

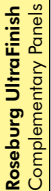





ROSEBURG DURAMINE

DECORATIVE MELAMINE

		HPL MATCHES				EDGE-BANDING MATCHES				MATCHES TO DOOR COMPANIES							
		 WILSONART INTERNATIONAL wilsonart.com	 FORMICA formica.com	Nevarmar nevamar.com	Pionite panolam.com	 Roseburg UltraFinish Complementary Panels	 CAMPLAST canplast.com	 DÖLKEN WOODTAPE woodtape.com	 OLON Let's come together olon.com	Advanced Door advdoor.com	Brenwood Corp. brenwoodcorp.com	Brushy Creek Custom Doors bccdoors.com	California Door caldoor.com	Corona Millworks coronamilworks.com	Decor-Active Specialties decore.com	Doormark doormark.com	Drees Wood Products dreeswoodproducts.com
06	Black	1595	909	S-6-1	SE101	X	1005-9	2416	7003TX	X	X	X	X	X	X		
11	White	D428/1573	949/7197	S-7-36	SW806	X	1401-9/1463-9	2002/2022	7001TX	X	X	X	X	X	X		X
16	Almond	D30	920	S-2-85	ST655	X	2514TL/1543-9	2114	7002TX	X	X	X	X	X	X	X	X
20	Folkstone Grey																
55	Hard Rock Maple	10776	7012		WM791	X	58092/56469	3728/4125	8112T/8507T		X	X	X	X	X	X	X
108	Folkstone	D381	927	S-6-37	SG241		1066-9	2454	7006TX	X	X	X	X		X		X
327	Executive Cherry				WC331		56905TL	5013	1371T						X		
361	Element Alder				HP688		56414TM	5682	1181T						X	X	
381	Cherry Blossom		T449				57341	4985	1134								
420	Summer Flame		ArboriteT420				56643	4101	2642/1196								
421	Candlelight		ArboriteT421				57048	4102	2462/2164								
444	Chocolate Pear Tree		ArboriteT444				57170	4763	2200								

4	Natural Maple		7012		WM851			3916	8830TX								
54	African Mahogany	7122		W-8-343	WY091		5714TL/7673TL	4726/4607	8803		X		X				X
62	Fusion Maple	7909	7012	W-8-340		X	58080/56232TL	3922	8435T	X	X						X
64	Pearwood	7061	1150		WX031		7751TM	3957	8736T								
68	Oiled Cherry		7484		WC421		56631TL	3921/4198	8675T								
339	Red Alder						55093TL	5012	8870T								
371	Medium Sycamore				HP689		58790/56414TM	4489			X		X		X		
379	Rustik Cherry		T521				57167	4821									
391	Cordoba Pine				WX421		57657TM	4887					X		X	X	X
443	Secret		ArboriteT443				56582	4443	1199								
514	Silver Frost	4830			A60		86151TW	6098			X			X	X		
660	Cranberry Apple						58879	3142	CM10671								X
700	Rustic Alder	16025					58726TL	5948	1284T								
701	American Black Walnut	16026					58727TL	5949	1285T								
702	Noce d'Autore	16027					58725TL	5950	1286T	X							
703	Tuscan Teak	16029					58724TL	5951	1287T								
704	Tuscan Teak Rosso	16028					58723TL	5952	1288T								
705	Tuscan Teak Grigio	16030					58722TL	5953	1289T								
706	Chocolate Cherry					X	58721TL	5954	1290T	X					X		
707	Jubilee Cherry					X	58720TL	5955	1291T	X					X	X	
716	Qtrd Caramel Bamboo						58880TL	3143	CM10672								
717	Cioccolato Noce						58881TL	3144	CM10673								
718	Cafe Primavera						58882TL	3145	CM10674								
797	Mossy Oak Breakup																
798	Diamond Plate	16031					86107TW	6286	7567T								
799	Carbon Fiber	16032(1)					86108TW	6287	7509T								

