COMPOSITE PANEL ASSOCIATION SM

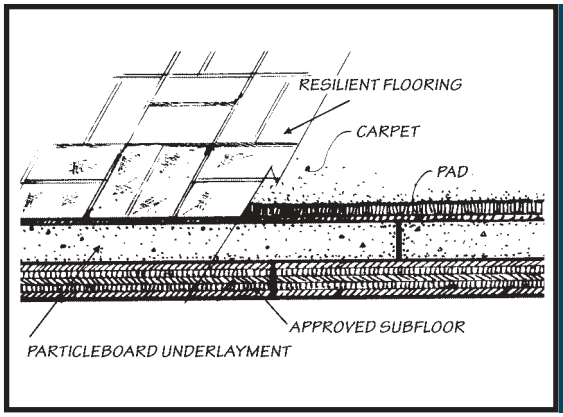
Particleboard Underlayment Installation

technical BULLETIN

Particleboard Underlayment Installation Information

Introduction

Particleboard underlayment is a composite panel product engineered specifically to meet flooring requirements, and is accepted for use by all of the model building codes and most U.S. and Canadian provincial and municipal building codes. Particleboard panels provide a smooth, uniformly thick, solid base—free of knots, voids or grain—suited for most types of floor covering, such as resilient flooring, laminate flooring, carpeting and seamless flooring.



Composite Panel Association

Particleboard panels are manufactured to a precision thickness of +/- 0.015 inch, and provide a level base and even joints for floor coverings. They also resist impact of denting, yet are resilient and comfortable underfoot.

Particleboard Underlayment Installation Information

Supplied in the standard 4 x 8 foot size, particleboard panels cover large areas quickly and are available in a variety of thicknesses from 1/4-inch to 3/4-inch. They are easy to handle and cut with ordinary hand tools, and can be fastened with nails or staples without splitting. Particleboard panels can be bonded to other flooring components with adhesives, which spread easily and evenly over smooth panel surfaces for greater tensile bond strength.

Storage and Handling

Store particleboard panels flat on bunks or skids in a dry, covered and level area. Particleboard underlayment should be installed shortly before the floor covering and after other interior finish work is completed. Do not bring particleboard panels to the job site before they are needed. Do not install particleboard underlayment before the structure is closed-in and materials (concrete, plaster, drywall taping compound, paint and subfloor) have dried to the moisture conditions that will be found in the structure during occupancy.

Construction and Preparation of Subfloor

Particleboard underlayment should be applied over appropriate code approved subfloors. The subfloor must be of wood construction, dry, level, securely nailed, and free of foreign matter and projections. Ground level in crawl spaces should be at least 18 inches below the bottoms of floor joists and the ground within the crawl space should be covered with a minimum 6 mil polyethylene vapor retarder or equivalent. The crawl space should be well vented with uniformly distributed foundation vents. Do not apply particleboard underlayment over concrete or below grade.

When particleboard underlayment is to be applied with nails or staples, panel subfloors should be at least 19/32-inch thick with a minimum of 32/16 panel span rating. When particleboard underlayment is to be glue nailed, panel subfloors should be at least 15/32-inch thick (plywood) or 7/16-inch thick (OSB), with a minimum of 24/16 panel span rating.

Structural panel subfloors should be installed with the long panel axis perpendicular to the joist system. Board subfloors should be at least 1-inch nominal thickness and not more than 8-inches wide.

Floor areas over furnaces should be insulated and well ventilated. Hot air ducts should be insulated to prevent localized drying and shrinkage of floor components.

Installation of Underlayment

Install particleboard underlayment shortly before covering with finish floor materials. If the underlayment has been subjected to high humidity conditions prior to application, separate panels with sticks so air circulates and use furnace heat to dry them. If subjected to high humidity conditions after application, use furnace heat to dry before applying the floor covering.

Start laying the panels at a corner of the room. Leave a 3/8-inch gap between underlayment and walls. Arrange panels so that four panel corners do not meet at one point. Butt all panel edges and ends to a light contact.

With structural panel subfloor, offset underlayment panel joints and subfloor panel joints that are at right angles to the joists at least 2 inches. Offset underlayment panel joints and subfloor panel joints that are parallel to the joists at least one joist. When 1/4-inch or 5/16-inch particleboard underlayment is used the floor thickness (subfloor plus underlayment) should be one inch or greater.

