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# ABOUT YOUR HOUSE

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## LOG HOMES—FREQUENTLY ASKED QUESTIONS

Log homes are becoming more and more popular everywhere in Canada. They are attractive, a reminder of our heritage and—with modern design and building methods—comfortable, efficient and healthy.

There are some unique design and building considerations about log home. Here are frequently asked questions about log homes and CMHC's answers.

**Question:** Can I design my own log home or should I hire a professional?

**Answer:** There's lots you can do to save time and money designing your log house. Remember, though: you cannot convert plans for a conventional frame house to a log house without some help from a log home contractor.

To start, list some of the things you want and need in your log home—and the things you don't want. Try sketching these ideas on paper. Spend some time on the building site. Take your plans, tape measure, stakes and ribbon. Stake out your home's design. You will be surprised how many changes you make—changes such as revising the floor design, having certain rooms catch the

sun better or changing the view from the kitchen window. When you feel that your ideas are firm and you have a rough plan of what you want, you are ready to talk to a qualified log home contractor or architect.

**Question:** What do I look for in a log home contractor or dealer, and what are some of the questions I should ask?

**Answer:** Look around and take time to inspect the contractor's previous work. Ask for and study the contractor or dealer's portfolio. Ask the contractor for a list of previous clients you can call or visit.

### Here are some questions you should ask.

- How many years of log-building experience does the contractor have? Ask for a portfolio and references so you can look at previous work.
- Does the contractor provide professional design services? Some log home builders have specific designs which can incorporate some of your design ideas. If the contractor does not offer design services, ask the

contractor to recommend a qualified architect or draftsman who has worked on log homes. Take the time to research costs. Make sure you feel comfortable with the person you hire to do your design. It is important to have your ideas and concerns addressed.

- What type of log homes does the contractor build or specialize in—for example, scribe-fitted, chink-style or machine-made? Your selection is really a matter of personal preference. Hand-scribed logs have their natural taper and keep the natural characteristics of the logs. Machine-made logs usually have no taper, are a more uniform size and have even joinery in the corners. A chink-style home is adaptable to both methods of building and adds a distinctive look to a log home. There are many examples available of each type of home in various publications; research these to find the type that appeals to you.



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- Is the contractor using natural or lathed logs? Again this is a matter of your preference. Lathed logs are usually taken to a uniform diameter and construction consists of shortened pieces fitted together. Natural, scribed logs have their natural taper and are kept at their full length. Natural log-home construction tends to cost more than lathed-log construction.
- Does the contractor use green or seasoned logs? If the contractor uses seasoned logs, how long are they seasoned? Seasoned wood should be stored for at least one year. It usually gives a tighter-fitting log home because the logs are less likely to shrink, move or twist. Homes built with seasoned logs generally cost more because of the time and cost of storing the logs, and the extra effort it takes the contractor to work with hardened wood. Green wood shortens construction time and cuts costs. A properly built green wood home can be just as good as a home built with seasoned wood.

**Question:** Can a log home be built anywhere and in any climate, or are there some regions where a log home is impractical or too expensive to build?

**Answer:** You can build a log home in any region or environment. The obstacles are the obvious expense of building in an area where logs are not a natural resource and have to be shipped a long way. Some areas of the world are known for wood-eating insects and fungal growth. Advances in environmentally friendly wood protectors and fungicides make it possible to build a log home anywhere in the world. You should use finishing

and maintenance products recommended for your climate and follow the builder's maintenance schedule.

**Question:** How does the cost of building a log home compare to the cost of building a conventional frame house?

**Answer:** A straightforward log home will usually cost 5 to 50 per cent more. The difference is the higher labour and materials costs for a log home. This estimate is reasonably true across Canada. The cost can fluctuate if you are building in a lightly forested area and have to ship logs to the building site. Frequently, the cost for a log home is higher because of custom features, such as stairways, upper and lower decks, dormers and so on. One way to keep costs down is for the owner to help with construction.

**Question:** What should I look for in a building site?

**Answer:** Look for the same things you'd look for in choosing a site for a conventional house. An ideal site has good natural drainage and good soil depth. The more southern exposure, the better it is for solar design. Your home does not have to be built square or at a 90 degree angle to the road or street. Plan to take advantage of natural sunlight.

**Question:** How long does the construction of a log home with an average number of bedrooms compare to a similar conventional frame house?

**Answer:** If both floor plans are the same and the log home has no special design features, construction

time is about the same. The move-in date may be a couple of weeks longer for the log home. Most log houses are built off-site, then transferred to the owner's property. Construction time can be cut if the property dries quickly in spring and if the foundation is already in place. Timing will also depend on your project manager—is he or she well-prepared and organized?—and if the subtrades can complete their work on schedule.

**Question:** What are the differences in the corner systems of a log house?

**Answer:** A log home should have a corner system with a tight fit that allows good drainage. The traditional hand-built log home can use a variety of good-draining, strong corner notches such as round, saddle, Scandinavian, or scarf, to name a few. With the use of machine-milled logs or tongue and groove square timbers, a builder has many options for notches. One of the strongest corners is called a dovetail joint. It is frequently used in eastern Canada, where building lots are often small and there is a shortage of long logs. The most energy-efficient corner is insulated and scribed, then sealed with gaskets, foam, or chinking. Some types of notches are not self-draining and need special sealants and gaskets. You may find that your roof system requires larger overhangs than conventional houses to help protect the exterior walls of your home. Make sure that you do some research on the corner systems available for your house design. Check with your builder on proper maintenance of the corners.

