

## Formaldehyde Emission from Wood-Based Panels

Some wood-based panel products emit small amounts of formaldehyde. Each product type has a product standard governing the testing and certification of that product for formaldehyde emissions.

### Particleboard and Medium Density Fiberboard

Particleboard is used for products such as manufactured home decking and flooring underlayment, as well as cabinets, shelving, and furniture. Medium Density Fiberboard (MDF) is used primarily for products such as cabinets and furniture. Both particleboard and MDF generally use urea formaldehyde (UF) resins, which emit small amounts of formaldehyde. The U.S. Department of Housing and Urban Development (HUD) regulates the amount of formaldehyde that these products can emit. Under HUD rule 24 CFR, emissions are limited to 0.2 parts per million (ppm) for underlayment and manufactured home decking, and 0.3 ppm for other products. These products are tested and certified by nationally recognized third party certification agencies, like TECO, under ANSI 208.1 and ANSI 208.2 standards. When the panels are certified, a grade mark that includes the trademark of a recognized certification agency (see figure) is permitted to be applied.

### Decorative Plywood and Composites

Decorative plywood and veneered composites using urea formaldehyde (UF) or melamine formaldehyde resins are used for interior applications such as paneling, cabinets or furniture. These types of panels are regulated under the HUD rule 24 CFR for formaldehyde emissions and limited to 0.2 ppm for wall paneling and 0.3 ppm for limited-use wall paneling and industrial panels. These products are tested and certified by nationally recognized third party certification agencies under the ANSI/HPVA HP-1 standard.

### Structural Panels - OSB and Plywood

Structural panels such as OSB and plywood using exterior type phenol formaldehyde and isocyanate resins do not require certification for formaldehyde emissions. Isocyanate resin panels do not contain formaldehyde so no risk of formaldehyde emissions exists. Phenolic-based adhesives are specifically exempted in Section II.C.3 of HUD Rule 24 CFR 3280 (of the August 9, 1984 Federal Register), which states that HUD "has decided to exempt products that are formulated exclusively with phenol-formaldehyde resins and surface finishes from the testing and certification provision of the rule." The amount of formaldehyde emitted from panels using phenolic-based adhesives is considered too small to be significant and has therefore been exempted. Isocyanate resin panels do not contain formaldehyde so no risk of formaldehyde emissions exists.