14	Antique White	1572	932	S-7-5	SW803		1578TL/4522TL	2115	7113T	X		X		X	X		
17	Light Beige																
21	Champagne	1531(2)	925	S-2-3	ST613		2542TL	2122/2121	7062T								
22	London Grey	D92	961	S-6-12	SG213	X	1060-9/1059TL	2425	7071TX		X				X		X
314	Norwegian Maple		756		W140		56524TL	3728	1056T								
319	Pacific Maple	10745			WM951		55195TL	4938		X		X				X	
328	Woodlawn Cherry				W144		7937TL	4624/3777	8667T		X				X	X	
333	Brentwood Cherry		5904		WC421		57335TL	4570	2635T								
340	Napa Cherry				W685		58791TL	5016	1402T/1116T			X	X		X		
448	Cognac Cherry		ArboriteT448				57345	4984	1133								
554	Copper Polaris						9644TL	6151									
555	Grey Polaris						9637TL	6024	1144T		X						

Our intent is to illustrate the best identified matching references at time of publication. Roseburg recommends contacting various component manufacturers for current availability and minimums. Roseburg recommends comparing actual samples of TFM, HPL, RTF and edge banding.

• = Five Piece Door

For additional and updated information, please see: www.Roseburg.com

MATCHES TO DOOR COMPANIES

3D LAMINATE MANUFACTURER MATCHES

ESP SHIPPING DETAILS

Georgia Hardwoods gahwds.com	JB Cutting Inc. jbcutting.com	Lamination Technology (LTI) ltiproducts.com	Lindsey Door lindseydoors.com	M and J Woodcrafts Ltd. mjwoodcrafts.com	Mag Works mag-works.com	Northern Contours northerncontours.com	PACKOR s.com Flamschuch	SURFACE SOURCE INTERNATIONAL Inc	ssinorthamerica.com	OMNOVA SOLUTIONS INC.	RENOLIT	americanrenolit.com	Other RTF Matches
X	X	X	X		X	X			Black	488565/488580		9920-278(1)	PVCX-BK8A
X	X	X	X	X	X		X •	428-2065	Glacier White			9317-084(1)	
X	X	X	X	X	X	X		429-0033	Almond			1399-04(1)	
X	X	X	X	X		X	X •	422-3019	Hard Rock Mpl	491980 (2)		2007001(1)	
	X	X		X						448395 (2)		7265-133(1)	
			X			X				491480		3196021-043 (1)	
		X	X					442-3017					
												3214004-060	
		X										3207002-060	
		X										2199002-050	
		X										3207003-050	



Duramine colors within this Level ship from the manufacturing facility within **48 hours.**

		X											
		X	X			X				490340			
	X	X								490370		1282001-043(2)	
		X										3196016	
		X											
		X	X		X	X							Ambtra VDEKRD-44
		X										3214002-060	
X		X	X	X	X			422-4143		491880		82028-1439(2)	Riken Shadow Oak
		X										2188005-060	
X	X		X			X			Brushed Steel	491840 (SA)			
	X								Tawney Port	491860			
	X	X			X					492260			
	X	X			X								
X		X	X		X			422-4144					PVCX-CP02 (2)
		X			X							4210003-050(2)	
					X							4210001-050(1)	
					X							3226001-050(1)	
X					X			422-3053		492180			
X	X				X			422-3054		492190			
										495080			
								422-4142(1)					
													Rekin-Cafe Primavera
X					X					492270 (2)			
					X					491040 (2)			

Duramine colors within this Level ship from the manufacturing facility within **7 days.**

	X		X		X		X	429-1006	Antique White			1458-084(1)	PVCX-WH48A
					X	X							
					X							3199011-043(2)	
	X	X			X				Wild Cherry				
		X	X		X			424-5006		488695 (2)			
												3214003-060	

Duramine colors within this Level ship from the manufacturing facility within **2 weeks.**

CoreOptions

Roseburg provides a broad selection of core options including: UltraBlend particleboard, Synergite and other MDFs. For green projects we meet your needs with our hybrid SkyBlend™ particleboard and MDF cores. All of our green cores have no urea formaldehyde added in the manufacturing process. Our engineered core options give you the dimensional stability and surface quality you can rely on every day.



