# MACHINABLE MEDIA

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# FOAM, MODELING, & TOOLING BOARDS

Specific	Specifications Advantage Assessment Assessme									adad								
Specifica	Pensity (B,Cc)  Compress (Shore D)  Pensity (B,Cc)  Compress (Shore D)  Pensity (B,Cc)  Compress (Shore D)  Pensity (B,Cc)  Color  Colo										/							
	Hardness (Shore D)  Density (B/CC)  Density (Ib.ft.³)  Tensile Strength (psi) Strength (psi) Strength (psi) (psi)  CTE (in./in./ep.								/	/				5	Intermedia.	90 J	\ <del></del>	Torming tools
		ore	_ /	m /	8th			. /	/	<b>_</b>		a. /		Vacuus	Mu	ten up	Metalfor	s to
	13/8		) ) )	₽ 19: 14:	ren Sive	Stre	, , , , , , , , , , , , , , , , , , ,		/		\ \tau_{\text{i}}	ה בנילק בנילק	SD	Patt	fort	Lay	20° 5 € 5 € 5 € 5 € 5 € 5 € 5 € 5 € 5 € 5	ning
	nes	بَدُ		le s	ores	oun Iral	in./i		/ 4		den	truc ng 4	ל לבל ה		um. Mec	er & ten	, up	5
	lard	Density (c.	Density	ensi	Compressive	lex <sub>L</sub>	CTE (In./In./ºF)	Color	CNC Pr.	Models	No.	Tooling Aid	Found	, acu	nter (	ligh.	leta Ieta	
Foam Boards		/ 9	9	/ ~	06	48	/ 0		/ 6	/ ~	70	) / ~ &		/	/22	7 4 8	8/2	
Prop Foam	_	0.032	2	_	22	-	_	Lt. Yellow				0	0	0	0	0	0	
HPT-35	-	0.035	2.2	68.2	39.2	41	-	Gray				0	0	0	0	0	0	
HPT-40	-	0.04	2.5	84.1	50.8	-	-	Lt. Green				0	0	0	0	0	0	
U40	-	0.064	4	105	95	116	33.0 x 10 <sup>-6</sup>	Caramel				0	0	0	0	0	0	
U60	_	0.09	6	160	148	190	33.0 x 10 <sup>-6</sup>	Blue-Green				0	0	0	0	0	0	
U80	-	0.13	8	290	230	348	33.0 x 10 <sup>-6</sup>	Lt. Yellow				0	0	0	0	0	0	
U100	27	0.16	10	333	290	406	28.0 x 10 <sup>-6</sup>	Lt. Gray				0	0	0	0	0	0	
U150	25	0.24	15	623	638	928	33.0 x 10 <sup>-6</sup>	Lt. Green				0	0	0	0	0	0	
U200	35	0.32	20	928	1,044	1,450	33.0 x 10 <sup>-6</sup>	Peach				0	0	0	0	0	0	
U280	48	0.45	28	1,523	2,234	2,988	28.0 x 10 <sup>-6</sup>	Peach				0	0	0	0	0	0	
U310	52	0.48	31	1,653	2,379	3,263	28.0 x 10 <sup>-6</sup>	Brown				0	•	•	0	0	0	
<b>Modeling Boa</b>	ards																	
M-3000	55	0.48	30	-	1,740	2,174	18 x 10 <sup>-6</sup>	Apricot				0	0	0	0	0	0	
M-3400	63	0.55	34	-	2,900	2,900	17 x 10⁻⁵	Brown			•	0	•	•	0	0	0	
M-3700	59	0.59	37	-	2,538	3,263	31 x 10 <sup>-6</sup>	Brown	0		0	•	•	•	0	0	0	
M-3900	68	0.62	38.7	-	3,480	3,916	18 x 10 <sup>-6</sup>	Lt. Brown	0		0	0	0	0	0	0	0	
M-4000	62	0.64	40	-	3,989	3,989	31 x 10 <sup>-6</sup>	Brown	0		0	0	•	0	0	0	0	
M-4300	70	0.70	43.7	-	3,770	4,351	17 x 10⁻6	Brown	0		0	0	0	0	0	0	0	
M-4400	69	0.70	43.7	-	4,714	3,989	26 x 10 <sup>-6</sup>	Lt. Brown	•		0	0	0	0	0	0	0	
M-4500	71	0.72	45	-	5,076	4,360	27 x 10 <sup>-6</sup>	Lt. Brown	0		0	0	0	0	0	0	0	
M-4650	71	0.75	46.8	-	5,000	5,438	31 x 10 <sup>-6</sup>	Turquoise	0		0	U	•	U	0	0	0	
Tooling & Hig																		
T-4900	72	0.77	48	-	4,206	4,786	23.3 x 10 <sup>-6</sup>	Gray	0	0	0		0	U	0	0	0	
T-5100	71	0.81	51	-	4,714	4,714	30.0 x 10 <sup>-6</sup>	Gray	0	0	0		0			0	0	
T-6250	80	1	62.4	-	7,541	8,267	21.1 x 10 <sup>-6</sup>	Violet	0		0		0					
T-6900	80	1.1	68.6	-		13,343	23.0 x 10 <sup>-6</sup>	Red	0	0	0	0			0	0		
T-7500	84	1.2	75	-	11,986		34.0 x 10 <sup>-6</sup>	Red	0	0	0	0			0	0	0	
T-7600	80	1.2 1.6	76	-		13,053	36.1 x 10 <sup>-6</sup> 26.0 x 10 <sup>-6</sup>	Orange	0	0	0	0		0	0	0	0	
T-9900 Corintho 800	88-90 50		100 49.9	-	15,954 2,176	11,603 1,015	26.0 x 10 <sup>-6</sup>	Light Tan Black	0	0	0	0	0	•	0			
T-5060	75	0.72	49.9	_	9,790	5,366	19.5 x 10 <sup>-6</sup>	Light Blue	0	0	0	0	0	0		0	0	
ASTM	D-2240			D-638		D-790	D-3386	Ligiti bide		-		-	-	-				
M3 I IVI	D-2240	D-792	D-792	D-038	כפט-ט	D-750	טסככ-ט	_	_	_			_					

