

## 12 » Annexe B

### 12.1 » Description technique Olympic Panel HDO



**Product Description:**

Basic HDO™ is standard, 100, High Density, Buff over-laid plywood for low gloss finishes on smooth or coated concrete. It is an economical panel which balances cost, multiple reuse and concrete appearance.

**Panel Construction/Moisture Resistance:**

Basic HDO™ is High Density, 100 overlay on plywood with Doug Fir/Hem construction. It is manufactured with a 1 Step layup, has a waterproof glue bond and meets APA PS 1-07. All Olympic products are made in the USA.



**Features and Benefits:**

- Standard 100/30 performance with tough, anti-abrasion overlay
- Smooth finish with marginal wood grain transfer
- Balanced construction ensures panel stability
- Increased # of pours & reduced cost/pour

**Working Faces/Treatment:**

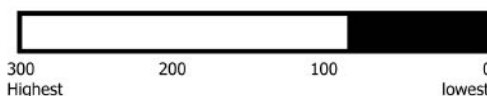
- Basic HDO™ is available with 1 working face and a HDO backer sheet.
- Gloss level of Concrete Surface: Low Gloss
- Wood Grain Transfer to Concrete Surface: Moderate
- Wood Defect Transfer to Concrete: Slight
- Sugaring: None
- Maintenance: Very Little

**Working Edges/Treatment:**

- Factory sawn and sealed with special, blue, Styrene Acrylic sealer.
- Seal all exposed wood (edges and holes) with Edge Flex 235 by Nox-Crete, Olympic Form Seal by Willamette Valley Co. or equivalent to prevent concrete staining from the wood sugars.

**Alkalinity Resistance after Chemical Exposure**

90



The Abrasion and Chemical Resistance Test reflects the expected panel life in the field. The higher the index number, the more resistant to alkalinity/abrasion.

**Structural/Load Performance Summary**

Basic HDO™ is available in Class 1 only.  
Allowable pressure 1/270 3/4" @ 12" OC (face gain across supports):

- Class 1: 885 psf

**Pour Ranges:**

- Engineered systems: Not Recommended
- Gang forms: Up to 30
- Job built: UP to 20
- Number of pours may vary due to jobsite handling and panel maintenance, vertical or horizontal use, form release agent, concrete mix design/strength, alkalinity & pour rate and other factors.

**Product Grade**

Standard product is shipped on grade only. Special Product is shipped allowing up to 10% total shop, identified & priced separately. Shipments of shop may be available.

## BASIC HDO™ CONCRETE FORM

**Release Coating:**

- Release agent: Not Factory Treated
  - Coating required: light, before first and each subsequent pour.
  - Recommended release agent: Nox-Crete PCE/PCS or equivalent.
- Do not use release agents containing a petroleum based derivative.

**Other Applications:**

- Pallets, bins, totes, crates, reels.
- Tanks, vats, freezer liners, storage lockers, trunks and shelving.
- Animal enclosures, farm buildings & equipment.

**Limitations:**

Do not exceed design limitations imposed by the load span table. Conform to concrete form design procedures based on American Concrete Institute (ACI) standard 347-04. Release agents are required. Do not employ used concrete form for structural applications. Do not coat or laminate this panel without surface preparation. For coating or laminating information, ask Olympic for technical assistance.

**Thicknesses & Sizes:**

Basic HDO™ is available in: 1/2", 5/8" & 3/4". Standard panel sizes are 4' X 8'. Non standard thicknesses, widths and lengths meeting volume requirements are available.

**Technical Data Applicable Standards**

All panels are manufactured by Olympic Panel Products per Product Standard PS1-07. This standard is available at [www.apawood.org](http://www.apawood.org).

Physical Properties	3/8" to 1/2"	5/8" to 1-1/8"
Check Resistance – APA test #6	2.65 mm	2.65 mm
Moisture Resistance (Cobb) 8 hour soak	3.09 g/sq. ft.	3.09 g/sq. ft.
Alkalinity Resistance after chemical exposure D/T	90	90
Formaldehyde level ASTM E-1333	< 0.01 parts/million	

Panel Tolerances	3/8" to 3/4"	1" & Greater
Thickness Tolerance	+/- 1/32" (.031")	+/- 5%
Length & Width Tolerance	+0, -1/16" (.062")	+0, -1/16" (.062")
Squareness	1/16" (.062")	1/16" (.062")
Straightness	1/16" (.062")	1/16" (.062")

Note: All tolerances and specifications apply at the time of manufacture.  
Note: Product averages vary for individual thicknesses. Consult Sales or Technical offices for exact properties.

