component of the drainage system is a moisture deflector or barrier placed on the outside of the system from the grade level down to the top of the footing. The construction standard specifies at this time a 6 mil polyethylene barrier as the moisture deflector. However, some builders are using an alternate method consisting of a thermal plastic rubber based compound that is rolled onto the foundation in two coats. This will provide the equivalent of a 6 mil polyethylene barrier. The advantage of the roll-on compound is that one coat can be applied in the factory to the prefab panels and the second applied out in the field. The TPR coating also adheres to the plywood and covers the caulked plywood joints. The TPR coating is somewhat more resilient than polyethylene especially at colder temperatures. The function of the moisture deflector is simply to deflect or direct water infiltrating from the top soil away from the foundation. The deflector moves water and keeps water away from the foundation so that it may move quickly down through the porous backfill into the gravel pad and be evacuated by the sump pump.

One benefit to the homeowner of the preserved wood foundation is that it can be easily insulated. Many homeowners are requesting PWFs to be installed unfinished and they will simply finish them themselves.

Because the PWF is a wood frame system, we are left with a wall cavity that can be insulated just as the upper

structure of the home. Many PWFs are built with 2x6 studs which provide a five and one half inch cavity allowing batt insulation to be placed with an R value of R20. Also, since we have the stud cavity here, the wall can be insulated full height, unlike concrete basements which are normally insulated to just two feet below grade. So, for a small incremental cost the homeowner can have a completely insulated basement wall.

The preserved wood foundation can be built with either a conventional four-inch poured concrete slab as a basement floor or can be built using a wood floor system. There are two wood floor systems. The sleeper wood floor, which you see here, is simply a wood joist and plywood sub floor system. The second wood floor system is a suspended floor, which is essentially a sleeper floor system raised off the ground two feet and framed into the wall studs. The advantage of a sleeper floor system is that it provides a warmer floor because of the three and a half inch air cavity beneath the plywood surface. The sleepers are normally spaced five to seven feet on centre allowing the use of 2x4 floor joists to conserve material cost. All the material in the sleeper floor is certified PWF material.

The preserved wood foundation is easily finished. Another advantage to the homeowner who wants to finish the basement himself.

The PWF basement is finished inside just as you would finish any other room of the house. The stud cavity is simply filled with insulation, an air/vapor barrier is placed over top of the studs, and the homeowner's choice of finishing material is applied to the studs. It is normally finished with drywall, solid wood, or wood paneling. Once the room is finished there is no apparent difference between a PWF room and any other room in the house.

All these features combine to produce a liveable lower level with a preserved wood foundation. And that's one advantage of using a PWF: you virtually double the living space in your home. This particular builder has found that by building a home with a thousand and eighty square feet building area and placing the home on a preserved wood foundation, he can offer to the homeowner almost a two thousand square foot living space home at a reasonable price. When you realize that many homes based on conventional basements simply use the lower level as storage, the use of a wood foundation increases your living space and reduces the cost per square foot.

One consideration with a preserved wood foundation is what to do with the part of the PWF that sticks above the ground. You can do as these people have done and simply do nothing. The exterior cladding is brought down over top of the foundation to within eight inches of grade, or right down to grade if the material is pressure treated wood or non-wood material.

Or you can do as these homeowners have and request the foundation to be painted grey. It seems that painting the foundation grey makes it look like concrete and keeps the neighbours happy.

The preserved wood foundation standard allows the use of brick veneer, an important feature in the east which is a large masonry market. Brick veneer can be supported on the main foundation wall or on a separate knee wall constructed outside the main foundation. The standard also allows a full two stories or eighteen feet of brick to be supported on the foundation.

I put this slide in simply to show you that here is a house constructed on a preserved wood foundation and there is nothing strange about it; in fact, if you were driving by this house you probably wouldn't realize it was sitting on a preserved wood foundation.

I would like to make two comments before going on and discussing some of the current issues facing those who are marketing PWF.

