

Atlantic Post and Beam Construction
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Prefabricated/Modular Timber frame Home / Cottage:

At Atlantic Post and Beam, we offer to custom design and prefabricate post and beam frames as well as the complete shell, which includes the timber frame, and insulated wall and roof panels. Our market includes the Maritime Provinces, as well as a National & International market.

Conventional, prefabricated/modular homes/mobile homes are subject to road and transportation rules and regulations. As a result, modular units are usually narrow and long. There is also low market appreciation and minimum value-added on a conventional, pre-fab home. On the other hand, timber framed structures are considered as the high-end products known for their strength, durability and craftsmanship. Atlantic Post and Beam is proud to present a traditional timber frame package integrated the custom design (without limiting the design to transportation limitations), with modern concepts such as very high energy efficiency, and an environmentally-friendly approach at a moderate price.

Although we offer a couple of pre-designed models, custom designs are our specialty. The unit can be installed over a full basement, on a slab on grade, or on footing tubes. Because a post and beam design has concentrated load at each post location, additional reinforcement under the posts is required, regardless of the type of foundation.

We have two different approaches for the assembly:

1) Prefabricated / Dis-Assembled Unit

If the project is very elaborate, large, and long distances are involved, we ship all pre-cut / prefabricated components of the frame and / or shell to the job site. Then, either our crew or the owner/local contractor will assemble the unit.

2) Prefabricated Modular Unit

If the project is simple, we prefabricate / assemble the unit to a couple of modules in the shop. The modules will be shipped to be fastened together at the job site. The size and number of the modules will be determined by the size of the project and transportation limits.

Prefabricated / Dis-Assembled Unit

All timber frame and/or shell components are pre-manufactured and shipped to the project site for assembly.

The timber frame can be made of local species, such as pine, spruce, tamarack, etc. Western species such as Douglas Fir and Red Cedar are available as options.

We like to integrate a variety of wood species to enhance natural color contrasts at an economical price.

Usually for residential designs, the strength of most wood species satisfies the design criteria for posts.

However, for applications where there is deflection stress such as for beams, floor joists, and roof rafters, the choices are mostly limited to spruce and/or pine, plus some western species.

The timbers are usually air-dried (kiln-dried timber is available as an option).

The type of joinery can be either hidden metal connectors or traditional mortise and tenon connections.

Hidden metal connectors are the most economical with a high degree of engineering reliability without compromising the aesthetics of traditional timber framing.

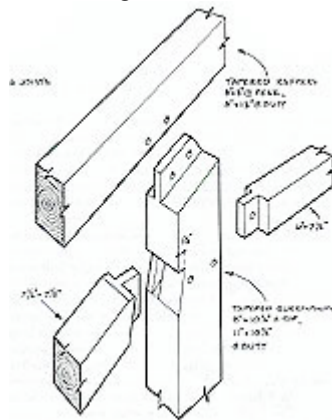


Figure 1- Hidden metal connector



Figure 2-Traditional tenon & Mortise connection

Insulated Wall and Roof Panels:

At Atlantic Post and Beam Construction, we apply polyurethane foam as the preferred insulation material. It is not the cheapest product on the market, but it is one of the most efficient insulation materials. Polyurethane foam has been used historically to insulate refrigerators, cold / hot chambers, and commercial structure (roofing).

The R-value per inch of polyurethane foam is 7 compared to 3.5 for fiberglass batts. Our panels also have a layer of aluminum foil to reflect heat back into the home and prevent any potential “off gassing” from the foam. The overall panel works as a system to reduce conductivity as well as to reflect heat.

We are registered as R-2000 builders. If the windows and doors of the project are installed by us or another qualified contractor, we guarantee certification of the unit under the R-2000 classification.

Wall panels:

Our wall design is a hybrid between the SIP panel and the conventional, studded wall. This design enables us to offer a highly insulated wall without any additional thickness. Also, the design provides a cavity to host wiring and even plumbing via the outside wall. Therefore, access and the process for passing wiring and plumbing through the panels is similar to the procedure used for conventional studded walls but without the necessity of punching through the vapor barrier.