With board or decking subfloors installed perpendicular to the joists, apply underlayment panels with edges over the joists, and with ends offset at least two inches from a subfloor joint. With board or decking subfloors applied at an angle to the joists, apply the underlayment panels perpendicular to the joists with end joints parallel to and over a joist. In both cases use a minimum particleboard thickness of 3/8-inch.

The information in this document is believed to be reliable and is intended to assist users of composite panel products. However, the determination of suitability of this information for a particular application remains the sole responsibility of the user.

No guarantees, representations or express or implied warranties are made regarding the accuracy and completeness of this information, and the Composite Panel Association (CPA) assumes no responsibility or liability for any loss or damage through reliance upon it.

Sawing underlayment generates fine dust, and table saws should be connected to a vacuum system. A shop vacuum can be connected to small table saws with a sheet metal sleeve. Individuals working with wood products including particleboard, on the job or in the home shop should wear at minimum the following safety equipment: a half-mask respirator (filter) that is NIOSH approved and has a HEPA filter rating printed on the package, side-shielded safety glasses, a long-sleeve shirt and gloves.

Fastening

Nailing

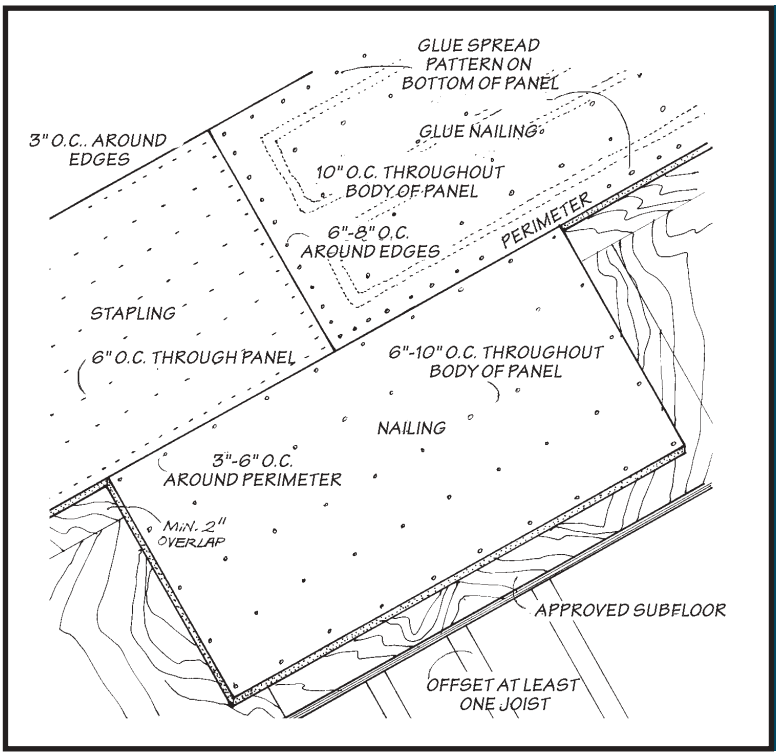
Use galvanized ring grooved underlayment nails to attach particleboard panels. Start nailing in the center of the panel and work toward the edges. Drive nails perpendicular to the surface and set flush. Drive nails no closer than 1/2-inch or further than 3/4-inch from the panel edges. Nail each panel completely before starting the next.

For panels up to and including 3/8-inch thick use 3d nails spaced 3 inches apart around the perimeter of the panel and 6 inches on centers each way throughout the body of the panel.

For panels 1/2-to 5/8-inches thick use 4d nails spaced 6 inches apart around the perimeter of the panel and 10 inches on centers each way throughout the body of the panel. Fastener lengths are designed to penetrate just through the subfloor and not substantially into the floor joists to minimize nail popping caused by shrinkage of the joists.

Stapling

Galvanized divergent chisel-point power driven staples may be used to attach particleboard underlayment. They should be a minimum of 7/8-inch long, 18 gage and 3/16-inch crown for 1/4-inch thick underlayment; 1 1/8-inch long, 16 gage and 3/8-inch crown for 3/8-inch underlayment; 1 3/8-inch long, 16 gage and 3/8-inch crown for 1/2-inch and 5/8-inch underlayment. Staples should be spaced no



further than 3 inches around the perimeter of the panel, 1/2 inch from the edge and 6 inches on centers each way throughout the body of the panel. Countersink staples no more than 1/16-inch.