## **SPECIFICATIONS CONTINUED**

**Matched Adhesives & Repair Materials** 

Matched Adnes			/				/				o				
	Repro Ultre	Reproties	Dunapol	Fast Set E.	Fast Set E	Fre-Weld	Freeman T	Freeman 4	Fre-Weig	-14 5060 EM Onie 1	Freeman so-	TUF.Can.	TUF.Fil	TUF-Fill WA.:	Hire
Foam Boards	~	~	/ 9	/ 4	/ Ψ	/ ~	/ 4	/ 4	/ 4	/ 5	/ 4	/ ~		/ ~	/ ~
CORAFOAM® Prop Foam	Х		Х									Х			
CORAFOAM® HPT-35	X		X									X			
CORAFOAM® HPT-40	X		X									X			
CORAFOAM® U40	X		X									X			
CORAFOAM® U60	X		X									X			
CORAFOAM® U80	X		X									X			
CORAFOAM® U100	Х		Х									Х			
CORAFOAM® U150	Х		X									X			
CORAFOAM® U200		X	Х									Х			
CORAFOAM® U280		X	X									X			
ORAFOAM® U310		Χ	Χ									Х			
Modeling Boards															
reeman M-3000		Χ		X	Χ	Х						X			Χ*
reeman M-3400		X		X	X	X						X			Χ*
reeman M-3700				X	X	X						X			X*
reeman M-3900				X	X	X						X			Χ*
reeman M-4000				X	X	X						X			X*
reeman M-4300				X	X	X						X			X*
reeman M-4400				X	X	X						X			X*
reeman M-4500				X	Χ	X						X			X*
reeman M-4650				X	X	X						X			X*
ooling & High Temperat	ure Boa	ırds													
reeman T-4900				X	X	X		X		X			X	X	X
reeman T-5100				X	Χ	X		X		Х			X	X	X
reeman T-6250				X	X	X		X		X			X	X	X
reeman T-6900				X	Χ	X	Х	X		X	X		X	Χ	X
reeman T-7500				Х	Χ	Х	X	X		X	X		X	X	X
reeman T-7600								X	Х				X		
reeman T-9900				X	Χ	X		X		Х			X	Χ	X
reeman T-5060								X	X						X
Corintho 800	Use Du	napox E	Black AD	135 Ep	oxy Adh	esive w	ith Corir	ntho 800	Hi-Tem	p Tooli	ng Board	d. See de	etails on	line.	

