

ARCHITECT'S GUIDE TO **FLEXIBLE PLYWOOD**

Select **the right materials** to
achieve your design vision.



INTRODUCTION

Today's [engineered wood products](#) offer distinct advantages over the traditional plywood of yesterday providing you more design freedom and fewer installation headaches.

This guide will help you select the right materials and work successfully with your supplier to achieve your design vision.



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CHAPTER 1

INTRODUCTION TO FLEXIBLE WOOD PRODUCTS

Bendable plywood goes by various names, including bendy ply, bending board, and wiggle wood. Architects must decide which wood products and bending methods will best achieve their visions.

For the past sixty years or so, we've mostly had traditional plywood materials to work with.

However, traditional plywood has several limitations:

- A narrow range of available materials
- Variations in grain or appearance from panel to panel
- A limited bend radius

While methods for bending plywood have changed, kerfing the wood by hand is still an option. This approach, however, requires highly skilled labor and excessive surface preparation and framing that can add additional time and costs to your project. And what's more, the results are not consistent.

Engineered bendable wood products, by contrast, are able to achieve a tighter bend radius than traditional bendable plywood (without the hassle).

They also:

- Have consistent dimensional stability
- Have a lower failure rate
- Are low maintenance with no special care needed
- Require less sanding, patching, and use of putty/Bondo
- Can be finished with laminates, veneers, metals, leathers, and other materials for a custom look

Today's engineered wood products are empowering architects to incorporate more complex curves into their designs including:

- Curved walls or ceiling panels
- Custom furniture and fixtures
- Reception counters and entryways
- General cabinetry



Sometimes off-the-shelf solutions just won't cut it. Ask your supplier if they have the engineering capabilities to create custom solutions for you.



CHAPTER 2

SELECTING MATERIALS

Your choice of materials has a big impact on the outcome of your project. [On the following page](#) is a comparison chart of the most common materials available today.

YOUR CORE SELECTION

There are three core choices available with most suppliers:

- Fiberboard
- Particleboard
- Plywood

Your selection will depend on your project application.

For example, you'll want to ask yourself:

- Will this design be subjected to the elements/moisture?
- Does it need to be fire-rated?
- Does it need to be strong or bear weight?
- What fabrication techniques will be used?

Special note: Kerfkore products have two components: a face and a core. Most other materials will be one-dimensional.

Asking your suppliers about what's new in the way of materials can sometimes help you save time and money and don't forget to ask about freight costs!

CHAPTER 2

MATERIAL	APPLICATIONS/ BEND RADIUS	REQUIREMENTS	SUITABILITY TO BENDING	SUSTAINABILITY
Bending Italian Poplar	For short applications (8ft length only)	Multiple sheets required (only available in 1/8")	●●●○○ Medium Effort: requires layering and gluing	Limited Availability
Fiberboard	For slight radius	Multiple sheets required (can only use 1/8" for bending)	●●●○○ Medium Effort: limited bend radius	FSC* and NAUF**
Eucalyptus Hardboard	For slight radius	Multiple sheets required (can only use 1/8" for bending)	●●●○○ Medium Effort: limited bend radius	FSC and NAUF
Plywood	For slight radius	Multiple saw kerfs required to allow the product to bend	●○○○○ High Effort: will not bend without kerfing and inconsistent	FSC
Luan Plywood	For most radius work (max radius at 12")	Only available in 3/8" thickness (generally requires two layers)	●●○○○ High Effort: requires patching & sanding to compensate for grain cracks / rough surfaces	N/A
Baltic birch	For small furniture production type work	Multiple sheets required (only available in 1/8")	●○○○○ High Effort: requires high volume processing and machinery	Limited Availability
 Kerfkore®	For all radius work especially tight radius (max radius at 3 1/2")	Engineered single layer product (1 layer required) Multiple thicknesses ranging from 1/4" - 3/4"	●●●●● Low Effort: - Does not require multiple layers, patching or sanding - No cutting or kerfing - Laminate/veneer flat, then form	FSC and NAUF
 Timberflex	For most radius work (max radius at 5")	Engineered single layer product (1 layer required) Multiple thicknesses ranging from 1/2" - 3/4"	●●●●● Low Effort: - Does not require multiple layers, patching or sanding - No cutting or kerfing - Paint ready	FSC and NAUF
 Econokore®	For most radius work (max radius at 10")	Engineered single layer product (1 layer required) Multiple thicknesses ranging from 1/4" - 3/8"	●●●●● Low Effort: - Does not require multiple layers, patching or sanding - No cutting or kerfing - Paint ready	FSC and NAUF
 Flexboard®	For most radius work (max radius at 8")	Engineered single layer product (1 layer required) Multiple thicknesses ranging from 1/2" - 3/4"	●●●●● Low Effort: - Does not require multiple layers, patching or sanding - No cutting or kerfing - Paint ready	FSC and NAUF

*Forest Stewardship Council

**No Added Urea Formaldehyde

CHAPTER 3

UNDERSTANDING THE **BEND RADIUS**

When it comes to creating curves, it's all about the bend radius that can be achieved. The bend radius describes how far you can bend a piece of plywood without breaking it ---for most engineered wood products that range is from 10 inches to 3.5 inches. For traditional plywood materials, the bend radius is a maximum of 12 inches.