Glue Nailing

For a superior floor system use the glue-nailing method of applying underlayment. Make sure the subfloor is free of all dust, dirt and debris before starting.

Apply a mastic adhesive formulated for these applications to the subfloor in a pattern providing a 12-inch wide strip along each underlayment panel end, a 3-inch wide strip along each panel edge, and a 6-inch wide strip down the center of the panel parallel to the edges. Follow adhesive manufacturer's instructions, and use a sufficient amount.

Do not use solvent based subfloor and construction adhesives which may cause subsequent staining of floor coverings.

Nailing should be done as described previously, except that the spacing should be 6 to 8 inches on centers around the perimeter of the panel and 10 inches on centers each way throughout the body of the panel. More nails should be used if needed to hold the panel in closer contact with the subfloor.

Filling and Sanding

Fill gouges, gaps and any chipped edges with a premium quality hardsetting, non-shrinking patching compound intended for this purpose following manufacturer's instructions. Allow filled areas to dry thoroughly and then sand flush with a wide belt sander. Sand any uneven joints between panels. Panel joints must be perfectly matched to prevent show-through.

Floor Coverings and Flooring Application

Particleboard underlayment may be covered with carpeting, laminate flooring, resilient floorings, or seamless floor coverings. Do not apply ceramic tile over particleboard underlayment. Thoroughly vacuum the underlayment surface prior to installation of any floor covering.

Carpeting

Carpets should be installed as recommended by the manufacturer. The use of particleboard underlayment requires no special techniques.

Laminate Flooring

Laminate flooring should be installed following manufacturer's recommendations.

Resilient Flooring

Resilient flooring, tile or sheet goods should be 1/8-inch or greater in thickness. Floor coverings thinner than 1/16-inch should not be used.

If fully adhered resilient sheet or tile flooring is installed, choose a premium quality, high solids (typically 55-65% solids) flooring adhesive recommended for use by the flooring manufacturer with wood underlayments. Before applying adhesive, make sure the underlayment surface is free of all foreign materials and is dry.

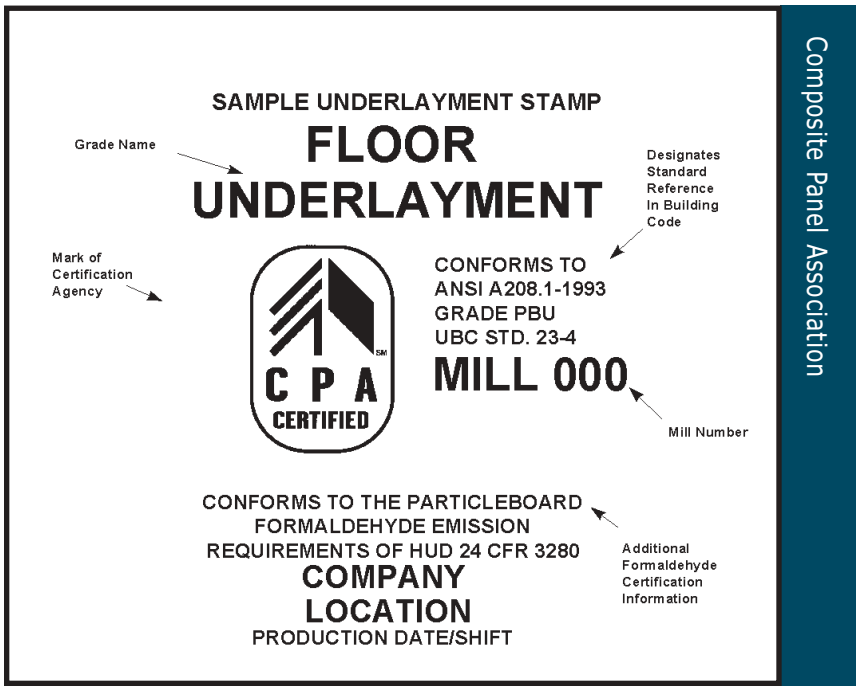
When applying floor coverings, the temperature of the room and materials should be above 70 degrees Fahrenheit for a minimum of 24 hours before, during, and after application. Use a notched trowel to spread the adhesive, and apply enough adhesive to afford at least 50% transfer to the flooring. Allow the maximum "open assembly" time within the adhesive manufacturer's recommendations but apply the floor covering before the adhesive loses tack.