UltraBlend particleboard

is a multi-layered substrate, produced using a blend of softwoods. The combination of sanding to extremely smooth, tight and grainless surfaces on both sides, with a controlled distribution pattern of particles in the core, results in a perfect, dimensionally stable panel.



Roseburg Synergite

Medium Density Fiberboard (MDF) and other MDFs make for a very smooth, consistent panel. This is a great substrate for applications when routing and shaping are required.

Green Core Options

LEED CATEGORY/CREDIT	INTENT	REQUIREMENTS	POSSIBLE POINTS
Materials and Resources MR Credit 4.1 Recycled Content: <i>10% (post+ 1/2 pre-consumer)</i>	Increases the use of products that incorporate recycled content material	Sum of recycled content constitutes at least 10% of materials in the project	1 point
Materials and Resources MR Credit 4.2 Recycled Content: <i>20% (post+ 1/2 pre-consumer)</i>	Increases the use of products that incorporate recycled content material	Sum of recycled content constitutes at least 20% of materials in the project	1 point (in addition to MR credit 4.1)
Indoor Environmental Quality EQ Credit 4.4: Low-Emitting Materials	Improves indoor air quality	Wood products used shall contain no added urea-formaldehyde resins	1 point
Materials and Resources MR 5.1 Regional Materials: <i>10% Extracted, Processed & Manufactured Regionally</i>	Increases the use of materials that are extracted and manufactured within the project region	A min. of 10% of the combined value of building materials or products must be extracted, harvested, or recovered, as well as manufactured within 500 miles of the project	1 point
Materials and Resources MR 5.2 Regional Materials: <i>20% Extracted, Processed & Manufactured Regionally</i>	Increases the use of materials that are extracted and manufactured within the project region	A min. of 20% of the combined value of building materials or products must be extracted, harvested, or recovered, as well as manufactured within 500 miles of the project	1 point (in addition to MR credit 5.1)
Materials and Resources MR Credit 7.0: Certified Wood <i>FSC - Forest Stewardship Council</i> NOTE: FSC Certified SkyBlend only	Encourage environmentally responsible forest management	Use a minimum of 50% wood based materials and products, which are certified in accordance with the Forest Stewardship Council's (FSC) Principles and Criteria, for wood building components	1 point



Roseburg SkyBlend™ core panels are manufactured with SkyBlend™ particleboard or MDF and contain no added urea formaldehyde.

- Particleboard Core
- EPP certified 100% pre-consumer recycled wood fiber Particleboard and MDF
- FSC SkyBlend Particleboard available when specified
- No urea formaldehyde added during the manufacturing process
- Particleboard readily identifiable by its blue-tinted core
- Will contribute to achieving LEED credits

Product Description

Roseburg Duramine® Decorative Melamine panels consist of melamine, resin saturated decorative papers, thermally fused under heat and pressure to a substrate of Roseburg UltraBlend particleboard, Synergite or other MDF (medium

density fiberboard). The thermally fused melamine (TFM) process permanently bonds the paper and the board therefore, there is NO GLUE LINE to delaminate.

Duramine® Benefits

Duramine® decorative panels have the decorative paper already permanently bonded to the substrate. There is:

- No delamination or “peel back.”
- No glue or pressing equipment required.
- No solvent emission from drying glue.
- No disposal of hazardous chemicals.
- No labor required to lay up high pressure laminates.
- Less expense than HPL.
- Less downgrade through fabrication.

Panel Face

Fifty-five solid, pattern and woodgrain designs are available in the Duramine® National Design Collection as well as hundreds of others from Coveright, Dynea, Formica, Wilsonart and other custom sources.

Duramine® panel faces are manufactured to meet or exceed NEMA LD 3-2005-VGL minimum requirements with the exceptions noted in the Surface Properties chart below.

