Durability and WOOD

BACKGROUND

Durability can mean many things when it comes to buildings (quake resistance and moisture resistance to name just two), but in the context of sustainability "durability" can refer to the length of time a building product or system continues to fully meet its intended end use. Durability and longevity are important parameters of sustainable design and construction.

Sustainable design endeavours to reduce the impact that buildings have on the environment. One way to achieve this goal is to extend the life cycle of building products and systems. This is accomplished by using durable materials in the right locations and by employing sound maintenance practices.

ISSUE

Wood buildings can last for centuries. Indeed, most buildings are replaced today not because they wear out but because the type, style, occupancy or size of the building is no longer suitable for the owner's needs. A Canadian study identified these factors as the major reasons behind the demolition of more than 20% of Canada's heritage buildings over the last three decades.

Building systems have evolved, as have wood products, to provide better protection against the elements and natural disasters. In building situations where there is increased exposure to elevated moisture levels in end use conditions, the use of a durable wood species, such as cedar, or preservative-treated wood will ensure that the wood remains serviceable over time. In addition, maintenance techniques have improved as owners gain knowledge and take greater care in protecting their building investment.

WHAT YOU NEED TO KNOW

Wood frame construction is durable. In North America, many older wood buildings that have outlasted their useful life are being dismantled and their wood components recycled and reused. Old military hangars and barns are good examples of this practice. With proper maintenance, wood buildings can be expected to provide decades, even centuries of service.

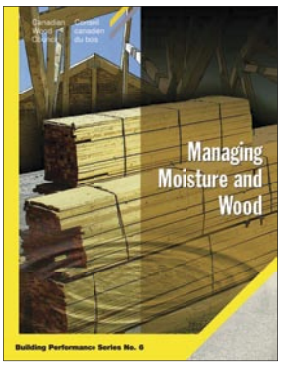
A 2004 Minnesota Demolition Survey prepared for Forintek Canada Corp. by the ATHENA Institute further substantiates this claim. In this major survey of buildings demolished in St. Paul, Minnesota for the period 2000 to mid-2003, 85% of the demolished wood buildings were in the 51 and over age categories, 49% in the 76 to 100 years category and 18% were more than 100 years old.

One outstanding example of a durable wood building with incredible longevity is the Todaiji ("Great Eastern Temple"). The temple, one of Japan's most famous, was originally constructed in 752. Even more amazing is that this ancient temple is also the world's largest wood building.

Great Eastern Temple, Japan

While building techniques have evolved since temples like the Todaiji were built, the basic rule of durability remains the same now as it was then: keep wood dry. This rule applies equally to typical stud frame housing and large timber frame construction. Continually refining building systems and wood products themselves will ensure that wood continues to play a key role in durable building strategies for many years to come.

FOR MORE INFORMATION



Visit the joint Canadian Wood Council and Forintek Canada Corp. website www.durable-wood.com.

Also available on the website is the CWC's recent publication *Managing Moisture and Wood*.