First, you have seen a number of the features and benefits of a preserved wood foundation but if I can make one comment on the cost savings normally attributed to a PWF. As with any product or system, when entering the market you must be cost competitive with other systems in the marketplace. Because of this, I think we have tended to sell ourselves short with PWFs, particularly with the cost of PWF material. Having now been active in PWF promotion for a number of years, I think those promoting PWFs realize now that we should not be ashamed, or embarrased, or apologize for the fact that PWFs may cost 10% more or 15% more than conventional foundations. They may, however, be constructed for less than conventional systems. But, we should not be surprised that PWFs may be more expensive since we are offering a quality system. We are providing a high quality living space with many features and benefits that are over and above what can be obtained with conventional foundations. And those of us in marketing have tended to concentrate and emphasize the fact that there can be cost savings with this building system. So, I think that's one thing we should change in marketing PWFs and that is to emphasize cost savings.

The second comment can be simply stated as "be humble." You have just seen many of the advantages of PWF, like its unique drainage system that makes it a warm, dry, liveable space, and sometimes we tend to get caught up with the strengths of the wood foundation and fail to recognize that PWFs cannot or should not be built in every location. When we explain the drainage system, some consumers tend to believe that this will solve all of the problems with their foundation. They explain how they have a high water table and may have flooding in the spring and then want to know if

the PWF system will solve all of this for them. I think in this case we should recognize that it is probably a location where no foundation should be built, because any system will have problems and what the preserved wood foundation system doesn't need now is problems in construction. So in this case, I think we who are marketing PWFs should be humble and simply state that a preserved wood foundation should not be built on this site.

Now for a look at some current issues facing the marketing people.

Even now we are still seeing out in the field preserved wood foundations built with uncertified material. The construction standard published by CSA for PWFs and all the provincial building codes used in Canada specify the use of certified wood foundation material. That is, wood foundation material that has been produced by qualified plants that participate in a quality control program, administered by CSA at the present time. Uncertified PWF material is getting into wood foundations primarily because of lack of education of the homeowner, builder or building official. It is only through increased education that we can keep uncertified material out of foundations.

Something that I am finding more often now is what I will term "Transferred Reputation." You see in this slide a preserved wood foundation 2x4 cut in half. You will note the shell of treatment around the outside, which is pretty good in this case. However, more and more homeowners now are working with ordinary decking and fencing material for their backyard projects and are questioning the treatment.

Some of the material in the marketplace has very little penetration of chemical. When consumers construct their deck and cut material in half, they notice this marginal treatment. They are then transferring this image of pressure treated material to wood foundation material, which of course is produced under more strict conditions.
So one of our tasks is to explain to consumers the difference between PWF material and the ordinary decking and fencing material in the marketplace.

The other issue I will term the "What if." Even though consumers are given information about the long term testing of pressure treated material, and results of accelerated testing, and warranties or claims by the manufacturers, the consumer still has in the back of his mind "What if."
There is still that underlying notion that wood placed in the ground will rot. Again, this can only be overcome through increased education and promotion to the consumers.

In the past couple of years as a result of the EPA decision in the US, the question of toxicity of wood preservatives has been in the limelight. Even though as a result of the RPAR process CCA chemical was given a clean bill of health

along with the treated wood, the press failed to distinguish between the three preservative systems commonly in use today. Only one of those systems, CCA, is permitted in a wood foundation. However, since the press gets wide exposure, consumers were becoming concerned with this toxicity issue. At this time, the whole thing seems to have died down but can be answered satisfactorily to the consumer with supporting scientific evidence to show there is no problem with the use of CCA pressure treated material.

The Canadian Standards Association published a standard for the construction of preserved wood foundations last May of 1983. It is only this year that the first review of the standard will take place. Since the standard has not been revised, there have been considerable changes in the construction practices out in the field by builders using PWFs every day that are not covered in the standard. We hope these changes will be incorporated into the new revised edition of the standard to allow more practical options to the PWF builder.

The last comment about preserved wood foundations is that even though they have been around for 20-25 years there is still a lot more to be learned about PWFs. There are new materials for waterproofing, for example, and other construction practices that must be looked into. It is only with further research into the preserved wood foundation system that we can obtain data to support the claims that we have been making for preserved wood foundations.

Thank you.