Panel Backs

Duramine® panels are available with decorative faces, two sides or with a white or brown melamine saturated balancing backer sheet. A glueable backer is avail-

able for panels which will subsequently be laminated with high pressure laminate or other materials.

Surface Properties

Tests for Resistance to:	Test Description	Roseburg Duramine®		NEMA LD3-2005 VGL Minimum Performance Standard
		Solid Colors	Wood Grains	
Wear	A measure of the ability of a decorative overlaid surface to maintain its design or color when subjected to prolonged abrasive wear	400 cycles	125 cycles	400 cycles
Scuff	A measure of the ability of a decorative overlaid surface to maintain its original appearance when subjected to prolonged scraping or scuffing	No effect	No effect	No effect
Stain	A measure of the ability of a decorative overlaid surface to resist any discoloration or marring by prolonged contact with 15 common household substances	No effect - 1-11, 15 Moderate - 12-14	No effect - 1-11, 15 Moderate - 12-14	No effect - 1-10 Moderate - 11-15
Cleanability	A measure of the ability of a decorative overlaid surface to be cleaned after prolonged contact with 15 common household substrates.	No effect Surface cleaned in 10 or fewer strokes	No effect Surface cleaned in 10 or fewer strokes	Surface cleaned in 20 or fewer strokes
Light	A measure of the ability of a decorative overlaid surface to retain its color after prolonged exposure to a light source having a frequency range approximating sunlight	Slight	Slight	Slight
High Temperature	A measure of the ability of a decorative overlaid surface to maintain its color and surface texture when a hot pot of 180° C (356° F) is placed on it for 20 minutes	Slight	Slight	Slight
Radiant Heat	A measure of the ability of a decorative overlaid surface to resist any damage when subjected to a radiant-heat source under controlled laboratory conditions	No effect after 60 seconds	No effect after 60 seconds	No effect after 80 seconds
Boiling Water	A measure of the ability of a decorative overlaid surface to maintain its color and surface texture when subjected to boiling water for a period of 20 minutes	Slight to no effect	Slight to no effect	No effect
Impact	A measure of the ability of a decorative overlaid surface to resist fracture due to the impact of a 1/2 pound steel ball dropped from a measured height	15" without fracture	15" without fracture	15" without fracture

LIMITATIONS: Roseburg Duramine® is recommended for interior vertical and low abuse horizontal applications. For any questions or additional information regarding your particular application, please contact Roseburg at 800-245-1115.

Panel Texture

Duramine® panels are available in five textures as follows:

- “S” Texture features a low gloss, suede/matte appearance — available from Dillard, OR, Missoula, MT and Oxford, MS.
- “Z” Texture features a medium gloss appearance with less aggressive stipple than “S”— available from Dillard, OR and Missoula, MT.
- “F” Texture features a low gloss, flat furniture appearance - available from Oxford, MS.
- “H” Texture features a medium gloss light-soft texture – available from Oxford, MS.
- “L” Texture features a lower gloss, light-soft texture – available from Oxford, MS.

Panel Sizes

• 4’ and 5’ wide by 6’ to 12’ long • ¼” to 1-1/8” Thick

• Note: Most all sizes listed above are available from most presses. Please ask your Roseburg representative for additional information including other available sizes and thicknesses.

Panel Core

Duramine® panels are available on UltraBlend and SkyBlend particleboard, Synergite and other MDF cores.

Please see additional information in the “Core Options” page 20 of this brochure.

Applications

RESIDENTIAL

- Kitchen & Bath Cabinets
- Home Office Furniture
- Ready-To-Assemble Furniture
- Closet & Garage Organizations Systems
- Entertainment Centers

COMMERCIAL

- Store Fixtures and Displays
- Office Furniture & Partitions
- Computer Furniture

INSTITUTIONAL

- Hotel and Motel Furniture
- Wall Coverings & Partitions
- Restaurant Furniture
- Educational, Hospital and Medical Casework
- Educational Furniture

Fabrication Standards

Cabinets constructed with Duramine® Melamine panels will conform to the relevant sections of standards set by the Woodwork Institute (WI) and American Woodwork

Institute (AWI) Standards for exposed and semi-exposed surfaces as well as the Kitchen Cabinet Manufacturers Association (KCMA) (ANSI A 161.1-1990).