<sup>\*</sup>for Thermoforming

### **Machining Specifications & Parameters**

	Roughing Speed (Rb.	Roughing Feed (IPM)	Finishing Speed (Rpus	Finishing Feed (IPM)
CORAFOAM® Prop Foam, HPT-35, HPT-40, U40, U60, U80, U100, U150, U200	2,500	200	15,000	200
U280, U310	2,500	200	15,000	100
M-3000, M-3700, M-3900, M-4000, M-4300, M-4400 M-4500	2,000	100	15,000	200
Freeman M-4650	1,600	40	10,000	100
Freeman T-4900	2,000	100	15,000	200
Freeman T-5060	1,600	40	10,000	100
Freeman T-5100	1,600	40	10,000	100
Freeman T-6250	1,600	40	10,000	100
Freeman T-6900	1,600	40	10,000	100
Freeman T-7500	1,600	40	10,000	100
Freeman T-9900	1,600	40	10,000	100
Corintho 800	1,600	40	10,000	100



These machining parameters are starting points. Cutter type, material, spindle speed, feed rate, machine power, and rigidity all affect machining results. User must determine best parameters for specific applications.

Roughing: 1" Ball End mill, 4-Flute, Carbide Finishing: %" Ball End mill, 2-Flute, Carbide

Roughing: Varied from 1/4" to 21/2" deep with 40% stepover

Finishing: 1/8" deep leaving 0.002" scallop height

## **POLYURETHANE FOAM BOARDS**



Low Density Foam Boards offer excellent workability with a broad range of densities to be used in a variety of applications, such as modeling, aerospace, composite, architectural and design industries, signage and low density substrates.



#### CORAFOAM® Prop Foam

▶ 2 lb./ft.³ density ▶ Yellow color

**CORAFOAM Prop Foam was** developed specifically for the carving, scenic, theming, and film industries. It is suitable for

applications requiring strength and a higher level of detail not achievable with styrene. It is easily carvable by machine or hand.

Availability: 6" thickness, 48" width, 96" length.



#### CORAFOAM® HPT-35 Foam Board

▶ 2.2 lb./ft.³ density

▶ Gray color

CORAFOAM HPT-35 is our lightest weight and most economical foam styling board, excellent for machining lightweight styling and

appearance models, plugs, and molds.

Availability: 2-29" thickness, 48" width, 102.4" length.



#### CORAFOAM® HPT-40 Foam Board

▶ 2.5 lb./ft.3 density

▶ Light green color

This cost-effective board offers excellent machinability, ideal for producing lightweight styling models and molds. It also exhibits low

thermal conductivity and superb insulating capabilities, making it well suited to industrial insulation applications.

Availability: 4" thickness, 48" width, 96" length.





#### CORAFOAM® U40 Foam Board

▶ 4 lb./ft.³ density

▶ Caramel color

CORAFOAM U40 is a very low density styling board, making it ideal for lightweight styling and appearance models.

Availability: 2-8" thickness, 24" or 48" widths, 96" length.



#### CORAFOAM® U60 Foam Board

▶ 6 lb./ft.³ density

CORAFOAM U60 is a cost-effective board with a very low density, ▶ Blue-green color making it ideal for lightweight styling and appearance models.

Availability: 2-24" thickness, 48" width, 96" length.

### POLYURETHANE FOAM BOARDS CONTINUED



#### CORAFOAM® U80 Foam Board

- ▶ 8 lb./ft.3 density
- ▶ Light yellow color

CORAFOAM U80 is a rigid, low density, closed-cell urethane foam. This product has an 8 lb./ft.<sup>3</sup> density for making economical, lightweight

styling and appearance models.

Availability: Up to 6" thickness, 24-48" widths, 96" length.



#### CORAFOAM® U200 Foam Board

- ▶ 20 lb./ft.³ density
- ▶ Peach color

CORAFOAM U200 is budgetfriendly while offering an even better surface finish than U150 with excellent edge definition. It is

non-abrasive and can be worked by hand or machine.

