



GREEN RESOURCE GUIDE

Green Guide for Specifying Pentco Product



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Purpose of This Guide

Pentco has been manufacturing cabinet doors for 30 years. Supplying product for multi/single family residential, commercial, institutional, schools and universities.

With the industry constantly changing, and new products being introduced, it can be overwhelming when asked to design an “Environmentally Friendly” project. A sense of where to begin can easily set in. Pentco understands the need and desire for useful resources. Easy user guides and detailed information that will help you through your specifications.

Pentco offers three door divisions (Fullwrap, Phase Two, and Softouch) and two distribution divisions (Designware, Lamineer).

This guide will explain the different parts and products that make up Pentco’s products and how they can contribute to your “LEED” or “GREEN” projects.

As products and processes are constantly changing in this industry, so will this guide evolve. Please be sure to check back often to see if anything has changed. If you have additional questions regarding Pentco’s products, please do not hesitate to contact us at sales@pentco.com or at 1-800-663-7915.

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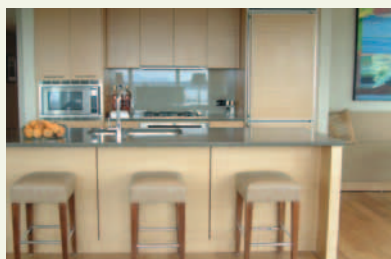
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Pentco's Product Family

An Introduction to Pentco Products.



FULLWRAP

Pentco's Fullwrap division specializes in post-formed European-style flat panel cabinet doors, drawer fronts and components. Utilizing the latest machinery and tooling available, doors can be wrapped in a wide range of high pressure laminates and veneers. Numerous door profiles are available, including the sleek and contemporary Square Line profile. Each product in this range can be manufactured to meet individual customer specifications.



PHASE II

Phase Two is all about real wood. Pentco's Phase II wood doors are available in a selection of fine woods including rift white oak, red oak, maple, alder, and cherry with more species available upon special request. Phase II doors are crafted specifically to bring out the natural beauty of the wood used to make them. Special care is taken during the manufacturing process to select the wood and veneers, in an attempt to provide a consistent blend of color and grain throughout the entire room.



SOFTOUCH

Softouch is Pentco's painted door division. With a wide range of door profiles and an unlimited color and finish selection, Softouch doors allow for expression of personal individuality and creative flare. The painted product requires minimal care and maintains long term durability. Softouch doors are an ideal choice for kitchens, baths, home offices and more.



DESIGNWARE

Designware is one of Pentco's distribution divisions. Designware stocks a comprehensive lineup of contemporary and traditional pulls, handles and knobs. With a wide range of styles, shapes and finishes available, Designware makes it easy to find matching hardware to different cabinetry styles and designs. The popular Rod & Blocks hardware can even be cut to custom sizes to suit your unique cabinetry needs.



LAMINEER

Lamineer is Pentco's distribution line of Greenlam High Pressure Laminates. Greenlam offers the benefits of a wide range of contemporary designs and constant innovation. Greenlam has a large selection of patterns, all available in various grades, textures and finishes. Lamineer stocks over 60 of these innovative and contemporary high pressure laminates, with access from regional support to the balance of Greenlam's product line. Matching ABS edgebanding is available for a wide selection of Greenlam products.



What is LEED?

Leadership in Energy and Environmental Design.



For more information please visit:

www.usgbc.org (U.S. Green Building Council)

www.cagbc.org (Canada Green Building Council)

Introduction to LEED

LEED (Leadership in Energy and Environmental Design) is a consensus-based rating system for designing, construction, operating and certifying the world's greenest buildings. LEED has become the number one rating system in North America.

Green building rating systems are transforming the construction industry by focusing on high-performance, energy-efficient, economical and environment-friendly buildings.

LEED was first developed by the U.S. Green Building Council (USGBC) in 1998 as a way to encourage the development and implementation of green building practices. The rating system was adapted for Canada in 2002 by the Canada Green Building Council (CaGBC).

LEED Rating Systems

LEED is applicable to every building type and lifecycle stage. Currently, specific LEED programs exist for:

- New Construction and Major Renovations (LEED-NC)
- Guidelines for Multiple Buildings and On-Campus Buildings Projects (Based upon LEED-NC)
- Existing Building Operations and Maintenance (LEED-EB)
- Commercial Interiors (LEED-CI)
- Core and Shell Development (LEED-CS)
- Homes (LEED-H)
- Neighborhood Development (LEED-ND)
- Laboratories, Schools, Retail, Healthcare

LEED Certification Levels

| | |
|----------------|----------------|
| LEED Certified | 40 - 49 points |
| LEED Silver | 50 - 59 points |
| LEED Gold | 60 - 79 points |
| LEED Platinum | 80 + points |

Credit Categories

| | |
|------------------------------|----|
| Sustainable Sites | SS |
| Water efficiency | WE |
| Energy & Atmosphere | EA |
| Materials & Resources | MR |
| Indoor Environmental Quality | EQ |
| Innovation & Design Process | ID |

Abbreviation

| |
|----|
| SS |
| WE |
| EA |
| MR |
| EQ |
| ID |

Other Useful Websites

Forest Stewardship Council
www.fsc.org

Build Green Schools
www.buildgreenschools.org

Composite Panel Association
www.pbmdf.com

U.S. Environmental Protection Agency
www.epa.gov

American National Standards Institute
www.ansi.org

U.S. Department of Housing & Urban Development
www.hud.gov

California Air Resources Board
www.carbrule.org



For more information please visit:

www.usgbc.org (U.S. Green Building Council)

www.cagbc.org (Canada Green Building Council)

How Pentco Products can Contribute to LEED points

Pentco Industries Inc. supports these environmental programs by manufacturing products that will contribute to LEEDs credits for commerical interior (LEED-CI) projects.