How To Specify

Product: Roseburg Duramine® Decorative Melamine Panels

Color name: (Example) Hard Rock Maple Color Ref. #: (Example) 55

Texture: (Example) “S”

Substrate type: (Example) UltraBlend™ particleboard, SkyBlend™ particleboard, Synergite or standard Medium Density Fiberboard (MDF)

Width: (Example) 49” Length: (Example) 97” Thickness: (Example) 3/4”

“See 3 Part Guide Spec” at http://teamrfpco.com/products/SkyBlend_PB_CSI_3_Part_Specifications_Guide_AR.pdf

Handling

PACKAGING

Cover Sheet—Each bundle has a heavyweight cardboard cover sheet to provide protection during material handling and transportation.

Dunnage Sheet—Bottom Board—Each bundle has a protective bottom board to prevent damage from forklifts and to provide additional support for thin panels to prevent sag between stickers.

Bundle Ticket Information—Each bundle is identified by a discrete number on

the bundle tag that ties into all manufacturing and process control records. This provides complete traceability back to all raw materials used to produce that bundle.

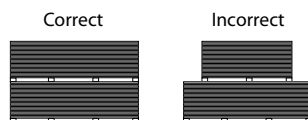
Each bundle tag also clearly identifies the top and bottom paper codes, substrate type, panel dimensions, and any customer-requested P.O. or part numbers.

Storage

To achieve the best performance from your panels, always follow these material handling and storage practices:

- Never store Duramine® panels outside or in close proximity to doors.
- Make sure Duramine® panels are stored in a horizontal position, off the floor, and on a sufficient number of evenly spaced stringers/stickers of equal thickness. This gives a uniform distribution of weight, making handling easier and preventing warping.

The chart at right shows how Duramine® is packaged and shipped from our facility. Roseburg recommends Duramine® be stored in the following manner:



- Limit any stack to a height of five (5) bundles. Never put bundles of different sizes in the same stack (ie, 5’ x 8’ on top of 5’ x 9’). Runners should always be in alignment.
- Protect unfinished edges from contact with water to prevent swelling of the substrate.
- Optimum temperatures for storage are between 60° and 90°F (16° and 32°C) with a relative humidity of 40 to 60 percent. Never store panels outdoors. Allow panels to acclimate in these conditions for 48 to 72 hours before fabrication.
- Contaminants can create problems for the finish of your panels. To help prevent the impact of contaminants, isolate storage areas from production lines.

Cleaning, Care, And Maintenance

Duramine® panels can be cleaned after fabrication with mineral spirits or contact adhesive solvent. However, the continued use of solvent cleaners is not recommended.

Never use acidic or alkaline cleaners, abrasive cleaners, or bleach. Duramine® panels should be cleaned with mild soap and warm water or a mild household cleaner like “Formula 409®.”

Drilling, Machining, and Cutting

Drilling - Duramine panels should be drilled with carbide-tipped bits. As with saw blades, there are specific bit designs for your application. Each bit is different in configuration and your needs can be determined by a tooling professional.

A special through boring bit should be used for that particular application. A backing board should also be used for through boring to limit chip out on the exit side of the panel.

Machining With A Saw - Because the substrate is surfaced with decorative material before fabrication, the sawing process is critical to avoid chipping or burning. Fabricators can encounter a chipping problem, especially when converting their operation from the use of solid wood or high pressure laminate to melamine panels. Therefore, diamond or carbide-tipped tools should be used and should always be kept sharp. Dull tools not only cause chipping but burning problems as well.