Availability: Up to 8" thickness, 24-48" widths, 96" length.



#### **CORAFOAM® U100 Foam Board**

- ▶ 10 lb./ft.³ density
  ▶ Light gray color
- Although this board provides a better surface finish than CORAFOAM U80, it is used in many of the same applications. The light gray color

makes U100 a great choice for architectural models.

Availability: Up to 12" thickness, , 24-48" widths, 96" length.



#### **CORAFOAM® U280 Foam Board**

- ▶ 28 lb./ft.³ density
- ▶ Peach color

CORAFOAM U280 is ideal for master models, prototypes, and CAD design verification. It can be hand-carved or CNC-machined, is non-abrasive, and

offers a good surface finish and edge definition.

Availability: Up to 8" thickness, 24-48" widths, 96" length.



#### **CORAFOAM® U150 Foam Board**

- ▶ 15 lb./ft.³ density
- ▶ Light green color

Improving on CORAFOAM U100's surface finish, CORAFOAM U150 is used in many large and lightweight styling applications.

**Availability:** Up to 12" thickness, 24-60" widths, 96-120" lengths (partial boards available for smaller projects).



#### CORAFOAM® U310 Foam Board

- ▶ 31 lb./ft.³ density
- ▶ Brown color
- CORAFOAM U310 has the highest density of our foam board offering and provides the best surface finish and most superior edge definition

of all CORAFOAM foam boards.

Availability: Up to 6" thickness, 24-48" widths, 48-96" lengths.

### FREEMAN MODELING BOARDS



These boards are designed and formulated to meet the wide scope of proofing, modeling, styling, prototyping and fabricating applications found throughout the industry today.

With these boards included in our comprehensive lineup, the world's most complete line of modeling, fixture and foundry boards is now even better!



#### Freeman M-3000 Modeling Board

- ▶ 30 lb./ft.<sup>3</sup> Density
- ▶ Apricot Color
- Exceptional surface and workability

Freeman M-3000 is a lower-density modeling board that offers a fine surface and exceptional workability. It is an ideal material for master and

styling models as well as general model building.

Availability: 2-5.9" thicknesses, 24" width, 78.7" length.



### Freeman M-3400 Modeling Board

- ▶ 34 lb./ft.³ Density
- ▶ Brown Color
- Outstanding machinabilty

Freeman M-3400 is especially well-suited to a variety of applications. Due to its outstanding machinability, it can be used for master and copy models, styling

and design models, or architectural models.

Availability: 1-6" thicknesses, 24" width, 60" length.



### Freeman M-3700 Modeling Board

- ▶ 37 lb./ft.<sup>3</sup> Density
- ▶ Brown Color
- ▶ Good machinabilty

Freeman M-3700 is similar to M-3400, but offers a little higher density and physical properties. It machines well and is

ideal for prototyping, as well as styling, design and architectural models.

**Availability:** 25-150mm (0.98-5.91") thicknesses, 500mm (19.7") width, 1,500mm (59.1") length.



### Freeman M-3900 Modeling Board

- ▶ 38.7 lb./ft.³ Density
- ▶ Light Brown Color
- Smooth surface and excellent machinability

Freeman M-3900 offers a notable balance of density and finish, resulting in a smooth surface that both machines and paints well. This material is suitable to master and copy model applications.

**Availability:** 1-6" thicknesses, 19.7" and 24" widths, 59.1-60" length.



### Freeman M-4000 Modeling Board

- ▶ 40 lb./ft.<sup>3</sup> Density
- ▶ Brown Color
- ▶ Good surface detail

Freeman M-4000 is ideal for models and prototypes, master patterns and tooling aids. This material will produce very stable,

dimensionally accurate tools with well-defined edges and surface detail.

**Availability:** 25-150mm (0.98-5.91") thicknesses, 500mm (19.7") width, 1,500mm (59.1") length.

## FREEMAN MODELING BOARDS CONTINUED



### Freeman M-4300 Modeling Board

- ▶ 43.7 lb./ft.<sup>3</sup> Density
- ▶ Brown Color
- Excellent machine surface and good dimensional stability

Freeman M-4300 offers excellent machine surface finish, good flexural and compressive strength, along with low CTE and good dimensional stability. This board is an

ideal material for a range of modeling applications.

