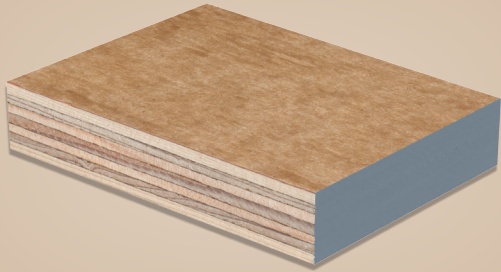


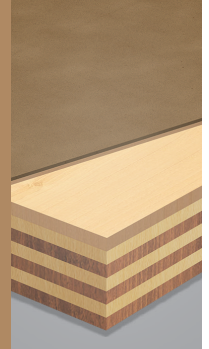


HI-FLOW[®]

Concrete Form



- Enhanced panel stability in deck applications using "Swan Peel™" Technology
- Increased # of pours & reduced cost/pour
- Matte finish for coated concrete



Swanson Group[®] provides the highest proven performance in conform panel solutions. Customers recognize our exceptional history of performance, exhibited in our panel solutions, including the first HDO/MDO "combi" panels in North America. Swanson works directly with customers to establish relationships based upon market needs, panel design properties, overlay technologies, and application experience. We are now enhancing our capability to provide superior panel performance. **Swanson is manufacturing in a new state-of-the-art facility which is the most sophisticated overlay panel facility in North America.**

Product Description:

Hi-Flow[®] is a higher performance, medium-density overlaid panel for matte finishes. It provides higher performance with its enhanced alkalinity resistance and unique panel appearance.

Panel Construction/Moisture Resistance:

Hi-Flow[®] is an overlay on Douglas faced plywood with Douglas Fir/Hemlock construction. It is manufactured with a one-step layup, has a waterproof glue bond and meets APA PS 1-09. All Swanson products are made in the USA.

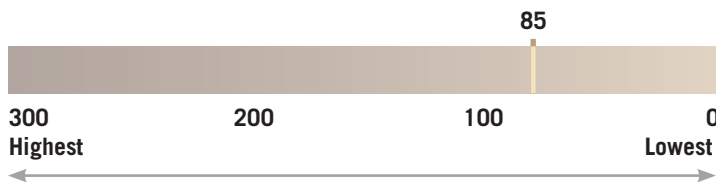
Working Faces/Treatment:

- Hi-Flow[®] is available with one (standard) or two (optional) working faces. Standard panels with a single working face have a raw Fir Back
- Gloss level of concrete surface: matte
- Wood grain transfer to concrete surface: moderate
- Wood defect transfer to concrete: moderate
- Sugaring: none
- Maintenance: limited

Working Edges/Treatment:

- Factory sawn and sealed with special gray, styrene acrylic sealer
- Seal all exposed wood (edges and holes) with Edge Flex 645 by Nox-Crete, Swanson 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[®] is available in Struct 1. Allowable pressure $\ell/270 \frac{3}{4}$ " @ 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: Factory Treated with Nox-Crete Form Coating
- Coating required: light before first and each subsequent pour
- Recommended release agent: Nox-Crete Form Coating (oil based and inherently biodegradable), Bio-Nox (water based and readily biodegradable) or equivalent.
- Special applications or use requirements may dictate the need for alternative release agents. Contact Swanson Group Sales, Nox-Crete or alternative manufacturer for more information.

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 Swanson for technical assistance.

Thicknesses & Sizes:

Swanson Hi-Flow[®] is available in 1/2" to 1-1/8". Standard panel sizes are 4' X 8'. Non-standard thicknesses and widths meeting volume requirements are available.

Technical Data Applicable Standards

All panels are manufactured by Swanson Group[®] 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® 1 Side/Raw Back Average Weight* lbs./Panel	Hi-Flow® 2 Sides Average Weight* lbs./Panel	Pieces per Unit
1/2"	48.1	50.6	66
5/8"	67.5	70.0	50
11/16"	71.4	73.8	45
3/4"	73.7	76.2	44
1-1/8"	105.7	108.2	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 (COF) 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					
Nominal Thickness	Struct 1		Class 1		Wet Adjust Factor
	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

¹Bending Stiffness = EI* (lb-in²/ft); ²Bending Resistance = M or FbS (lb-in/ft); ³Planar Shear Capacity: V or F_vlb/Q (lb/ft). There is no DOL (Duration of Load) or experience factor applied to EI, FbS and F_vlb/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								
Support Spacing	Plywood Thickness – Allowable Pressure (PSF)							
	1/2"		5/8"		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"		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"	115	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: ¹Plywood 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.

Class 1 LOAD SPAN TABLES – WET CONDITIONS Recommended Maximum PSF on Class 1 Panels								
Support Spacing	Plywood Thickness – Allowable Pressure (PSF)							
	1/2"		5/8"		3/4"		1-1/8"	
(in.)	ℓ/360	ℓ/270	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	2,230	2,230
12"	455	495	710	710	885	885	1,380	1,380
16"	195	260	325	400	455	505	1,000	1,000
19.2"	110	150	190	255	270	350	740	820
24"			100	130	145	190	425	530

Table 6: Face Grain Parallel to Supports ¹								
Support Spacing	Plywood Thickness – Allowable Pressure (PSF)							
	1/2"		5/8"		3/4"		1-1/8"	
(in.)	ℓ/360	ℓ/270	ℓ/360	ℓ/270	ℓ/360	ℓ/270	ℓ/360	ℓ/270
8"	392	434	747	747	1,175	1,175	1,819	1,819
12"	145	167	409	466	596	648	1,167	1,167
16"			167	213	273	364	749	749
19.2"			121	163	194	216	404	448
24"					100	135	241	289

Form Panel Thickness: For more detailed design information, refer to APA publication "Design/Construction Guide: Concrete Forming V345" 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 Swanson 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

- Product preparation:** Swanson's Hi-Flow® panels are factory release coated. Lightly coat panels prior to first use and each subsequent use with Nox-Crete Form Coating, Bio-Nox or equivalent agent.
- 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.
- 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.
- 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.
- 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

- Swanson Group uses process by-products to produce energy
- Swanson 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 Swanson's website at www.swansongroup.biz 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.

There's more than one reason Swanson Group® is #1 in the concrete forming industry. Find out more at www.swansongroup.biz



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