

## UltraBoard HD™ Application Guide

### Cutting

#### Circular Saw

UltraBoard HD may be cut with standard table saws. Best results are achieved using a blade designed for cutting UltraBoard HD. Ideal blade specifications include:

- Top grind inverted “V”
- Face grind hollow
- Tooth pitch 0.375” to 0.750”
- Side clearance 0.015” to 0.020”
- Clearance angle 2 $\hat{A}$ , $\hat{A}$ °
- Blade rpm 3500 to 4500
- Feed rate 40 to 60 fpm

UltraBoard HD saw blades are readily available from the following provider; be sure to mention the arbor and blade diameter required:

Arkansas Carbide Saw and Tool  
(918) 626-3837

### Die Cutting

1/4” and 1/2” UltraBoard HD die cut very well.

Die cutting UltraBoard HD is not recommended for panel thicknesses greater than 1/2”.

#### Guillotine Cutting

1/4” and 1/2” UltraBoard HD guillotine cuts very well.

Guillotine cutting UltraBoard HD is not recommended for panel thicknesses greater than 1/2”.

### Hand Cutting

While UltraBoard HD can be cut by hand, the strength of the face surfaces makes it difficult. For straight cutting by hand, best results have been achieved with knives with thin blades.

## Laminating / Gluing

No special surface preparation is required when gluing to the face of UltraBoard HD. Surfaces should be kept clean and free of any oil contaminants as with any other surface to be glued.

Exercise caution when selecting adhesives. Some solvent based adhesives will attack the styrene facer causing a small hole to develop in the facer that allows the adhesive to deteriorate the bond between the core material and the facer. The solvent adhesive reaction may take several days to develop. Rigorously test any adhesive to evaluate its suitability. We recommend the following adhesive (available at most hardware stores), for use with UltraBoard HD foam core boards:

Latex Liquid Nails for Foamboard, Part Number LN-604.

## Routing

### Looking for cutter profiles?

[Click here to visit our cutter profiles page.](#)

Routing of UltraBoard HD works well for creating irregular shapes.

We recommend bits available from:

Onsrud Cutter, Inc.  
(847) 362-1560

The following are optimal router settings for use with UltraBoard HD foam core boards:

- 1/4" using Onsrud bit #60-111MC, feed rate 200" per minute run at 24,000 rpm
- 1/2" and 3/4" use Onsrud bit #54-220, feed rate 250" per minute run at 20,000 rpm
- 1" and thicker use Onsrud bit #52-564, feed rate 125" per minute run at 18,000 rpm

If the recommended bits above are not available, try these possible alternatives:

- Part Number VSC-102 available from Vanguard Tool Corp. at (276) 673-3496
- Onsrud Cutter series 52-200

Router bits should be double fluted carbide, upward chip removal, with a 1/4" shank diameter and a 1/4" cutting diameter. Feed rate may be varied to compensate for larger bit diameters and different rpm. For special and long router bits for CNC routers, we recommend contacting the following provider:

Hartlauer Bits  
(541) 343-0390

## Painting

UltraBoard HD needs no special preparation before priming or painting. For best results the surface should be clean and free of any oil contaminates. This can be accomplished by cleaning the panel with glass cleaner or isopropyl alcohol just prior to coating. In any case the surface should not be sanded.

The following paints have shown excellent results when used on UltraBoard HD foam core boards:

- Sterling Paint (800) 999-8482
- Medallion Enamel (no primer necessary)
- Sherwin Williams (800) 336-1110
- A-100 series latex (no primer necessary)
- Devoe Paint (800) 654-2616
- Mirrolac WB 8300 – 8400 series (no primer necessary)
- Mirrolac WB 8502 series (no primer necessary)
- AKZO Nobe (800) 233-3301
- Grip-Gard HS (must be used in conjunction with VPS-1 primer)
- Grip Flex (no primer necessary)
- Grip Flex AQ (no primer necessary)
- Matthews Paint Co. (800) 323-6593
- MAP (must be used with 74-777 Tie Bond primer)
- VOCMAP (must be used with 74-777 Tie Bond primer)
- SVOC MAP (must be used with 74-777 Tie Bond primer)
- 1 Shot (219) 949-1684
- Acrylic Graphic Coat Bulletin
- Fluorescent
- Art and Sign Poster Colors

Exercise caution when using oil or solvent based paints as to not allow paint to make contact with the polystyrene core. Oil or solvent based paints can attack and deteriorate the foam board core.