Use a lining felt if recommended. The seams of sheet goods should be tight and no closer than 2 inches to a parallel underlayment joint.

Roll the fully adhered sheet flooring in both directions with a heavy roller to assure good contact. Keep traffic off

"When applying floor coverings, the temperature of the room and materials should be above 70 degrees Fahrenheit for a minimum of 24 hours before, during, and after application."

The CPA stamp notes which mill made the floor underlayment and the standard to which it was manufactured.



newly installed resilient flooring until a bond has been firmly established. For other types of finished flooring, follow the manufacturer's recommendations for installation.

Seamless Floorings

Seamless floorings should be high quality products and must be installed as recommended by the manufacturer.

Seamless floors are applied as several coats of liquid coating materials. They are comparatively thin flooring surfaces and require the utmost care in the preparation of the flooring structure and the underlayment surface prior to coating with the seamless flooring material.

The glue-nailed technique of underlayment application is recommended for all seamless flooring applications. Extra care should be taken to carefully fill and sand underlayment faces, and to build up the recommended thickness of seamless floorings.

Grademark

Always specify particleboard panels with the Composite Panel Association's floor underlayment grademark. Producers of particleboard floor underlayment bearing the CPA stamp manufacture it to meet or exceed Grade PBU of American National Standard ANSI/A208.1-1993.

Before the CPA grademark may be used, producers must comply with a rigid in-plant testing and quality control program. Compliance is verified by periodic unannounced inspections at the mill and by independent testing of samples. The CPA stamp notes which mill made the floor underlayment and the standard to which it was manufactured.

References

ANSI A208.1 (1993) - Particleboard, Composite Panel Association, Gaithersburg, MD. (This standard is updated approximately every five years.)

Particleboard From Start to Finish. Composite Panel Association, Gaithersburg, MD, 1996

1997-1998 Buyers & Specifiers Guide to North American Particleboard and MDF Manufacturers and Products, Composite Panel Association, Gaithersburg, MD, 1997.

CPA Member Companies

Allegheny MDF LP
Allegheny Particleboard LP
Boise Cascade Corporation
CanPar Industries
Collins Products, LLC
Columbia Forest Products
Flakeboard Company Ltd.
Florida Plywoods, Inc
Georgia-Pacific Corporation
Hambro Forest Products, Inc.
Isobord Enterprises, Inc.
Louisiana-Pacific Corporation
MacMillan Bloedel Ltd.
Merillat Industries, Inc.
Norbord Industries, Inc.
Northern Engineered Wood Products, Inc.
Panolam Industries
Pan Pacific Products, Inc.
Plum Creek Timber Company LP
Potlatch Corporation
Proboard Ltd.
Rexwood Products (1996) Ltd.
SierraPine Ltd.
Tafisa Canada and Company Ltd.
Temple
Timber Products Company
Uniboard Canada, Inc.
Union Camp Corporation
Webb Furniture Enterprises, Inc.
West Fraser Mills
Weyerhaeuser Company
Willamette Industries, Inc.

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What is the Composite Panel Association?

The Composite Panel Association (CPA) is the North American trade association for the particleboard (PB) and the medium density fiberboard (MDF) industries, and for other compatible products. The CPA is dedicated to increasing the acceptance and use of industry products and providing for the general welfare of the industry.

Membership in the CPA currently includes 32 of the leading U.S. and Canadian manufacturers of particleboard, MDF and other compatible products. Together, they represent more than 85 percent of total North American manufacturing capacity of these industry products.

The Composite Panel Association was formed in 1997 as a consolidation of the National Particleboard Association and the Canadian Particleboard Association. The new association represents industry on technical, regulatory, quality assurance and product acceptance issues.

An affiliated organization, the PB-MDF Institute, was formed in 1989 to broaden participation in industry educational and promotional programs. Membership in the PB-MDF Institute is highly diverse and includes more than 170 companies worldwide, including all members of the Composite Panel Association. Programs and activities of the CPA and PB-MDF Institute complement each other.

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