

Design Bulletin Species Selection

When preparing to build a heavy timber system, one of the first and most important decisions to make is wood species selection. Different species of wood work better in different environments. Selecting the proper timber species is essential to creating the ideal timber solution for your project. Here are a few timber species and their characteristics that are most commonly used in designs by Harmony Timberworks:

Douglas Fir

Pros

- Cost effective
- Machine friendly
- Readily available in many sizes and grades
- Strong
- Less prone to checking & twisting than other species

Cons

- Not rot resistant

Douglas Fir is used more often than any other timber species at Harmony Timberworks. Douglas Fir offers a variety of different grade selections and sizes, that fits the needs of many project configurations. Douglas Fir is not recommended for use on exposed exterior applications unless treated with an appropriate weatherproof coating, such as Sikksens. Local building code officials should be consulted prior to selecting Douglas Fir for exterior use.

Western Red Cedar

Pros

- Rot resistant
- Lightweight
- Machine friendly

Cons

- Not as strong
- Not as available in larger sizes

Western Red Cedar is recognized for its superior performance in exterior projects. Cedar has natural rot resistance, which allows for a timber system to be used in an exterior application without the use of Pressure Treated lumber. Time to acquire Cedar can be considerable when very large dimensions are required. Cedar has a higher cost than Fir, however this species is just as machine-friendly as Douglas Fir, and will not add shop labor costs, making Cedar a wise choice for exterior use.



White Oak

Pros

- Distinctive beauty
- Strong
- Some rot resistance

Cons

- Heavy
- Not as machine friendly
- Conflict with untreated steel
- Checking & twisting
- Not available in FOHC

White Oak has comparable strength properties to that of Douglas Fir. However, Oak has a look all its own. Oak timbers are commercially less available and have a slightly higher cost than Fir. Oak is noticeably heavier than most timber species. Added weight and the effects of its tannic acid on our machinery give Oak added shop cost. The tannic acid in Oak also means that careful consideration must be taken regarding steel joinery. Tannic Acid will deteriorate and rust untreated steel. Oak, upon contact with untreated steel will discolor quickly and considerably.

White Pine

Pros

- Low Material Cost
- Availability
- Structurally stable (very little checking & twisting)

Cons

- Not as strong
- Not as machine friendly
- Not available in FOHC
- Availability of structurally graded timbers

White Pine has one of the lowest costs per board foot of all timber species that we cut at Harmony Timberworks. White Pine is also readily available. White pine has less strength and is not as machine friendly as Fir. In addition, the plentiful sap of White Pine will require a bit more shop time and will result in added costs. White pine is recommended for retrofit timber systems.



Yellow Pine

Pros

- Very Strong

Cons

- Not as machine friendly
- High sap content
- Not as available in larger sizes
- Not available in FOHC
- Checking & twisting

Yellow Pine is extremely strong. In some cases, it is able to resist the same loading as that of Douglas Fir. Yellow Pine timbers typically have high sap content. Structurally, this sap has no impact on the timber system. This sap gums up machinery and tooling leading to additional shop time and cost. In addition, Yellow Pine has a tendency to grow mold if it has not been kiln dried. We suggest kiln drying to minimize this characteristic when working with Yellow Pine.

The species we have just reviewed are a few of the species we can cut at Harmony Timberworks. Please keep in mind that species selection is one of the most important decisions you will make for your timber project. Each selection should be based on location, application, loading, timeframe, aesthetics and cost.

In conclusion, the value of your timber system should not be measured solely by cost, but also as a measure strength, beauty, and longevity.