Availability: 1-6" thicknesses, 24" width, 60" length.



### Freeman M-4650 Modeling Board

- ▶ 46.8 lb./ft.3 Density
- ▶ Turquoise Color
- ▶ Good machine surface

Freeman M-4650 can be used to create master models, patterns, fixtures, but an excellent options for prototype thermoforming

with a Tg of 230°F.

**Availability:** 50-150mm thicknesses, 19.7" width, 59.1" length.



#### Freeman M-4400 Modeling Board

- ▶ 44 lb./ft.3 Density
- ▶ Light Brown Color
- Dimensionally stable

Freeman M-4400 offers a 44 lb. density and designed for prototypes, master models, tooling aids, and automotive die models, as

well as prototype thermoforming.

**Availability:** 25-150mm thicknesses, 19.7" width, 59.1" length.



### Freeman M-4500 Modeling Board

- ▶ 45 lb./ft.3
- ▶ Light Brown Color
- ▶ Tg 230°

Freeman M-4500 machines very well, offering good surface finish. This board is ideally suited for prototype vacuum-forming tools with a Tg 230°F, but also can be

used for prototypes, master models and tooling aids.

Availability: 2-5.91" thicknesses, 24" width, 59.1" length.



### <u>TOOLING & HIGH-TEMPERATURE BOARDS</u>



These boards are ideal for duplicating aids, foundry patterns and hammer-form dies, metal-form and vacuum-form molds, nickel electroforming mandrels, and intermediate temperature-resistant tooling.

The epoxy formulations are syntactic, pre-preg compatible and generally offer higher temperature resistance as well as chemical resistance when compared to polyurethane tooling boards.

#### Freeman T-4900 Tooling Board



- ▶ 48 lb./ft.<sup>3</sup> Density
- ▶ Gray Color
- ▶ Fine surface finish

Freeman T-4900 offers excellent surface finish and optimal machining capabilites. This board is well-suited to the creation of styling and master

models as well as some laminate applications.

Availability: 1-6" thicknesses, 24" width, 60" length.

#### Freeman T-5100 Fixture Board



- ▶ 51 lb./ft.3 Density
- ▶ Gray Color
- ▶ Dimensionally stable

Freeman T-5100 is ideal for tooling and check fixtures, model bases, patterns, and thermoform tools where requirements are less demanding.

Availability: 25-150mm thicknesses, 19.7" width, 59.1" length.

#### Freeman T-6250 Fixture Board



- ▶ 62.4 lb./ft.3 Density
- ▶ Violet Color
- ▶ High temperature resistance & excellent machine surface

This durable fixture board is ideal for intermediatetemperature applications, such as laminate tooling, RIM molding, and vacuum forming. It can withstand temperatures up to 266°F.

Availability: 2-4" thicknesses, 24" width, 40" length.

#### Freeman T-6900 Foundry Board



- ▶ 68.6 lb./ft.<sup>3</sup> Density
- ▶ Red Color
- ► Excellent strength and low CTE

This board's exceptional strength profile makes it ideal for more demanding applications. Its high abrasion resistance and compressive strength make it ideal for

foundry tooling, some metal forming applications, tapping models, and master and design models.

Availability: 1-4" thicknesses, 24" width, 40-59.5" lengths.

#### Freeman T-7500 Foundry Board



- ▶ 75 lb./ft.³ Density
- ▶ Red Color
- ▶ High abrasive resistance

Freeman T-7500 offers excellent machinability, impact resistance, and high abrasive resistance, making it ideal for foundry pattern and core boxes. It is also ideal for use in prototype thermoforming

when vacuuming clear plastic.

Availability: 25-100mm thicknesses, 19.7" width, 59.1" length.

### Freeman T-7600 Foundry Board



- ▶ 76 lb./ft.<sup>3</sup> Density
- Orange Color
- Superior impact

Freeman T-7600 offers excellent strength characteristics and machinability. Offering superior impact and abrasion resistance, abrasive resistance T-7600 is well-suited to the creation of durable foundry patterns and

core boxes. Additionally, its fine surface finish and exceptional machinability make it an ideal material for dimensionally accurate tooling.

