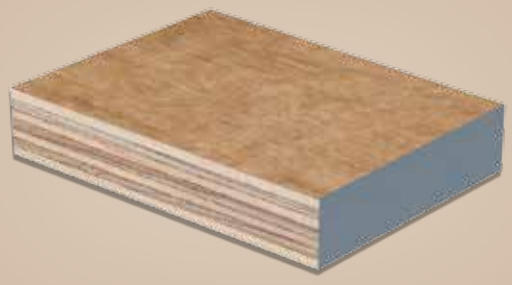
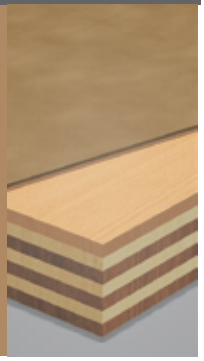
HI-FLOW® MDO

Concrete Form



- Enhanced alkalinity resistance vs. regular MDOs
- Matte finish = good coated concrete base
- Factory applied Nox-Crete FormCoat
- Balanced substrate design promotes stability



Product Description:
Hi-Flow® MDO is a standard, medium-density overlaid plywood concrete form for matte finishes with a factory applied release coating. It provides enhanced alkalinity resistance vs. regular MDOs.

Panel Construction/Moisture Resistance:
Hi-Flow® MDO is an overlay on Douglas faced plywood with Doug Hem construction. It is manufactured with a one-step layup, has a waterproof glue bond and meets APA PS 1-09. All Olympic products are made in the USA.

Working Faces/Treatment:
- Hi-Flow® MDO is available with one (standard) or two (optional) working faces. Standard panels with a single working face
- Gloss level of concrete surface: matte
- Wood grain transfer to concrete surface: moderate
- Wood defect transfer to concrete: moderate
- Sugaring: none
- Maintenance: occasional

Working Edges/Treatment:
- Factory sawn and sealed with special blue, styrene acrylic sealer
- Seal all exposed wood (edges and holes) with Edge Flex 645 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

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
Hi-Flow® MDO is available with custom load tables. Allowable pressure ℓ/270 ¾" @ 12" OC (face gain across supports): Struct 1- 1105 PSF (wet), Class 1- 885 PSF (wet)

Typical Pour Ranges:
- Engineered systems: not recommended
- Gang forms: up to 20 pours
- Job built: up to 10 pours
- Pour ranges are not guaranteed because the number of pours will 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

Release Coating:
- Release agent: Nox-crete FormCoat
- Coating required: light before first and each subsequent pour
- Recommended release agent: Nox-Crete FormCoat or equivalent. Avoid release agents containing fuel oils, recycled oils or solvents

Limitations:
Do not exceed design limitations imposed by the load span table. Conform to concrete form design procedures based on American Con-crete 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:
Olympic Hi-Flow® MDO is available in 1/2" to 1-1/8". Standard panel sizes are 4' X 8' & 10'. Non-standard thicknesses and widths meeting volume requirements are available.

Technical Data Applicable Standards
All panels are manufactured by Olympic Panel per product standard PS1-09. This standard is available at www.apawood.org.

Physical Properties	1/2" to 1" & Greater
Formaldehyde Level ASTM E-1333	0.01 parts/million

*Resin system is 100% phenolic and contains no added urea resins

Panel Tolerances	1/2" 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	Hi-Flow® MDO 1 Face, MDO Back Average Weight*/ Sq. Ft.	Hi-Flow® MDO 2 Face Average Weight*/ Sq. Ft.	Pieces per Unit
1/2"	1.500	1.600	66
5/8"	2.187	2.100	50
11/16"	2.250	2.270	45
3/4"	2.300	2.175	44
1-1/8"	3.300	3.300	30

*Average product weights may vary +/- 10%

Product Grade
Standard product is shipped on grade only. Special product is shipped allowing up to 10% total good one side (G1S) and/or shop, identified & priced separately. Shipments of G1S and shop may be available.