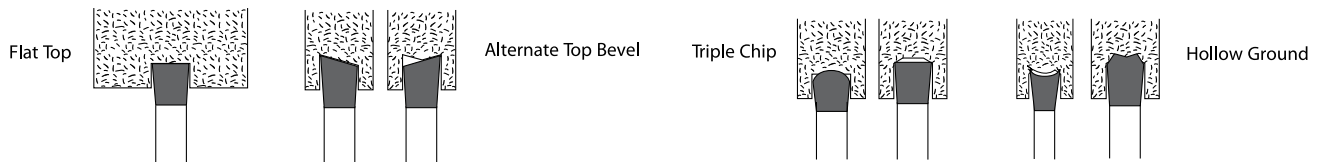
Heat buildup is a major cause of tool wear and poor-quality cutting. Geometry, size, and turning speed of the saw blade, as well as the speed of feeding, are all important to minimize heat build-up.

Heat build-up is also minimized by:

- Good tool design.
- Scheduled tool changes.
- Effective cooling during operation.
- An efficient dust-removal system.

Duramine® can be cut with many different types and configurations of saw blades. The correct setup for your equipment can be established by both the manufacturer of your equipment and your tooling supplier. Listed below are some of the basic blades that are used for cutting composite boards with thermally fused melamine. All modern panel cutting equipment with scoring units are engineered with specific cutting tool designs actually made for the application of sizing Duramine panels into a finished size.

Typical main blade configurations used with scoring are



CNC Routing

For the nested, through cuts, the use of solid carbide 1/2” two or three flute compression bit between 10,000 and 18,000 RPMs perform better than replaceable insert bits. The feed rate is determined by the chip loading. Your tool manufacturer is a good resource for helping to determine feed rate vs. chip loading. For best results with nested cuts, cut each piece out individually. This will minimize chip out associated with the up-cut portion of the compression bit as it enters the panel. Cut travel should be counter clockwise for right hand machines.

The use of a ramp in program will help prevent bits from over heating. The ramp in program allows the bit to start cutting at a shallow depth increasing in depth until desired depth is reached. This helps minimize the heat build common with plunge routing.

For the dado cuts a two or three flute down spiral bit will produce clean edges. Depending on bit diameter, multiple passes may be needed to achieve the desired dado width. Using a narrower bit with multiple passes can save time in tool changes and allows for faster cuts due to smaller diameter bits. The same is true of the compression bits.

Carbide Or Diamond: These two saw blade tips are the only recommended products for cutting Duramine. Diamond typically offers much longer tool life than carbide.

Scoring: There are two different types of scoring saws that are used to prevent chip out on the bottom panels: conical and split. Scoring saws, as with the main cutting blade, are designed for specific equipment types and your end-product requirements. The best source to determine which type is correct for you is your tooling and equipment professional.

Important Suggestions For A Clean Cut

1. Use carbide-or diamond-tipped tools.
2. Use a scoring blade.
3. Use clean, well-aligned, and correctly-sharpened tools.
4. Make sure the main blade and scoring saw are perfectly aligned.
5. Make sure the collars are well-adjusted and clean.
6. Make sure the panel is held firmly in place—avoid vibrations.
7. Avoid a projection of the blade that is too high—a blade projection of about 12 mm or 1/2 inch is sufficient.
8. Handle cutting tools with the utmost care. Damaged tools will not give the best results and could be dangerous to use.
9. Replace cutting tools regularly to minimize chipping.
10. Consult with your supplier of cutting equipment and tools for answers to questions regarding the speed of cutting and feed, as well as cutting angle.
11. Ensure proper dust collections.
12. Ensure the blade and/or slide carriage is kept clean and travels smoothly.

See our Cutting Troubleshooting Guide on the next page.

For hole boring, use brad point bits.

With CNC routers, the work piece needs to be securely fastened to prevent movement or work piece vibration. Adequate vacuum should be applied to prevent piece movement or vibration.

