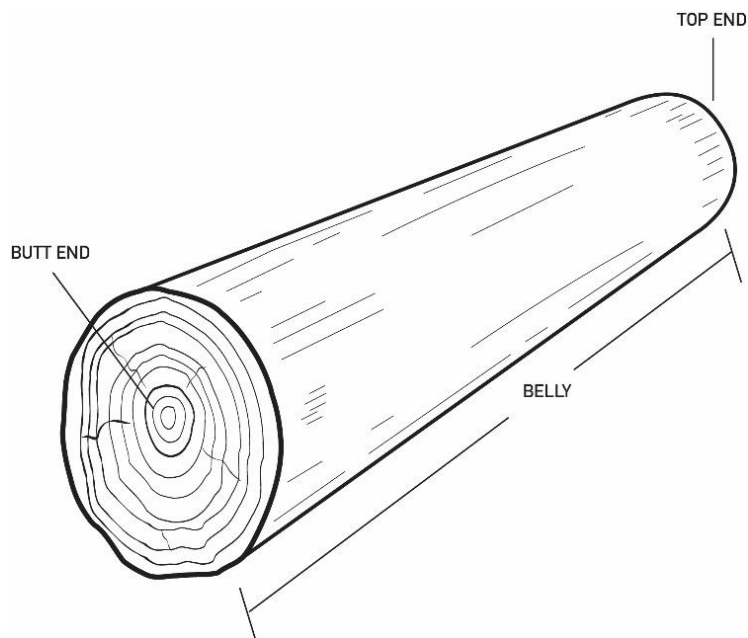


## Material Choices

### It's Time to Get Your Logs...or Are They Timbers?

The logs used to construct a dovetail building are traditionally flattened on at least 2 sides, the interior and exterior faces. The narrower top and bottom faces of the log can be left with the natural live edge and the taper remaining along their length, or they can be sawn on all four sides to a uniform dimension. If the live edge and natural taper is left on the material it would still be considered a log. If sawn on all four sides the piece would technically be referred to as a timber.

The use of the word log and timber will be interchanged in this course when referring to building the walls.



The larger end of a log is referred to as the butt, the smaller end is the top. The difference in size from butt to top on the same log is referred to as the taper. Once the log is in the wall, the horizontal edge along the bottom is referred to as the belly.

The majority of the instruction and processes described in this course focuses on using material that is sawn on all four sides to a common dimension. There are several reasons for this; a main reason being that it is easier to learn and perfect the many steps, procedures and skills necessary to build with dovetail joints while using uniform, repeating sized timber. As well, it is much easier to locate and order uniform sized timber.

I have learned over the years that having flat, parallel faces on the top and bottom faces of the wall timbers, resulting in an even chink gap between the logs has its significant advantages as opposed to the varying gaps of live edge logs.

A wall with uniform chink gaps between the length of two flatted timbers provides the best end result regarding even load transfer through the wall as the logs dry. I have built many live edge dovetail log buildings and they do have an organic appeal as the logs vary in size and show their natural taper, but the rounded top and bottom sides of the logs result in a less supportive face.

**Tapered Timber** We have developed a system of using tapered timbers for our custom dovetail log homes. This is simply a timber that is sawn on all four sides but still grows in size from butt to top. This allows us to maximize the amount of gain from each timber. By alternating the direction of the butts and tops the wall is kept level as it grows. You can do this if you are milling your own timbers but most mills may not want to bother with sawing tapered timber. It is recommended to master the dovetail system with dimensional timber before moving onto building with varying size and tapered logs. **This course will focus on the use of dimensional timber.**

#### Timber Size

The timber size that you choose for your project will depend on several factors: the size of the building, the logs available, the finished wall height desired, personal preference, your means for moving the logs, the climactic zone/amount of r value needed, the intended use of the building, and of course, your budget. Use a timber dimension that is **taller than its width**. This will result in a traditional looking log wall and will allow for ample log faces to layout the tails. The best practice is to use the largest logs that you are able to depending on your personal situation.