**Standard Packaging:**

Thickness	Basic HDO™ 1 Face, HDO Back Average Weight* lbs./SF	Basic HDO™ 1 Face, HDO Back Average Weight* lbs./Panel	Pieces per Unit
1/2"	1.665	53.3	66
5/8"	2.093	67.0	50
3/4"	2.444	78.2	44

\*Average product weights may vary +/- 10%

- **Standard 100/30 performance**
- **Smooth finish & tough, anti-abrasion face**
- **Marginal wood grain transfer**
- **Balanced construction = panel stability**
- **Increased pours & reduced cost/pour**

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### Stress and Load Span Tables

These stress and load span tables simulate actual wet form conditions. Dry load span values are overstated and should not be used. Canadian (COFI) design values for Douglas Fir are 25% higher than APA.

**Stress Tables:** Tables 1 & 2 herein are based on standard APA and commercial standards PS-1 criteria.

Stress Table – Dry, Working Stress Design Capacities	Class 1		Wet Adjust Factor
	1/2"	3/4"	
Nominal Thickness	1/2"	3/4"	
Number of Plies	5	7	
<b>Table 1: Face Grain Perpendicular to Supports<sup>1</sup></b>			
Bending Stiffness <sup>1</sup>	137,951	421,415	.85
Bending Resistance <sup>2</sup>	391	789	.75
Planar Shear <sup>3</sup>	199	262	.75
<b>Table 2: Face Grain Parallel to Supports<sup>1</sup></b>			
Bending Stiffness <sup>1</sup>	34,054	160,967	.85
Bending Resistance <sup>2</sup>	152	402	.75
Planar Shear <sup>3</sup>	103	229	.75

<sup>1</sup>Bending Stiffness = EI\* (lb-in<sup>2</sup>/ft); <sup>2</sup>Bending Resistance = M or F<sub>b</sub>S (lb-in/ft);  
<sup>3</sup>Planar Shear Capacity: V or F<sub>v</sub>lb/Q (lb/ft) There is no DOL (Duration of Load) or Experience factor applied to EI. F<sub>b</sub>S and F<sub>v</sub>lb/Q.

**Load Span Tables:** Tables 3 through 6 are based on standard APA and PS-1 criteria.

Class 1 LOAD SPAN TABLES – WET CONDITIONS						
Recommended Maximum PSF on Class 1 Panels						
Support Spacing	Table 5: Face Grain Perpendicular to Supports <sup>1</sup>					
	Plywood Thickness – Allowable Pressure (PSF)					
	1/2"	5/8"		3/4"		
(in.)	ℓ/360	ℓ/270	ℓ/360	ℓ/270	ℓ/360	ℓ/270
8"	1,000	1,000	1,320	1,320	1,580	1,580
12"	455	495	710	710	885	885
16"	195	260	325	400	445	505
19.2"	110	150	190	255	270	350
24"			100	130	145	190
Support Spacing	Table 6: Face Grain Parallel to Supports <sup>1</sup>					
	Plywood Thickness – Allowable Pressure (PSF)					
	1/2"	5/8"		3/4"		
(in.)	ℓ/360	ℓ/270	ℓ/360	ℓ/270	ℓ/360	ℓ/270
8"	392	434	747	747	1,175	1,175
12"	145	167	409	466	596	648
16"			167	213	273	364
19.2"			121	163	194	216
24"					100	135

Notes: <sup>1</sup>Plywood continuous across two or more spans  
 These are total loads (weight of panel should be considered in horizontal applications)  
 DOL (Duration of Load) 1.25 and Experience factor of 1.30 used in load tables.

**Form Panel Thickness:** For more detailed design information, refer to APA publication "Plywood For Concrete Forming" and to American Concrete Institute publication "Formwork for Concrete."

