

TECHNICAL SOURCE GUIDE

M.D.O. & Armor Core Plywood

by Roy Hoglund, Scenic & Lighting Designer, University of Wisconsin - Oshkosh

M D.O. (Medium Density Overlay) was originally created for the sign industry to provide a durable, smooth, paintable surface which could withstand the effects of weather- it consists of a plywood substructure with a thin paper covering on one or both sides. The plywood is exterior grade with the same adhesives as used in marine plywood. The paper covering is a fiber sheet treated with a resin formula for proper paint adhesion, which also accepts almost any type of paint. M.D.O. is also designed to reduce warping when painted. The edges and back of the board can be purchased primed or unprimed. The prime coat is usually light gray in color and will take paint as well.

M.D.O. can be purchased in 5/16", 3/8", 1/2", 5/8", 3/4", and 1" thicknesses. Although 4' x 8' is the standard size, M.D.O. can also be purchased in 5' widths, and 10' to 12' lengths. The high quality of this plywood allows it to be cut in a number of shapes and still maintain a clean edge. It is important, however, to reprime the cut edges of the material if it is to be used out-of-doors. For this purpose, any oil-based exterior wood primer will suffice. In the movie and television industries, M.D.O. is used where smooth, non-grain paintable surfaces that require no preparation are needed. This application has also been found in theatre, where the easily paintable surface and high quality of material offset its initial cost by a savings in labor.

Armor Core is similar to M.D.O. in that it has a plywood base, but instead of paper, the front and back surfaces are a high density hardboard similar to Masonite. Other versions of this product can be found on the market under different names and surface densities, such as Med Core, Medite, and hard board on fir. All of these products were originally designed as substrate panels for veneers and laminates. By combining the high strength to weight ratio of the plywood interior with the smooth non-grain qualities of the hardboard exterior, the manufacturer was able to make a material ideal for substrate use. Additionally, the plywood interior gives this product greater screw-holding strength than the particle board, which is most frequently used for this purpose and results in less wear and tear on tools during machining than its plywood counterpart.

Armor Core recently has been used as a floor covering for situations in which heavy load concentrations over small areas cause normal wood flooring to develop indentations. With an ability to support loads up to 6,000 psf without surface damage, Armor Core is very useful as a material for stage flooring. Armor Core and related products are available in 4' x 8' sheets, 1/2", 5/8", and 3/4" thick. Unlike M.D.O., which has a wonderful paint surface, Armor Core and similar products, although durable, do not accept paint well. It is important to prime each surface prior to painting. To get the best primer for the surface, contact the local paint distributor. For instance, Benjamin Moore Paints suggests "Bull's-eye 1-2-3," a latex-based primer, for all hardboard surfaces.

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Wenger Platforms, a well known manufacturer of portable risers and platforming units, has used a similar product called "O.S.B." (oriented strand board) because of its qualities which are identical to Armor Core. O.S.B. is strong, yet lighter than other composition boards of similar strength, and its surfaces are smooth and non-grained.

Richard Rodgers, Production Manager with the Milwaukee Repertory Theatre, believes that products like Armor Core and Med Core are useful for both aesthetic and labor- saving reasons. Their consistent dimensions make them ideal flooring, since all surfaces will be flush. Their multi-layered structure permits painting without warping. And, because the surface is a Masonite and plywood in one, labor costs are reduced markedly. This belief is also held by Ray Forton, Technical Director of the Guthrie Theatre.

But even "wonderful" materials have some drawbacks which in the case of M.D.O. and Armor Core, are weight and cost. Whereas a standard 4' x 8' x 1/2" sheet of ACX plywood weighs approximately 48 pounds, a similar size sheet of M.D.O. weighs 60 pounds, and Armor Core nears 72 pounds. A 4' x 8' x 1/2" sheet of ACX plywood costs less than \$22.00. But M.D.O. and Armor Core can run up to \$35.00 per sheet. Both of these products, while more expensive than plywood, also must be purchased in minimum amounts for very little are kept in stock by distributors. Approximate costs for M.D.O. and Armor Core are as follows:

1/2" - minimum order 60 sheets \$31.01

5/8" - minimum order 50 sheets \$31.97

3/4" - minimum order 40 sheets \$32.90

To locate a distributor for M.D.O., contact a local sign shop or lumber company. To locate Armor Core, contact:

States Industries, Inc.

29545 Enid Road, East

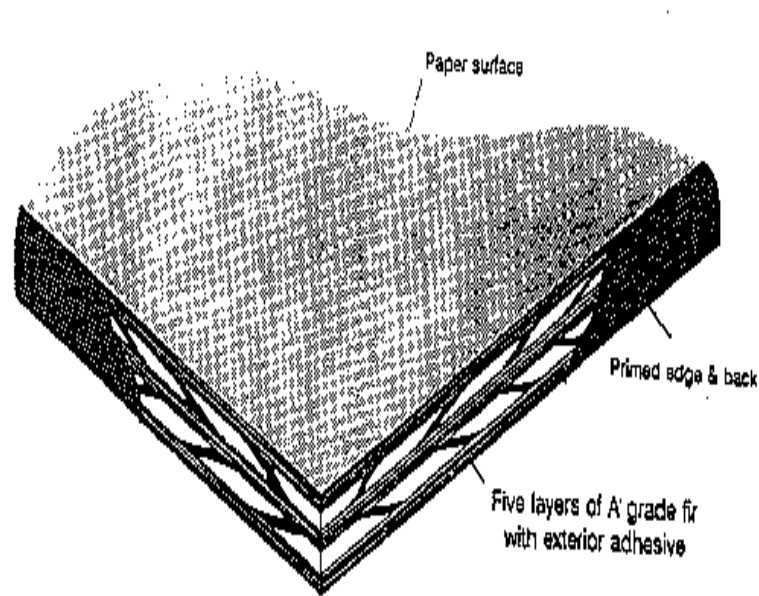
P.O. Box 7037

Eugene, OR. 97401

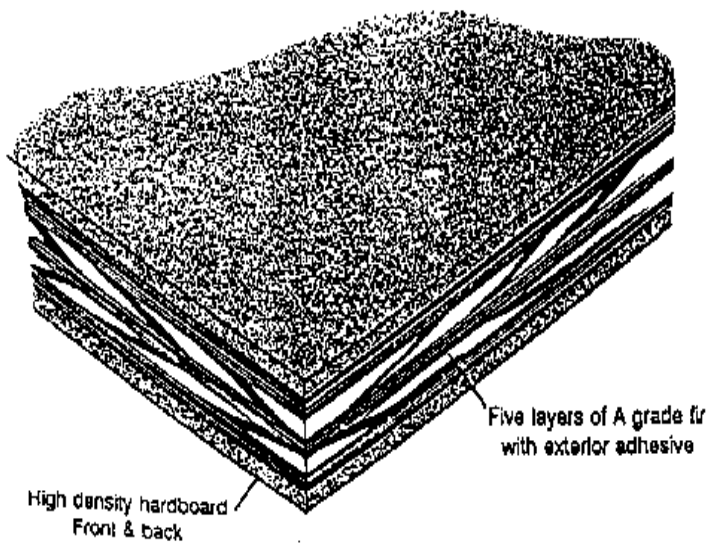
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MEDIUM DENSITY OVERLAY (M.D.O.)



ARMOR CORE/HARDBOARD OVER FIR



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Technical Source Guide #3 – MDO & Armor Core Plywood

- A project of the USITT Technical Production Commission

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