The wall panel profile from the outside to the inside consists of house-wrap, sheathing, insulation, and studs. Exterior siding and interior finishing are not included.

The R-value of the wall panel for residential projects starts from R-25. Additional R-value is available as an option.



Figure 3-Assembled wall panel view from inside. Corner panel is one continuous unite to enhance the detail for the insulation and sealing.

Roof panels:

Roof panels consist of three layers:

1) Exposed ceiling: usually consists of V-matched pine T&G board. Other options such as different wood species (profiled, kiln dried, etc.) or drywall, are available.

2) Insulation: 1/2 inch of bubble wrap with aluminum-faced foil, and polyurethane foam. The basic R-value for residential projects starts from R-40. Additional R-value is available as an option.

3) Strapping: will be fastened parallel to the rafters. The function of this layer of strapping is to provide fastening for the insulation as well as to provide an air space for ventilation.

To eliminate any thermal bridging from the inside of the house to the outside, and to prevent condensation and fungus activity, none of the timber frame components (beams or rafters) penetrate the house envelope. This layer of strapping extends beyond the roof edge to provide an overhang and also to provide a base to establish the soffits without compromising the integrity and seal of the envelope.



Figure 4 - Roof panel, inside view (ceiling)

Components of the Modular Unit:

Modular units are suitable when the client wants to have a rapid turn-key project with a relatively simple design. Historically there has not been great market appreciation on mini / modular homes, mostly due to their limitations, despite the fact that they can be manufactured in a factory in a controlled environment. Due to our custom design ability, our modular packages are very flexible. A modular design can have an insulated floor installed over blocks or tubes. Also, modular designs can be manufactured to suit on-grade slabs or full basements. The timber frame, insulated wall and roof panel are identical to our prefabricated –disassembled design.

The number of module for each project will be determine as function of the distance to the site, and level of finishing. For example our 30 X30 designs for a key-turn unit, the main floor is divided into two modules of 12x30 and the loft is one module of 16x30. Each module has one sub panel for electricity and plumbing. After shipping to the project site, a 6-foot bridge should be built at the site. This section will have the main electrical panel. Sub panels from each module will be connected to the main panel.

Our package can be shipped to the site at three different levels of finishing:

1) **Shell:** An insulated shell including the timber frame, insulated wall and roof panels including finished ceilings (with T&G pine board or drywall).

2) **Water Tight Shell:** An insulated shell including the timber frame, plus exterior finishing (doors, windows, roofing, and siding).

3) **Key Turn:** A complete package including the timber frame, interior/exterior finishing, kitchen cabinetry, wiring, and plumbing.

In the case of the complete, prefabricated, modular package, which includes wiring and plumbing, each module will have one sub-panel. The sub-panels will be connected at the job site to the main panel.

Pricing

The final price would vary as a function of the selected wooden species for timber frame, type of joinery, the level of finishing (sanding and varnishing) on the frame, the type of interior/exterior finishing, and the type of kitchen cabinetry and plumbing fixtures desired. However, following are the range of price for year 2009.

Our pricing is based on the square footage of the main floor. For example, if a project has a main floor of 1000 sq. ft. with a 500 sq. ft. loft, multiply the price per sq. ft. by the surface of the main floor only. The loft and timber frame stair way with log railing will be considered as an extra. (about \$15 per sq. ft. of the loft.)

*An insulated shell (timber frame, insulated wall and roof) would be about \$85 per square foot (main floor), shipping and assembly (through greater Fredericton) included.

*An insulated shell with finished exterior (siding of wooden clapboard, coloured metal roofing, shop-made wooden slab doors, and low-E Argon vinyl windows) would start at about \$110 per square foot (main floor), of course depending on the type of windows, siding and roofing selected.

*A complete package (insulated shell with finished exterior as above, drywall, wooden T&G interior finishing, kitchen/bath cabinetry (shop made, Shaker style), plumbing and wiring, and medium-priced faucets and plumbing fixtures (based on the off-the-shelf price from the local hardware store), would start from \$135.00 per sq.ft. (main floor), depending on the different options selected.