The bend radius you're able to achieve is directly related to the thickness and type of wood as well as the decorative surfacing material you've chosen. Here's what you need to know about bend radius when working on an architectural project:

TALK TO YOUR WOOD **INDUSTRY SUPPLIER**

When you are bringing a project to a materials supplier, it's a good idea to know your bend radius, your desired finishes, and how your bending substrate will attach to the framework.

HOW TO **MEASURE YOUR BEND RADIUS**

The bend radius is half of your diameter. If you're doing auto CAD this is easily done within your software program.

THE DIFFERENCE BETWEEN **COLUMN & BARREL**

A barrel bend is a term used to describe an 8-foot x 4-foot panel, with the grooves running the 4-foot length. A column bend is a term used to describe a 4-foot x 8-foot panel, with the grooves running the 8-foot length.



Column

Example of 4' x 8' slats (slats running in 8' direction)



Barrel

Example of 8' x 4' slats (slats running in 4' direction)



Ask your material supplier to provide pictures or videos of their recent projects so you can see what can be achieved in terms of bend radius.



CHAPTER 4

ADDING FINISHING TOUCHES

Once your bendable wood is affixed to your framing, the radius can be covered with a wide range of finishes to create a custom look. Here are the most commonly-used options for finishing touches.



LAMINATES

Post forming, vertical, and standard laminates



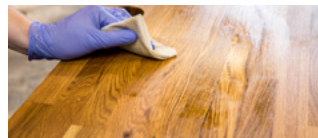
VENEERS

Raw veneer, paperback veneer, and phenolic veneer



PAINT

Oil-based and latex paint



STAIN

Oil-based, water-based, varnish, gel, water-soluble, lacquer



METALS

Antiqued, brushed, polished, hammered, and satin



LEATHERS

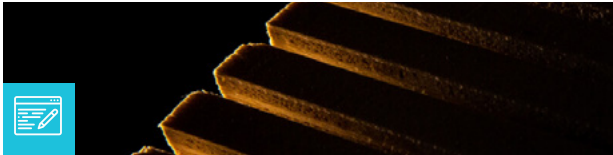
Leather laminate, leather veneer

It's important to know how your choice of materials affects the finishing materials you'll be able to use. Also, ask your supplier how it will fasten to the framing and about the small details like adding biscuits at the end or what adhesives are needed.

CHAPTER 5

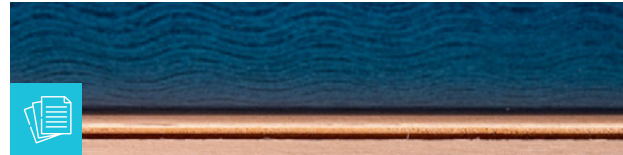
ARCHITECT RESOURCES

We encourage you to take advantage of the many resources we provide for architects and fabricators including:



THE KERFKORE BLOG

Get wood industry news and pro tips about working with bendable plywood. [Visit the blog](#)



PRODUCT SPECIFICATION & DATA SHEETS

Get construction guides, do's and don'ts, and detailed product information. [View sheets](#)



FAQS

Learn answers to commonly-asked questions about Kerfore, Timberflex, Econokore, Worklite Foamkore, Worklite Hexkore, and more!

[Get answers](#)



PRODUCT SAMPLES

Get flexible and lightweight samples delivered fast by requesting a free architectural kit.

[Request your kit](#)

ARCHITECTURAL GLOSSARY

BARREL BEND: This term is used to describe the 96" x 48" panel size. It will stand 48" tall and wrap like a barrel. The grooves will run the 48" length.

BISCUIT SLOTS: Biscuit slots are cut into the side ribs of both the curved panels for attachment. Once they are aligned with their opposite half, insert the biscuits using white glue and strap the two-column cover halves in place.

BUTT JOINTS: This is an attachment method that could be used with our products. A butt joint is created by extending the laminate beyond the end of the panel to allow the corner panel to butt up against it.

CHAPTER 5

COLUMN BEND: This term is used to describe the 48" x 96" panel size. It will stand 96" tall and wrap like a column. The grooves will run the 96" length.

DADO CUT: This cut will be made through the center of the panel, so that a horizontal rib can be placed into it. This creates additional support for the structure.

EASY-SPLICE: This method is accomplished by easily splicing Kerfkore in length or width to utilize small pieces to make larger and/or unique sizes. The purpose of Easy-Splice is to eliminate scrap and use 100% of the material. This method can only be used with our Kerfkore product.

KERFING: The process of cutting grooves or slots into a solid board.

RABBET JOINTS: This is an attachment method that could be used with our products. This is a cut made into the top and/or bottom of the panel to allow the rails of the framework to be placed into it.

RIBS: Ribs are a supporting piece of wood that is cut to represent the shape of the end product.

TELEGRAPHING: Telegraphing occurs when the ridgelines start to appear through the face due to the bending of the product. Because Kerfkore products are through cut, there is no transference of the cut edges to the face of the product. Kerfkore also uses proprietary paper to separate the cut core and face.

VENEER CHECKING: Cracks that appear on the surface of veneers.



Since 1984, Kerfkore has helped architects, designers, and millworkers solve complex design challenges and achieve beautiful architectural curves on their projects. Our bendable and lightweight plywood products require minimal structural support and are 80% lighter than traditional options making them a reliable, cost-effective, and time-saving alternative. All of our products are manufactured at our facility in Brunswick, Georgia, and can be customized to fit your needs. We use a precision design process to ensure consistency, stability, and symmetry every single time. **Talk to us about your next project.**

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