Availability: 1.18-3.94" thicknesses, 19.7" width, 58.27" length.

## **TOOLING & HIGH-TEMPERATURE BOARDS CONTINUED**

### Corintho® 800 High-Temp Tooling Board



- ▶ 49 lb./ft.<sup>3</sup> Density
- ▶ Black Color
- ▶ 400° heat resistance

Black Corintho® 800 is a polyurethane board with a low CTE and high temperature resistance of 400°F. It is ideal for wet lay-up and high or

low-temperature curing prepreg. See website for recommended sealers and adhesives.

Availability: 45.7-100mm thicknesses, 19.7" width, 59" length.

### Freeman T-9900 Metal Forming Board



- ▶ 100 lb./ft.³ Density
- ▶ Light Tan Color
- Extremely tough and dense

This polyurethane board is for CNC machining of production fixtures and prototype metal forming dies, capable of withstanding extended use and handling. It is very

dimensionally stable, features excellent wear resistance, and is well-suited for vacuum forming.

Availability: 50mm thickness, 19.7" width, 59.1" length.

### Freeman T-5060 High-Temp Epoxy Board



- ▶ 45 lb./ft.³ Density
- ▶ Light Blue Color
- ▶ 284° heat resistance

This high-performance epoxy board features a very fine surface structure, excellent machinability, dimensional stability, and heat resistance up to 284°F (140°C).

It is well-suited for high temperature curing prepregs, draping tools for prepreg, and master models.

Availability: 25-150mm thicknesses, 24" width, 60" length.

## **Product Testing**

Our Tech Team works at our Avon facility to test product properties including Freeman Foam, Modeling, and Tooling boards and related adhesives. These robust testing processes not only allow our sales teams to fully understand the scope of our product capabilities, but also make recommendations for your specific needs.

#### **IN-HOUSE CNC**

Boards are tested on our in-house CNC machine for machine surface quality, edge definition, and dust vs. chipping.



#### **IMPACT TESTING**

We verify hardnesses on Freeman boards, and impact strength on the higher density tooling boards.

#### **ADHESIVE TESTING**

We do extensive testing on several adhesives to provide recommended adhesives for each board. In addition to gel time and light handling, we also test for durability and bond strength.



## PERFECT PLANK LUMBER



For over 60 years, skilled craftsmen made Perfect Plank their primary choice because it maximizes the skills and efficiency of the pattern maker, mold maker, and model maker.

Perfect Plank is a dry, thick, stress-free pattern plank that is uniform in texture, low in moisture and virtually defect-free.

Each board is immediately ready for use in a wide variety of sizes, freeing the user from the time-consuming tasks of planing, jointing, sizing, and gluing to assemble larger blocks for pattern construction.



#### Ordering Information

This material is ordered by the full board. When ordering, please indicate how many boards are needed. Additional sizes may be available by special order in thicknesses from 1" to 6", widths 18" to 48", and lengths up to 8'. Actual thicknesses and widths may vary. Other sizes may be available by special order. Please see our website, www.FreemanSupply.com, for details.











Features	
Virtually defect-free	The pine species is equivalent to select grades of pattern lumber while the mahogany species is equivalent to FAS grades.
Grain	Tight, straight, vertical grain as opposed to the wide, diagonal and/or straight grain commonly found in other products.
Moisture content	Kiln-dried to a low and uniform moisture content throughout. (Controlled to 8-10%)
Surfacing	Each board is surfaced on four sides.
End gluing	Individual wood strips joined by precision finger-jointing with non-abrasive adhesives.
Edge gluing	Strips are edge-glued with uniformly thin glue lines of water-resistant adhesive.
Immediately usable	Simply select the thickness needed, cut off the required length, and begin to build your pattern. With Perfect Plank, every cubic inch is usable.

#### **Perfect Plank Pine**

This popular laminated plank is an excellent alternative to the select Sugar Pine grades which are becoming increasingly difficult to source.

Availability: 1" to 6" thicknesses, 18" width, 8' length.

#### Perfect Plank Jelutong

Due to its extremely fine texture and consistent grain structure, Jelutong Perfect Plank is the best for hand carving or CNC machining.

