



## N E W S & I N F O R M A T I O N

### Facts on Formaldehyde Emissions And Glued Laminated Timbers

Concerns have been raised over the formaldehyde concentrations in travel trailers and mobile homes that were provided as temporary housing to Gulf Coast hurricane victims by the Federal Emergency Management Agency (FEMA). New regulations on formaldehyde emissions from wood composite products have been approved by the California Air Resources Board (CARB). Furthermore, green building regulations often provide recognition of wood products that are deemed to have very low formaldehyde emission levels. Because glued laminated timbers (glulam) use only moisture resistant adhesives, the formaldehyde emission levels of glulam are below the levels that have warranted regulatory concern. Nonetheless, questions and requests for information on formaldehyde emissions from glulam arise from time to time.

Formaldehyde is a naturally occurring substance present in the ambient environment. It is also a by-product of natural organic processes and from combustion associated with the burning of wood, kerosene and natural gas; automobiles; cigarettes; etc. It is an important industrial chemical used in the manufacture of numerous consumer products including industrial wood adhesives.

Formaldehyde-related concerns with wood products have most generally been associated with urea formaldehyde adhesives, but *not* with the phenolic or melamine adhesives used in glulam. Urea formaldehyde adhesives are commonly found in products normally used exclusively indoors where high moisture resistance is not required.

Phenolic and melamine adhesives, on the other hand, are highly durable, water resistant and more stable. They are commonly used in the manufacture of structural wood products such as glulam which are moisture resistant products designed for construction applications governed by building codes. Typical applications are structural beams and columns.

The requirements for the manufacture of glued laminated beams are covered in the American National Standard, *ANSI A190.1 "Structural Glued Laminated Timbers"*. This standard requires that all adhesives used in glulam comply with ASTM D2559 "*Standard Specification for Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions*". Therefore glulams must be produced exclusively with moisture resistant adhesives such as phenolic or melamines.

## Facts on Glulam Formaldehyde Emissions

### Page 2 of 2

Because formaldehyde levels associated with glulam are so low, these products easily meet or have been exempted from the world's most stringent formaldehyde emissions standards and regulations, as follows:

1. **California Air Resources Board (CARB) Air Toxic Control Measure for Composite Wood Products.** This regulation, developed by a division of the California EPA and scheduled to take effect January 1, 2009, is considered to be one of the most stringent in the United States. In recognition of the different formaldehyde emission levels of various types of wood products, definition #8 of the regulation explicitly exempts glued laminated timber manufactured in accordance with *ANSI A190.1* along with some other structural wood products manufactured with moisture resistant adhesives.
2. Under the **Japanese Agricultural Standards (JAS)**, glulams meeting the most stringent formaldehyde limit is permitted to be certified with the "F\*\*\*\*" mark. The F\*\*\*\* mark within this glulam standard is widely considered the most stringent formaldehyde regulation in the world. Glulam manufactured to *ANSI A190.1* requirements consistently meets the F\*\*\*\* requirement of the JAS glulam standard.

In summary, the formaldehyde emissions from glulam manufactured in accordance with *ANSI A190.1* are extremely low. *ANSI A190.1* compliant glulam meets the world's most stringent formaldehyde emissions standards.

**APA—The Engineered Wood Association**  
Tacoma, Washington  
[www.apawood.org](http://www.apawood.org)  
Product Support Help Desk: 253-620-7400

May 2008