Woodweb.com is a useful source of information for the CNC user.

http://www.woodweb.com/knowledge_base/Feed_rates_and_spindle_speeds.html

The short answer is chip load. $RPM \times \#flutes \times chip\ load = feed\ rate$. RPM depends on material, tool diameter, and tool geometry. #flutes depends on material, tool and material thickness. Chip load depends on tool geometry, desired finish, material, and sometimes, available power. Higher RPMs means more heat. Higher chip load means better heat sink effects. Higher chip loads may degrade finish, but too low a chip load leads to burning and short tool life.

Fastening Systems

Screws

The screw fastening systems designed especially for particleboard are the strongest. These fasteners have straight shanks with a smaller root diameter and wider-spaced threads than wood screws. Remember:

- Always predrill a pilot hole before inserting screws.
- The diameter of the pilot hole should be 85 to 90 percent of the diameter of the screw root diameter.
- Avoid overtightening.
- The screw holding increases more with length than with the root diameter.

RTA Fittings

Some systems, using threaded steel or nylon inserts, are designed for repeated screwing and unscrewing to provide ready-to-assemble (RTA) capability for case goods, store fixtures, furniture, and cabinetry products.

Edge Treatments

Duramine® panels can be edged with a wide variety of edge treatments including:

- PVC or ABS.
- Polyester or melamine for straight edge or soft-forming applications.
- Solid wood.
 - Veneer.
- High-pressure laminates (HPL).
 - Plastic and metal T-moldings.

Troubleshooting

Cutting and drilling problems: causes and possible remedies

Problem	Possible Cause	Possible Remedy
Edge chipping and burning	Saw blade type/design	A blade with a hollow, ground-tooth face burning with a negative rake or an alternate face and top bevel design will achieve best results on most standard saws (single blade) when cutting without a scoring blade.
	Machining of "hot" panels	Allow stacks to come to ambient temperature.
	Dull tooling	Check tooling setup, geometry of tooling, and machine feeding speed. Also check to make sure that tooling type is correct for material to be cut.
	Alignment of saw blades	Saw blade should be perfectly parallel to the direction of the cut. In most operations, it should be vertical to the panel surface.
	Trueness of blade rotation	Make sure blade is not warped or damaged in any way. Check for dirt or dust between blade and blade clamps.
	Cutting depth	Set the blade depth so that it comes through the panel by about 1/2 tooth to provide a low-approach angle and greater shearing action as the teeth enter the panel. Adjust to minimum chipping and maintain sawdust removal rate.
	Feed rate of saw	Check for appropriate blade diameter and design, number of teeth, and arbor RPM.
	Vibration of panel	Panel must be held solidly by clamping device or hold-down feed rolls. Blade dampers are recommended to reduce blade vibration. Throat plate must be tight to the blade.
Warpage full-size panels	Stack stringer/stickers are different thicknesses	Keep stringer thickness uniform.
	Panel stacks do not have stringer locations uniformly placed	Position stack stringers uniformly from panel bundle to panel bundle.
	Dissimilar humidity exposure between the faces of a panel in a stack	Using an appropriate technique, expose both panel surfaces to the same humidity.
	Bundles not stacked evenly on top of one another	Reposition bundles.
	Panels stored on edge	Store flat with 3-6 evenly-spaced stringers, depending on panel length.
Dimensional tolerance stability (camber banana cut, oil-canning)	Cutting hot board	Allow panels to condition to ambient temperature and humidity.
	Camber occurring	Replace tooling and reduce infeed speed. Cut narrower pieces from center of panels, wider pieces toward panel edges. Adjust the guide rail to be parallel with the saw blade.
	Saw blade pinches	Precondition panels. Adjust guide rail and push guide.
Fastening problems	Pilot hole too large	Drill pilot hole 90-100% of shank diameter.
	Incorrect fastener type	Avoid standard wood screws, increase flange to diameter ratio.
	Incorrect application of screw	Change fastener type.
Panel split	Screws too close to edge	Redesign 75 mm from corner if in edge; 25 mm from corner if in face. Do not use "factory edge" 1/2" trim all around.