ENGINEERED WOOD SYSTEMS
APA EWS
PRODUCT ADVISORY
www.apawood.org

Imported European (Norway Spruce) Glulam Beams

The issuance of ESR-1830, *West Coast Lumber Inspection Bureau (WCLIB) Combinations of Structural Glued-Laminated Timber (Glulam) Utilizing Norway Spruce*, suggests imported European glulam may soon be readily available in the North American market. Substituting a Norway spruce glulam beam for a traditional 24F-1.8E Douglas-fir (DF) or southern pine (SP) North American glulam may be acceptable in some cases, but dealers, designers and contractors must be aware of the difference in design properties between these products despite their identical bending strength and stiffness values. Without a careful engineering analysis of the design on a case-by-case basis, substitution of imported glulam could lead to a red-tagged inspection or structural failure, both situations for which the dealer/supplier can be held liable.

A comparison of design values for Norway spruce glulam beams (ESR-1830) and Douglas-fir and southern pine beams (ESR-1940) shows that the Norway spruce beams have an 11 percent lower shear capacity, 28 percent lower bearing capacity, 22 percent lower reverse tension stress and 12 percent lower specific gravity than the domestic counterparts bearing the *APA EWS* trademark. Additionally, no guidance is available on the effects of field-drilled holes, notching, taper-cutting, checks or splits on Norway spruce glulam. *APA EWS* design recommendations on these critical issues apply only to glulam bearing the *APA EWS* trademark.

The following table highlights the important differences, affected applications and action needed when substituting Norway spruce for *APA EWS* glulam beams.

Difference in Norway Spruce Glulam Properties	**Affected Applications**	**Action Needed**
11 percent lower shear capacity	All shear-critical applications, including: • Glulam supporting other beams on hangers or point loads from the structure above • Cantilevered or continuous span beam over intermediate support • Very high load in a short span	Engineer must analyze
28 percent reduction in bearing capacity	All beam applications, including: • Simple span beam end reactions • Intermediate reaction points for cantilever and continuous span beams • Metal hangers designed for Douglas-fir or southern pine bearing	Reconfigure design of supporting structure with: • More cripple studs • Larger posts • Different connection details
22 percent lower reverse tension stress	Any time when the top of the beam is loaded in tension, including: • Short cantilevers • Continuous span floor beams • Beams inadvertently installed upside down • Load reversals due to high wind load situations	Engineer must analyze
12 percent lower specific gravity	When anything is connected to the beam, including: • Floor and roof diaphragms with wood structural panels nailed directly to the beam • Metal hangers designed for Douglas-fir or southern pine beams • Lighting • Sprinklers • HVAC equipment	Engineer must consider: • Additional fasteners • Larger or custom hangers • Reduced hanger capacity • Redesigning all load-bearing connections – nail, bolt or screw – for reduced fastener capacity

We have field representatives in many major U.S. cities and in Canada
who can help answer questions involving APA and *APA EWS* trademarked products.
For additional assistance in specifying engineered wood products, contact us:

APA – THE ENGINEERED WOOD ASSOCIATION

HEADQUARTERS

7011 So. 19th St. ■ Tacoma, Washington 98466 ■ (253) 565-6600 ■ Fax: (253) 565-7265

www.apawood.org

PRODUCT SUPPORT HELP DESK

(253) 620-7400 ■ E-mail Address: help@apawood.org

Form No. EWS G450/Issued June 2006

ENGINEERED WOOD SYSTEMS
APA EWS