PRESERVED WOOD FOUNDATIONS- A BUILDERS PERSPECTIVE

by

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INTRODUCTION

Cano is a multi-faceted company specializing in energy efficient shell construction. Its products include insulated roof systems, insulated exterior wall systems, sound walls, one-hour fire rated partition walls, insulated floor systems and insulated preserved wood foundations.

We have chosen to design and engineer a wood foundation that is structurally capable of supporting two stories of brick, therefore competitive with concrete. It is simple to erect and of course, thermally efficient. In all our designs, we strive hard to eliminate thermal bridging where possible. The process begins as follows:

1. We must choose the basic material for construction. The process starts with the basic ingredient - CSA certified PWF material for subgrade use. In our case, "Greatwood" material, because from a consumer point of view, we wish to offer a transferable 60 year warranty.

Next we must consider design. Important structural areas are the corner details. We want strength, interior and exterior nailing and reduced thermal bridging.
1. Structural Integrity 2. Thermal Performance
3. Simplicity

A very important and often deficient area of wood foundation construction is the window detail. In that our system is a nominal 8" wall, jacks and trimmers are a full 2 x 8, providing substantial lateral resistance. The connection of sill plate to jacks is also critical. In order to give you the benefit of our extensive engineering and testing much more time must be afforded. A precise sequence in construction must take place to maximize the structural effectiveness of the wood foundation. Our wall system, in difference to the conventional method, has been fully tested by recognized institutions to provide exact axial and lateral load capabilities. The strength of a properly constructed wood foundation is truly remarkable.

We have designed simple components consisting of post assemblies which are comprised of expanded polystyrene bonded to either a PWF 2 x 6 and an untreated 1 x 4, or a PWF 2 x 8 and an untreated 1 x 4 which in each case serves as the interior nailer for drywall.

We also manufacture an end post which is used in the corner detail construction or as a trimmer for a window assembly and sill jack. You will note the exterior stud is PWF and the interior stud is KD for cost effectiveness.

Insulation was an important consideration in the design o' a foundation system. By thermal testing, heat loss due to sagging insulation was seen as a problem contributing to an already weak area - the subfloor detail.

As a result, we chose a product which provides the following benefits: good air barrier, high R-value per inch in relation to cost, good vapour retardant, significant contribution to lateral stiffness of wall.

Now that we have an accumulation of materials and technology we are ready to assemble some components.

In the Nascor plant, this is done on a series of assembly tables, whereon the computer designed wall panels are constructed. This enables our company, Cano Structures, to ensure quality materials are combined to produce the best end result in a controlled environment. There are many benefits to this process:

1. quality control
2. dimensional stability
3. reduced site labour
4. ensured code worthiness
5. reduced material waste on site
6. enhanced insulative value
7. accelerated time to shell erection
8. ease of lower level completion

Cano has chosen to include and provide material in its package, well in excess of code requirements. For example, from the onset, Cano has insisted on all stainless steel fastening for the exterior sheathing and stainless steel screws for plate construction. Then we have adopted as standard, 5/8" T & G exterior fir sheathing rather than 1/2" square edge. We find the 5/8" T & G which is 5 ply rather than 4 ply provides a much stiffer construction. We supply the caulking for the installation to ensure the proper materials are used. We provide an electrical groove in the wall, 24" from the floor to ease electrical installation. As a result, most drilling is eliminated as the groove passes behind the 1 x 4 nailer.

Another area of considerable discussion is that of the footings. Two systems are often employed, one being the concrete footing. The other being the wood footing. We allow our customer to make this determination for himself, as a strong bias still exists here. however, we have often run into difficulty with the concrete footing. They are almost never level, requiring substantial shimming which certainly reduces the effectiveness of that footing. The wood footing constructed on a good gravel base is in my opinion a better

combination of materials and certainly is more cost effective. It is our contention that what in effect we are building, is a boat. Backfilling, no matter how carefully performed can and will cause either tearing or at least stretching and weakening of the 6 mil vapour barrier.Therefore, we advocate at least one coat of TPR or Elastomeric, a clear latex coating, approximately 3 mil, which is simply rolled on the plywood to grade. Once this procedure is complete, apply the 6 mil poly to provide another coat of protection and furthermore contribute to desired wicking action which reduces static pressure on the wall system.

Now you have a sound, dry and warm foundation, more resilient than any other foundation made. The beauty of wood is its ability to absorb stresses without structural breakdown. We have many testimonials from customers with Cano foundations who have written us to say that the performance was well beyond their expectations. There is a categoric reduction of heat loss over conventional homes of 35% - 40% irrespective of the upper wall construction. There is no discernable diference in comfort level from upper levels to the foundation in such a home. There is no dampness or coolness in the basement. You actually gain another floor of living space comparable to the main level. Some of our homes are monitored by Ontario Hydro as they have separate meters, and the results are tremendous. One such home in Huntsville, which is over 2,000 sq. ft. in size and two stories, heats for $175.00 - $200.00 per year. These results should be of interest to every homeowner.

It is our contention that the wood foundation, properly built, is the most efficient means of residential construction in the industry today. We also predict a rapid and remarkable growth of this concept, in the Ontario construction scene. Traditionally, the wood foundation has been badly maligned by poor and uninformative media reporting. This is slowly turning around due to the efforts and persistance of treatment manufacturers, such as Timber Specialties.

It is a slowly growing process which is gradually picking up momentum, soon to gain great recognition and prominence.