Foam core edges that may be exposed to exterior conditions, including high intensity UV exposure to sunlight, should be protected from deterioration with a coating of water-base paint or similar UV barrier product.

Remember to exercise caution with any paint, especially when installation is intended for outdoor use. Always test paint on a sample of UltraBoard HD prior to production runs, and adhere to all paint manufacturer's usage recommendations.

## Screen Printing

UltraBoard HD panels are rigid, lightweight and easy to handle. The facers accept most printing inks well. We have found that the following inks work well with UltraBoard HD foam core boards:

- NAZ-DAR 79000 series Corogloss Ink
- Ink Designs Modified Acrylic

Caution should be taken with any ink. Always test ink on a sample of UltraBoard HD prior to production runs. Allow for 24-96 hours after test printing to evaluate the suitability of the ink for the intended application. Ink manufacturer's recommendations should always be followed.

### Surface Preparation

Ideal results are achieved when panels are cleaned prior to use in order to remove surface contaminants that may clog screens. A clean surface is achieved by wiping the panel with a tacky cloth, or by cleaning the panel with isopropyl alcohol or glass cleaner prior to screening.

### Drying

Drying by oxidation and evaporation is recommended. Follow ink manufacturer's recommendations concerning ink drying times.

## Digital Printing

UltraBoard HD foam core panels primarily work well with digital printing systems. As new hardware and ink technologies are ever-evolving, new challenges may arise concerning interactions with existing substrate technologies such as UltraBoard. As always, follow manufacturer's usage guidelines, and take the steps to properly test hardware, ink and substrate systems to insure good results.

### Ultra Violet (UV) Inks

UV inks may be used with UltraBoard HD. However, board thickness, type of ink, wattage of UV lamp and exposure time may affect results. Always test the suitability of the ink and the drying process for your particular UltraBoard HD thickness. Allow 24-96 hours after test printing to evaluate results. Ink manufacturer's recommendations should always be followed.

### Surface Preparation

It is recommended before printing on UltraBoard HD that all panels are cleaned of any surface contaminants. Particulate free gloves such as UltraBoard Pure Clean Gloves must be worn when handling UltraBoard HD.

### Printing

Before printing a production run of UltraBoard HD, it is recommended that the end user call the manufacture of the digital equipment for set up and ink recommendations for the substrate. UltraBoard HD may not be an appropriate product for every digital application. UltraBoard can provide a free digital sample kit for testing before setting up for a large production run.

## **Photo Mounting**

UltraBoard HD panels are widely used for pressure sensitive photo mounting boards. The facers of UltraBoard HD foam core boards provide a superior panel for photographic mounting boards.

## **Surface Preparation**

The surface should be clean and free of any dust, oil or other contaminants prior to mounting. This can be accomplished by wiping the panel with glass cleaner, a tacky cloth or with isopropyl alcohol.

## **Pressure Sensitive Mounting**

The choice of film is the most important consideration when using pressure sensitive film for photograph board mounting to UltraBoard HD. Prior to application, review manufacturer recommendations concerning the use of their laminating materials in conjunction with UltraBoard HD foam core boards. Best results are achieved when using equipment specifically designed for film and laminate application.

## **Dry Mounting**

Dry mounting is not recommended with UltraBoard HD foam core boards. Foam core panels may display a tendency to warp when heat is applied to only one side of the panel.

## **Preventing Bowing**

Bowing occurs when different conditions exist on opposite sides of the foam core board including temperature and coating applications. Potential for bowing is also much higher in thinner boards at larger sizes such as 4' x 8' sheets. Upon unpacking, panels that display bowing may be corrected by simply inverting the panel on a flat surface for up to 24 hours, allowing bowing to dissipate.

To insure maximum flatness in installation environments, it is ideal to utilize a thicker panel. If using a thinner panel, wood frames or extruded aluminum channels may be affixed to the sheet perimeters to maintain even tensioning.

If panels have a coating applied to more than 50% of one side's surface area, ideally the coating is equally applied to the opposite panel side to achieve equal surface tensioning, thus avoiding potential bowing.

## **Outdoor Use**

UltraBoard HD is not recommended for outdoor use.

## **Flammability**

UltraBoard HD is flammable and may constitute a fire hazard. Do not expose to an open flame or other ignition source.