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					
	Struct 1		Class 1		Wet Adjust Factor
Nominal Thickness	1/2"	3/4"	1/2"	3/4"	
Number of Plys	5	7	5	7	
Table 1: Face Grain *Perpendicular* to Supports-Dry[1]					
Bending Stiffness[1]	138, 226	467,824	137,951	421,415	.85
Bending Resistance[2]	393	875	391	789	.75
Planar Shear[3]	267	360	199	262	.75
Table 2: Face Grain *Parallel* to Supports-Dry[1]					
Bending Stiffness[1]	40,100	191,029	34,054	160,967	.85
Bending Resistance[2]	207	551	152	402	.75
Planar Shear[3]	145	302	103	229	.75

[1]Bending Stiffness = EI* (lb-in^2/ft); [2]Bending Resistance = M or FbS (lb-in/ft); [3]Planar Shear Capacity: V or F_sIb/Q (lb/ft). There is no DOL (Duration of Load) or experience factor applied to EI. FbS and FsIb/Q.

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

Struct 1 LOAD SPAN TABLES – WET CONDITIONS Recommended Maximum PSF on Struct 1 Panels or Equivalent (V405)								
Table 3: Face Grain *Perpendicular* to Supports[1]								
Support Spacing	Plywood Thickness – Allowable Pressure (PSF)							
	1/2"		5/8" or 11/16"		3/4"		1-1/8"	
(in.)	ℓ/360	ℓ/270	ℓ/360	ℓ/270	ℓ/360	ℓ/270	ℓ/360	ℓ/270
8"	1,405	1,405	1.970	1,970	2,050	2,050	3,095	3,095
12"	485	620	745	875	1,060	1,105	1,845	1,845
16"	205	275	350	450	505	575	1,335	1,335
19.2"	120	160	195	265	305	405	1,015	1,015
24"			100	135	160	210	625	650
Table 4: Face Grain *Parallel* to Supports[1]								
Support Spacing	Plywood Thickness – Allowable Pressure (PSF)							
	1/2"		5/8" or 11/16"		3/4"		1-1/8"	
(in.)	ℓ/360	ℓ/270	ℓ/360	ℓ/270	ℓ/360	ℓ/270	ℓ/360	ℓ/270
8"	550	610	1,115	1,115	1,685	1,685	2,525	2,525
12"	155	210	430	575	715	810	1,560	1,560
16"			180	240	310	415	1,000	1,000
19.2"			125	170	220	250	555	555
24"					110	150	355	355

Notes: [1]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."

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 temperature 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, four or five spacers for longer panels

Jobsite Care and Handling

1. **Product preparation:** OPV'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.
2. **Pouring and Vibrating:** 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:** Remove form release agent, concrete & loose wood/overlay debris. Sand the damaged surface with coarse (80 grit) disc or paper. For architectural concrete, use fine (120 grit) for the damaged perimeter area. Clean all sanding debris from the repair area. Apply: W.R. Meadows - Rezi-Weld Gel Paste State, Euclid - Euco #620 Gel Epoxy System, or Sika - Sikadur AnchorFix. Use the Rezi-Weld Gel Paste State when the air temp is above 60° F, or the Euco #620 Gel or Sikadur AnchorFix-4 when the air temp is above 33° F. Scrape off the excess repair material using a putty knife. Allow repair material to cure for 24 hours (48 hours in cold weather) before sanding, then feather sand the area.

Environmental Impact

Olympic Panel produces overlaid plywood from veneer processed at the Olympic plant and manufactured to the following principles:

- Logs and veneer originate in sustainable, secondary growth forests, which are managed to federal and Washington State regulations
- Hi-Flow® MDO form is LEED compliant and may contribute points for EQ Credit 4.4 for emitting materials: composite wood
- 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 0.03 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 website at 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 applications.

There's more than one reason Olympic Panel is #1 in the concrete forming industry. Find out more at www.olypanel.com

Olympic
PANEL & VENEER

204 East Railroad Avenue
Shelton, WA 98584
Sales phone: 800-445-2442
Sales Fax: 360-432-5081
www.olypanel.com

Olympic Panel & Veneer, LLC and Olympic Panel are registered trademarks of Olympic Panel Products LLC. Specifications subject to change without notice. Effective: 08/2014; Replaces: 10/2008