

Case Study

Partner: Premium doors & windows manufacturer, Gurugram

Project: Sliding Doors and Windows



**Canadian
Wood**

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Solid wooden door made in yellow cedar with a brushed effect in dark stain

Canadian Wood species:
The fine art of working with wood

Manufacturer profile:

Setup in the year 2011 at Gurugram, the manufacturer produces timber window and door systems to the high end luxury segment in India. Systems that overcome the traditional issues associated with wooden systems like warping, jamming, lack of weather, sound, heat and dust proofing, termite attack etc. They achieved this by choosing naturally termite resistant wood species from around the globe. They further engineer the wood to combat warping and marry it with modern glass, sealing and hardware technologies to create a product that not just looks beautiful and rich but also supremely functional. System types include casement windows and doors, tilt & turn windows, lift and slide windows and doors, slide and fold doors, louvered windows and solid wood doors.

The manufacturer has one-of-its-kind facility in the country to produce windows and door systems in engineered wood with modern design and hardware, They have developed the capability to produce large systems earlier considered difficult in wood.

Challenge

Wood species used for windows and doors application need to meet a very demanding standard. Since the systems are exposed to internal environment from one side and external environment from the other side, the wood is subjected to extreme difference in weather. Especially in India where the weather conditions on the outside can be very severe and on the interiors you will always have more or less uniform environment. Typically in the high end segment of the market, exotic hardwood species especially Teak (Indian as well as Burmese) are the most popular species because of their hardness and durability.

Unfortunately, most hardwood species come from tropical countries where the timber trade is not well organized. Right from grading the lumber to processing the lumber is unorganized and it is difficult to have consistent quality and supply of these species. The manufacturer faced a lot of issues with the quality of Teak they were using and with certain trade restrictions, were looking for alternate species that were consistent in quality and supply.

Opportunity

The manufacturer evaluated many hardwood species like Iroko, Sapeli, Padauk etc. for this application but faced the same issue of inconsistent quality and supply. In addition to that these species were generally available only as logs. They had realized over last few years that processing log to get quality wood is a loss making proposition due to all kind of uncertainties with the logs. The company decided to look for that was pre-cut and graded for quality and is delivered seasoned with required moisture content. In addition to being naturally termite resistant and durable one very important factor was the sourcing from sustainable forests.

Keeping all these things in mind the manufacturer approached FII India* to give them the solutions. After understanding the requirements, FII* suggested two species that could replace Burma Teak for the said application. The species suggested were western red cedar and yellow cedar.

**Market Development Agency of Canadian Wood from British Columbia.*

Both these species were from British Columbia region of Canada and by having stringent, globally recognized forest management laws and voluntary certification that consider all aspects of the environment, the region is known for its sustainable forest practices. B.C. is the world leader in sustainable forest management. The wood procured from B.C. is 100% certified by FSC/PEFC. Trials were initiated for western red cedar and yellow cedar. Both these species exhibit outstanding resistance to termites, rot and decay and are durable for external use. The company engineered the wood by multi-layering and got outstanding dimensional stability as well.

The manufacturer chose yellow cedar for their windows and doors because of a much higher density and hardness.



Product Trials

Trial 1

As one of the key consideration in choosing the species was termite resistance and outdoor durability, the manufacturer made a solid wood door from both species and left them in open with direct ground contact and fully exposed in their garden for almost a year. The door was subjected to the year around weather of Delhi including full summer heat and sun, monsoons and winters including dust and grime. The doors were also hosed down every now and then to clean them. The soil in and around the garden was also infested with termites.

Both the doors exhibited exceptional performance after one year. There was not decay or major dimensional changes. The doors were not warped and held the finish very well. There was no peeling off of the water based coating and after a thorough cleanup looked like new.

Trial 2

The company works in the high end residential segment, they need to make really large systems in wood. The largest system they have done is almost 15m wide by 4.5m high. To make such systems, the species need to be strong. Artius made a couple of large format sliding and slide and fold systems using both the species. In these trials, yellow cedar scored remarkably well over western red cedar because of its considerably higher density and strength.

After this test, Artius decided to work with yellow cedar as it exhibited all the properties that were required to make natural, environment friendly high performance window and door systems.



Door stiles in western red cedar

Key Takeouts

Improved Manufacturing Efficiency

Existing notions exist that durability comes from hardwood only. That is not true as most of the hardwood species fall under perishable wood. Also you need really good quality tools and machinery to work with hardwood. The durable hardwoods are usually oil rich and that creates problems in gluing and finishing. To top it all, there are almost no hardwood species available in India that are graded for quality and are seasoned to the required moisture.

After choosing yellow cedar, the manufacturer did away with their in-house seasoning that used to take a lot of time. Since the timber came pre-cut and seasoned, they could take the wood directly into production. Also since it is softwood, it is much easier on the tools. The life of the tools has also increased significantly. It glues easier and quicker, it is easier and faster to sand and takes good stain. The wood sections exhibit a remarkable bending strength after creating multi-layered glulam sections. The overall processing time after using yellow cedar has come down from **150 days to around 90 days for a typical project.**



Why Use Canadian Wood?

Sustainable, Green Building Material

British Columbia, Canada is a world leader in sustainable forest management. The rigor of B.C.'s forest management laws is demonstrated by third-party forest certifications (PEFC/FSC).

Long-Term Performance

Wood's versatility, character and individuality are unmatched. When it is properly maintained, wood can be reused, repurposed, and reapplied to other projects. Canadian wood species produce stable lumber with consistently straight grain. The wood is easy to work, finish and glue.

Easy to Manufacture

With low to moderate density values, species like western hemlock, Douglas-fir, yellow cedar, western red cedar and spruce-pine-fir (S-P-F) are all easy to face-laminate, edge-glue, and/or finger-joint.

Quality Assurance

Canadian wood species from B.C. are separated into a wide variety of grades and each grade is intended for a specific end use. Factory grades are intended for ripping or cross cutting to recover the wood's clear fibre; the clear grades help produce knot-free products in a length range of 8-20 feet. This variety of grades allows buyers to choose a quality that suits both their needs and their price considerations.

Multipurpose Applications

Because of their low tangential to radial shrinkage (T/R) ratio, softwoods typically have better stability than hardwoods. Softwoods are well suited to many applications across outdoor, interior and structural uses.



If you're interested in incorporating Canadian wood species into your product line, the 'Try Canadian Wood' initiative is an ideal way to use, experiment and understand wood's numerous advantages.

For free technical/procurement assistance write to FII India at info@canadianwood.in or call +91 2249221600.

For design inspiration and decor ideas using wood, follow us on [f](#) [yt](#) [in](#)

Updated November 2021

Canada 

Western hemlock | Douglas-fir | Yellow cedar | Western red cedar | Spruce-Pine-Fir (S-P-F)

FII India has made every attempt to ensure the accuracy and reliability of the information provided with input from each trial partner.

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