**Question:** What problems will I encounter with shrinkage and settling of logs?

**Answer:** Logs are living organisms and even when dried for years will move slightly as they take in moisture from the air outside. There should be few shrinkage problems if the builder and subtrades are experienced in log-home construction. If a contractor uses 19 to 38 mm (3/4 in. to 1 1/2 in.) diameter wood dowels through the logs, the walls will settle straight down. Another method is through-bolting. These are spring bolts that retain constant pressure on the log walls for even settling. It is very important that the builder leave ample space above the windows and doors and that the doors and windows are installed correctly with good keyway work. If subtrades are not knowledgeable about log homes, settling problems can occur. Problems can come from kitchen cabinets attached to log walls improperly, frame walls nailed to solid log walls or no slippage joints placed on top of frame walls.

**Question:** How do I protect my log home from moisture, insects and fungi?

**Answer:** The two most important protections are adequate roof overhangs and eavestroughs. Insects and fungi prefer damp wood, so it is very important to keep your wood dry. As well, the finish treatment of the logs helps prevent decay, insects and fungi. Applying finish requires repeat treatments. The finish should be high-quality, allow the wood to breathe and water repellent. Don't try to save on exterior finishes. They keep your log home protected and the wood looking good. There are many

environmentally safe products available from small, specialized companies.

**Question:** How often will I have to refinish the exterior and the interior of my home?

**Answer:** Routine maintenance is essential in keeping a log home as efficient as possible and in preserving its natural beauty. The amount of sun, rain and wind determine when you should refinish the logs on your home. Depending on the type of sealant that was used you should consider refinishing and sealing every three to five years. Inspect your logs for any large checks or cracks that catch water. Seal them to prevent premature rot and decay. Regular exterior maintenance avoids the very high cost of removing all signs of mildew, scaled finishes and decaying wood. Interior finishes can easily last 10 years, or longer, depending on the quality of the original finish. Water-based urethane—similar to hardwood floor finish—is frequently used to maintain the interiors of wood homes.

**Question:** How energy efficient is a log home and can you use any type of heating system?

**Answer:** Design and construction methods (size of logs, type of joining and methods of sealing joints), siting and maintenance all affect energy efficiency. Proper design is one key to energy efficiency in any home. Lots of windows, doors and skylights raise utility bills, unless you use proven solar design and excellent glazings. For instance, north-facing glass is usually a major loser of heat. Airtightness is also important. Proper sealing of corners and

roof intersections is critical, especially with cathedral ceilings. Log homes with many corners, joints, and roof angles can consume more energy than simpler designs. A high-quality roof package is important for energy efficiency and comfort. A well-built log home also has energy conservation benefits of thermal mass. Thermal mass effects are where materials absorb, store, and slowly release heat over time. Walls and floors with heavy construction, such as concrete or logs, do this well. Thermal mass effects occur best with logs in their natural, large, round state. Thick natural logs also are reasonably good insulation. There have been several studies on the effects of thermal mass and resulting energy savings. While it is clear that high mass buildings may operate more efficiently in moderate weather (spring and fall), there is no consensus yet on whether thermal mass will save you money in the winter months. Any type of heating system will work well in a log home.

**Question:** Will there be difficulties or special circumstances installing plumbing, electricity and heating?

**Answer:** If you build a two-storey log home with a bathroom upstairs, you will need slippage joints or looped piping to compensate for your home's settling of 50 to 150 mm (two to six in.). Avoid electrical wiring as much as possible through the full height of the log walls. Outlets can be installed in walls but wall outlets are more labour intensive—and expensive—than floor outlets. Attach kitchen cabinets to a sub-frame wall against the log wall and only at the top. If they are anchored

anywhere else, strategically place slippage slots. If you duct forced-air heat upstairs, the system has to compensate for settling of the vertical ductwork.

**Question:** What materials and labor are not provided by a log home contractor?

**Answer:** Many log homes are constructed through to the "lockup" stage or log shell. The subtrades then finish the shell to the designer's specifications and the owner's satisfaction. However, most builders who specialize in log homes should have no problem in overseeing all stages of construction, if that's what you want.

**Question:** What are some of the benefits of owning a log home?

**Answer:** Log homes can have a lower environmental impact than conventional houses, if they are built using local materials. Some people prefer the air quality of a log house, as most of the materials in the house are natural. However, others may find emissions from wood products and wood finishes as objectionable as the emissions from conventional new housing.

**Question:** Can we expand, renovate or modify our log home?

**Answer:** Caution is advised if attaching a new log structure to an older one because a new log addition will shrink and move relative to the existing structure. The renovation contractor should specialize in log homes.

**Question:** What recent advances have improved the quality and workmanship of log homes?

**Answer:** There have been advances in three fields.

1. New exterior finishes allow the logs to breathe properly. You apply these finishes to seasoned and unseasoned logs.
2. Log chinking compounds that stop most cold air filtration and heat loss when they are properly applied. This has increased the energy efficiency of log homes. Unavailable until 20 years ago,
3. Tools, equipment and knowledge have improved in the last 20 years. Both hand-built and machine-built homes have benefited from the advancements in new insulating methods, notch technology, gasket materials, pegging and through-bolting.

these new compounds adhere to wood incredibly well. They last 15 years or longer. They come in a variety of shades and are environmentally friendly, water-soluble, and very flexible, accommodating shrinking and settling of timber.

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