**Edge Support:** In high moisture/sustained load conditions, edges may have a greater deflection than the panel center and may exceed calculated deflection.

### Suitability for Use and Warranty

Nothing herein constitutes a warranty express or implied, including any warranty of merchantability or fitness for use, nor is protection from any law or patent to be inferred. The exclusive remedy for all claims is replacement of materials. Contact the sales office for a copy of the complete Olympic Terms and Conditions of Sale.

### Warehouse Storage and Handling

- Store in a dry, clean, well-ventilated area indoors.
- Avoid temperatures and moisture extremes. Allow panels to equalize for 72 hours or more before use.
- Pieces must not be stored in contact with the ground.
- Limit the stacking height to four or five units. Separate units with clean, dry spacers of uniform thickness, aligned carefully. Use three spacers for panels 8' long.

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### Jobsite Care and Handling

1. **Product preparation:** OPP's HDO panels are not factory release coated. Lightly coat panels prior to first use and each subsequent use with Nox-Crete PCE/PCS or equivalent agent that will not bond with, stain, or adversely affect concrete surfaces. Follow the manufacturer's recommendations for application.
2. **Pouring and Vibrating:** While panels are highly resistant to abrasion and impact, they can be damaged through improper use. Follow the rate of pour to reduce excessive pressure that can cause panel damage. Use rubber tipped vibrators and exercise care not to damage form faces.
3. **Stripping:** Prolong panel life with proper stripping and handling. Use wood wedges, rather than metal bars or pries, to separate the form from the concrete. Form panels must be lowered, not thrown or dropped, to avoid face and edge damage.
4. **Cleaning: Storage and Edge Sealing:** Clean panels after each use, employing burlap or flat, non-scratching tools such as plastic or wood scrapers. Reseal cut edges or exposed wood at holes or openings with two coats of a Styrene acrylic sealer. Stack panels flat and remove fasteners to prevent damage and warping. Store panels in a protected area and avoid direct sunlight.
5. **Surface Repairs:** Clean all concrete and release agent from the damaged area, using a putty knife. Apply an epoxy gel, such as Evercoat Fiberglass Epoxy, PC Products PC 11 White Epoxy Paste, Aquamend Epoxy Repair Putty or W.R. Meadows Rezi-Weld Gel Paste. Sand the patch so it is flush with the surrounding area, being careful to not sand the overlay off of the adjacent section.

### Environmental Impact

Olympic Panel produces overlaid plywood from veneer peeled at the Olympic plant and from purchased veneer. All veneer and plywood panels are manufactured in accordance with the following principals:

- Logs and veneer originate in sustainable, secondary growth forests, which are managed according to Federal and State laws and regulations.
- Olympic Panel uses energy efficient, environmental control technology to reduce emissions to levels below federal and state guidelines.
- Olympic Panel uses process by-products to produce energy.
- Olympic's products are renewable, biodegradable and recyclable.

### Warnings

This product contains < 0.01 parts/million of residual formaldehyde from manufacturing. This product will generate wood dust from sawing, sanding, or shaping. Material Safety Data Sheets are available on Olympic's Web site at [www.olypanel.com](http://www.olypanel.com) and upon request.

Structural panels (PS-1) are exempt from California Air Resources Board regulations, however, this product is below CARB limits for all uses.

### Olympic Panel's Concrete Form Product Family

- **Premium Concrete Form:**
  - **Barrier Film™** - inert to alkalinity for harsh concrete mixes
  - **MultiPour® Plus** - (PSF) - vertical applications only
  - **MultiPour®** - Architectural finish & high re-use
  - **Classic™ HDO** - Alkalinity resistance exceeds Doug fir HDO
- **Industry Standard Concrete Form**
  - **Basic™ HDO** - Economical Doug fir HDO 100/30
  - **B-Matte® 333® MDO** - Matte finish with high re-use
  - **Basic™ MDO** - Economical, utility panel with matte finish

### Olympic Panel Technical/Sales Information

204 East Railroad Avenue; Shelton, WA 98584  
 Sales phone: 800-445-2442 Sales Fax: 360-432-5081  
[www.olypanel.com](http://www.olypanel.com)