**Availability:** 1.5" to 6" thicknesses, 18" width, 8' length.

### Perfect Plank Mahogany

This genuine Mahogany plank is the best choice for high-tolerance patterns, models, and fixtures.

**Availability:** 7/8" to 57/8" thicknesses, 18" width, 8' length.

### **Perfect Plank Poplar**

Constructed from domestically grown poplar, this hardwood plank offers a lower cost alternative to Mahogany Perfect Plank.

**Availability:** 21/4" to 41/4" thicknesses, 18" width, 8' length.

#### **Perfect Plank Alder**

Red Alder is a domestically grown species found primarily on the Pacific coast. Slightly lighter in weight, color, and more economically priced than Mahogany.

**Availability:** 21/4" to 41/4" thicknesses, 18" width, 8' length.

### **ROUGH SAWN PATTERN LUMBER**



Freeman's rough sawn soft woods and hardwoods are graded specifically for pattern and model construction. Additional features include:

- Adheres to accepted grading rules
- Stored inside climate-controlled warehouses to maintain specified moisture content
- Carefully kiln-dried to under 12% moisture content to minimize splitting and checking
- Many grades available surfaced two sides (S2S) for a small additional charge

#### **Sugar Pine Pattern Lumber**

Selected to meet the exacting specifications and requirements of pattern and model makers.

#### No. 2 Common

- · Popular standard grade for the patternmaker
- Wide range of applications where tight, sound knots do not affect performance and cost is a major factor
- Tight knots generally limited to 3¾", but most are significantly smaller and well-spaced
- Spike knots permitted, but is purchased with objective of minimizing this defect



#### **Mahogany Pattern Lumber**

Extremely stable, withstands abrasion, and wears well. It has straight and close grain and carves easily.

#### **FAS Pattern Mahogany**

- Highest grade available (virtually defect-free)
- Straight grain for high-quality patterns and models
- Also available in 6' to 7', a lower cost option for jobs not requiring longer length

#### **Freeman Pattern Mahogany**

- · Lower cost than FAS grade
- Straight grain with small number of pin worm holes and other minor defects
- Widths somewhat narrower than FAS grade but stock is typically 6" and wider



#### Ordering Information

Rough Sawn Pattern Lumber is ordered by the board foot. Due to random dimensions, orders will be filled as close as possible to board feet requested, therefore exact board feet and pricing cannot be guaranteed. Please make us aware if you have specific requirements for boards with random lengths.

#### Calculating Board Feet

Length x Width x Thickness (inches)

144

### **RICHLITE FIBER-LAMINATE SHEETS**

This remarkably strong material offers excellent machinability and dimensional stability, resists warping and maintains a uniform flatness and thickness. It is abrasion, moisture and chemical resistant.

**Availability:** ¼" to 3" thicknesses, 16-48" widths, and 48"-120" lengths. Some sizes are special order and are subject to extended lead times.



### Online Resources

#### Scan the QR code for more on our website:

User Guide for working with Richlite, including sawing, machining, drilling, sanding and bonding.

Physical Properties	
Specific Gravity	1.213
Water Absorption (% @ 1"/25 hr.)	1.55
Impact Strength (ft. lb./in.)	2.48
Tensile Strength (lb./sq. in.)	13,100
Flexural Strength (lb./sq. in.)	22,000
Compressive Strength (lb./sq. in.)	18,400
Abrasion-Resistance (Taber CS-17-% loss/1,000 revolutions)	0.0107
Hardness (Shore D)	88
Density (lb./cu. ft.)	75.84
Color	Oak

### **MEDIUM DENSITY FIBERBOARD (MDF)**

This low-cost machinable media is for producing master patterns, models, and prototypes. This product features a uniform density for smooth machining and low tool wear. MDF will accept a wide range of sealers, primers, and coatings to produce a hard, durable tool surface.

**Availability:** 2-4" thicknesses, 24" or 49" widths, and 97-120" lengths. Some sizes are special order and are subject to extended lead times.

Physical Properties						
Density	38 lb./ft. <sup>3</sup> +/-2 lb.					
Internal Bond	90 lb./in. <sup>2</sup>					
Moisture Content	5-8%					
Hardness (Shore D)	45-55					
Color	Beige					