



Considering substitutions

Be aware of potential consequences with product substitution

by Mark S. Graham

With ongoing shortages of building materials and products, substitutions have become more commonplace—but they can have unintended consequences. One issue that has arisen involves substituting European lumber for North American lumber, a decision that could result in unintended consequences.

The situation

At the start of the COVID-19 pandemic, wood product producers were operating under the same uncertainty as the rest of the world. Many mills curtailed production in anticipation of worker shortages and reduced demand. At the same time, many wholesale and retail lumber customers significantly reduced inventory levels. Also, because of the Great Recession, several mills had closed permanently. The American Wood Council reports between 2007 and 2017, mill closures in the South resulted in a lumber capacity loss between 1.7 to 2 billion board feet. Mill closures in the Pacific Northwest represented 10% of the area's mills.

Although the demand for wood products had dipped, it quickly rebounded during the pandemic because of increased remodeling projects and new housing starts spurred, in part, by low interest



rates. With increased demand and low supply, lumber pricing fluctuated wildly. To offset the low lumber supply, some wholesale and retail lumber customers sought out and imported European lumber.

On June 11, the North Carolina Department of Insurance, which has administrative authority over North Carolina's building code, issued an alert warning European lumber may not meet the state's requirements. The primary concern cited was the lower wood density or specific gravity of European lumber may affect the performance of fasteners, resulting in reduced resistance capacities.

Incidentally, a No. 2 grade designation is common for both North American and European produced lumber. However, No. 2 grade European lumber may have a specific gravity less than 0.42, on which U.S. design standards are based.

In June, the Pacific Lumber Inspection Bureau and American Wood Council issued bulletins partially refuting the North Carolina alert and offered additional useful information. U.S. building codes and wood design manuals are based on four major species of wood commonly produced in North America.

All known European wood species except one have adequate specific gravity values and should be acceptable based on U.S. building codes and design manuals. The one exception identified by the Pacific Lumber Inspection Bureau is Norway Spruce from Romania and Ukraine, which has a specific gravity less than 0.42 and should not be used for carrying loads without additional engineering.

The American Wood Council issued a supplement to its *National Design Standard for Wood Construction* providing design values for multispecies, country grade-marked dimensional lumber. Also, the Pacific Lumber Inspection Bureau is developing additional design tables to further assist designers.

This lumber substitution issue likely has no direct effect on lumber used in roof systems, such as dimensional lumber used for wood blocking and nailers. However, it illustrates the potential for problems with material and product substitutions not fully evaluated and documented by individuals knowledgeable of the specific materials and products being considered.

Substitution guidance

In the U.S., most roofing materials and products are required to comply with recognized material or product standards. For example, the International Building Code® and International Residential Code® require most roofing materials and products comply with specific ASTM International standards.

When evaluating roofing material and product substitutions, using the applicable U.S. product standard can provide a useful basis for comparison.

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In addition to identifying materials and products by manufacturer and brand name, I encourage suppliers and contractors to identify materials and products by the applicable U.S. product standard in purchase orders and other purchase agreements.

Compliance with specific listing and approvals, such as UL certifications and

FM Approvals' approvals, also can provide a useful basis for comparison.

The IBC and IRC also contain provisions for an authority having jurisdiction (such as a building code official) to evaluate and approve alternative materials and products and methods of application. Additional information about the codes' alternative evaluation and approval provisions is provided in "Consider alternatives," April 2019 issue. 🌱🌱🌱

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To read the Pacific Lumber Inspection Bureau's response to North Carolina's lumber alert, go to professionalroofing.net.

How to protect your company from a ransomware attack



As the construction industry's value continues to grow, cybercriminals are taking notice. Small businesses may be especially vulnerable to cyberattacks if company owners have not implemented appropriate defensive measures.

According to [uschamber.com/co](https://www.uschamber.com/co), small businesses are targeted in 71% of all ransomware attacks, and these attacks often are successful and costly.

Following are some precautions you can take to prevent criminals from infiltrating your company's system.

- Ensure your software is up to date. Software providers issue periodic updates that include important security patches and upgrades. It is important to update your security programs regularly and promptly.
- Layer security measures. Use more than one security tool, such as a firewall, anti-virus software, anti-malware software, spam filters and cloud data loss prevention. Most experts recommend using a combination of tools so if one fails, there are backup protections in place.
- Conduct awareness training. Employees can compromise the security of a company's data and systems through negligence or human error. It is crucial to educate them about ransomware and how they can help prevent an attack.
- Configure access controls. It is important to actively manage who can access your information, giving minimal access to files, programs and accounts only to those who need it.
- Implement multifactor authentication or two-factor authentication, which is when a user needs to provide more than a single factor—such as a username and password—to access a platform, system or network. Additionally, be sure your employees are setting strong passwords.
- Back up everything. If your system gets compromised, you can avoid having to pay a ransom by backing everything up regularly—every day, if possible.
- Enable strong spam filters to your email and other messaging services to reduce the risk of phishing. There will be less risk of your employees falling for a scam and inadvertently introducing malware into your system.



To learn how to create a secure password policy for your company, go to professionalroofing.net.

Innovative construction wearables are reshaping safety

Wearable construction technology, which includes any device construction workers wear on their bodies, may be a valuable resource to help eliminate construction worker fatalities and injuries, according to [bigrentz.com](https://www.bigrentz.com).



User-friendly and powerful wearable technology—including smartwatches, boots and helmets—are influencing the future of construction safety and designed to keep workers safe, healthy and productive.

Following are examples of construction wearables and their features.

1. *Smartwatches*: These devices are capable of monitoring activity data, detecting falls and enabling safe communication.
2. *Smart boot*: This piece of wearable technology can detect pressure and location without needing to be regularly charged.
3. *Smart hard hat*: The hat contains a sensor band capable of detecting fatigue, preventing microsleep and sensing proximity.
4. *Augmented reality glasses*: These goggles protect workers' eyes and also display vital information about leading edges, hazardous materials and safety protocols.
5. *Body wear*: These wearable devices increase safety in various ways, such as heat tracking, gas detection and reducing muscle fatigue.

There also are construction wearables that help monitor the mental health of construction workers, which has become a growing concern. These products reportedly help workers track their moods during the day and spot trends in their mental health.