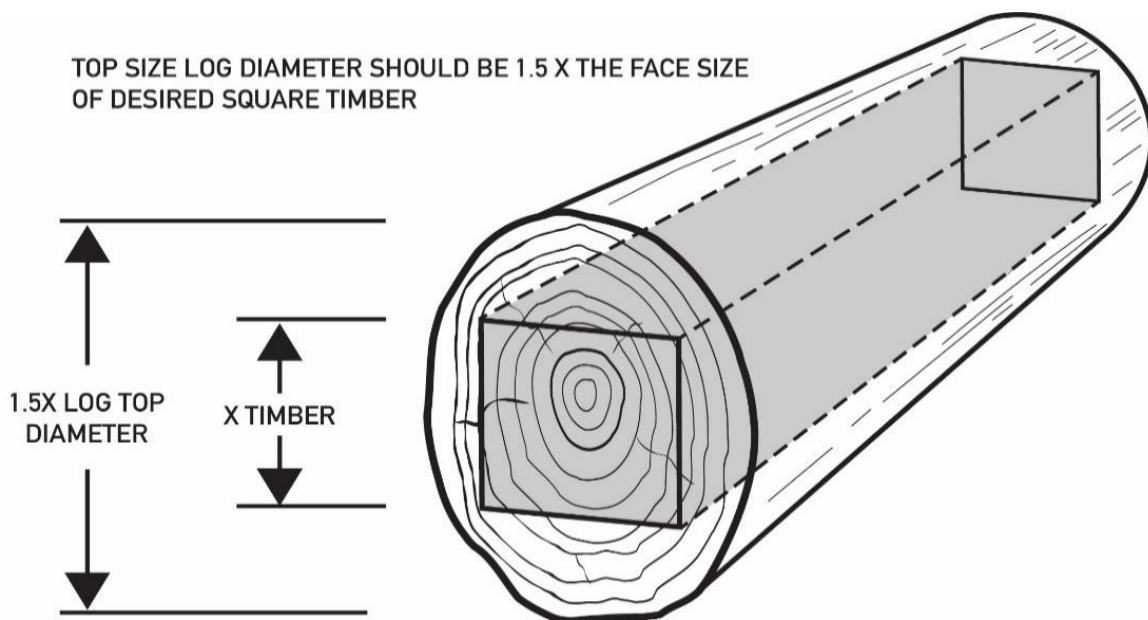


Dave with some big timbers.

Our coarse plans specify 8"x12" timbers for wall logs. This is a good, commonly available size.



- *When deciding on what species of wood to use it is recommended to prioritize good quality, nicely sized, and readily available wood instead of insisting on a particular species of wood while disregarding quality and other important factors. Most softwood species are good options for building. Fir, Cedar, Spruce and Pine are the most common types of wood used for building logs.*



EXAMPLE : 8" SQUARE TIMBER WOULD REQUIRE A 12" TOP DIAMETER RAW LOG

If a rectangular timber is required, the minimum top end log diameter size should be 1.5 times the average of the 2 face dimensions. For Example: an 8x12 timber would require  $1.5 \times 10" = 15"$  (10 being the average of the 8" and 12" faces).

## Face Finish Options

Once you have chosen the species of logs that you are going to use, the size of timber you are going to build your walls with, and whether you are going to purchase raw logs to mill yourself or buy timbers direct from a mill, you will need to decide what type of face finish you are going to want on your wall logs. Typical face finish options would be band sawn, circular sawn, planed, torched and hewn.

- Band sawn and circular sawn finishes refer to which type of mill was used to saw the timber. A bandsaw mill will produce a timber with a generally smoother face finish than a circular saw mill. The circular sawmill will produce a highly textured, more rustic face surface that will appeal to some.
- A planed timber will provide the smoothest most refined finish, but will be significantly more costly as it adds another step to the milling process.
- Torched and brushed timber refers to the process of scorching the outer surface of the timber with a torch, then removing the charred remains from the surface with a wire brush or electric brush sander. The act of torching the timber helps to seal the pores of the wood making it more weather resistant. It gives the timber a weathered, worn appearance as the grain lines of the log are significantly highlighted during the process.



Torched timber seals the pores of the wood and highlights the grain lines in the timber.

- If a traditional log cabin look is desired, then hewing the faces of the timbers with a broad axe may be preferred. Hewing the surfaces of the timbers is quite labour intensive and requires a large investment of time and energy. The result however is a very unique building that reminds us of much earlier days.



Freshly hewn logs create a very traditional log cabin appearance.

You may choose to have a different face finish on the exterior and the interior of the building. A more rustic traditional finish may be desired on the exterior of the building while a more polished or refined look may be preferred for the interior.

### Proper Timber Storage

Your timbers, once milled, should be stored in a manner that shelters them from the weather while still allowing adequate air flow between each timber. A tarp covering the top surface of the pile is good practice, but do not tightly wrap the whole log stack as it will not be able to breathe and will trap moisture in as the logs try to dry.

Ensure that your timbers are sitting on dunnage that keeps them out of contact with the ground. Each layer of timber should have stickers between them that allows adequate air flow to move amongst the pile. Do not stack your timbers so that they are tightly bunched together, ensure that the faces of the timbers are not contacting each other.



Properly stacked timbers with stickers between layers for air flow.

## Free of Heart vs Boxed Heart Timbers

**Free of Heart Centre** (FOHC) timbers are milled from large enough logs that allow the entire timber to be sawn from an area outside of the centre point of the log. FOHC logs are typically more stable as they dry and are prone to less checking. The amount and size of timbers required to build a full dovetail log shell makes the option of FOHC timbers far too costly for most budgets. We reserve the free of heart timbers for the smaller dimension members like the loft floor joists and support posts.

**Boxed Heart** timbers are sawn to contain the heart of the log within the four faces of the timber. The heart or pith of the log should not visibly show itself on any face of the timber.



Free of heart centre (left) and boxed heart (right) timbers.

Watch [Video 4](#) to see further explanations of Material Choices.