High Pressure Laminates Contributing Credits and Points

Materials Reuse – MR Credit 3 – (2 points possible)

Due to their durability and long life cycle, phenolic laminates and high pressure decorative laminate components can potentially be salvaged and reused in new construction or building renovation.

Regional Materials – MR Credit 5 – (2 points possible)

Building materials and products “manufactured” within a 500 mile radius of a project meet this requirement.

Rapidly Renewable Materials – MR Credit 6 – (1 point possible)

High pressure laminates are engineered to perform successfully with many rapidly renewable substrates including wheatboards and strawboards. (ie. Skyblend, see below for their contributing credits)

Low Emitting Materials – EQ Credit 4.4 – (1 point possible)

High pressure laminates are GREENGUARD® INDOOR AIR QUALITY CERTIFIED. Products have demonstrated low chemical and particulate emissions.

Substrate Contributing Credits and Points

Pentco has Skyblend Particleboard available. It is a FSC certified 100% pre-consumer recycled wood fiber particleboard, that has no Urea Formaldehyde added. Skyblend can contribute to Leadership in Energy and Environmental Design (LEED) credits.

Recycled Content – MR Credit 4 – (2 points possible)

Regional Materials – MR Credit 5 – (2 points possible)

Low-Emitting Materials, Composite Wood & Agrifiber Products – EQ Credit 4.4 – (1 point possible)

White PVA Glue Contributing Credits and Points

Low-Emitting Materials, Adhesives and Sealants – EQ Credit 4.1 – (1 point possible)

Source: <http://www.usgbc.org/ShowFile.aspx?DocumentID=5546>



FULLWRAP

Postformed European-style flat panel cabinet doors.



FULLWRAP Door Components

Fullwrap manufactures cabinet doors, drawer fronts and components that are wrapped in either HPL (High Pressure Laminate) or wood and engineered veneer. When considering Fullwrap doors as a part of your green project, there are various components to consider. Each component is discussed in this section.

- 1) Face Material
- 2) Backer Material
- 3) Substrate
- 4) Edge Detail & Profiles
- 5) Finish (for wood veneer doors, or high gloss polyurethane on laminate doors)



GREENGUARD Environmental Institute (GEI) is an organization that oversees the GREENGUARD Certification Program for low-emitting products, including the standards for interior products and testing protocols.

www.greenguard.org



Forest Stewardship Council (FSC) is a non-profit organization devoted to encouraging the responsible management of the world's forests. FSC standards ensure that forestry is practiced in an environmentally responsible, socially beneficial, and economically viable way.

www.fsc.org

1) Face Material

a) High Pressure Laminates.

Pentco's Habitat & Habitat Queue Series formaldehyde emissions meet the International Standards of <0.10 ppm.

Greenlam, Wilsonart, Arborite, Nevamar, Formica and Pionite laminates are all GREENGUARD® certified and must meet or exceed the chart below.

| Category: Surfacing Materials | Product Type: Laminates |
|-------------------------------|----------------------------|
| Individual VOCs | <0.0TLV* |
| Formaldehyde | < 0.05 ppm |
| 4-phenylcyclohexene | < 0.0065 mg/m ³ |
| Total VOCs | < 0.5 mg/m ³ |
| Total aldehydes | < 0.1 ppm |

• HPL adhered to particleboard actually lowers formadehyde emissions between 80%-95% of the industry average of 0.18 ppm. HPL can lower the emission level to 0.03 ppm, which equals the emissions from raw wood.

b) Wood Veneers

Pentco uses the following brands of wood veneers:

- Brookside Veneer
- Echo Wood
- Other Domestic Veneers.

Ask us if the veneer you are after is available in a FSC certified product. Veneers can be laid up on a 100% recycled wood Particle Board or MDF produced with no added Urea Formaldehyde.



2) Backer Material

- a.) Doors specified HPL, the standard backer is white laminate. You have a choice of white laminate or same as the “Face Material”. Both equal to potentially contribute points.
- b.) Doors specified Wood Veneer, the standard backer is maple veneer. You have a choice of maple veneer or same as the “Face Material”. Both equal to potentially contribute points.

3) Substrate

Pentco substrate material can be FSC (Forest Stewardship Council) certified, upon request. We have the ability to use product that can contribute to “LEED” or “GREEN” projects.

Particleboard

Formaldehyde emissions 0.00-0.01 ppm

MDF (Medium Density Fiberboard)

Formaldehyde emissions 0.01-0.04 ppm



Pentco’s Greenlam product line offers a wide selection of wood patterns that offer virtually the same look and feel of real wood veneers at a significantly lower cost level.

4) Edge Detail / Profiles

The edge detail for our Fullwrap HPL (High Pressure Laminate) doors are finished either with regular PVC Edgebanding, or environmentally friendly ABS (Acrylonitrile-Butadiene-Styrene) Edgebanding. ABS is a high quality, chlorine-free polymer, that has several key advantages over PVC:

Environmental Advantages:

- No chlorine
- No heavy metals
- No formaldehyde

Practical Processing Advantages:

- Higher heat resistance
- Lighter in weight
- Higher impact resistance than PVC
- Can be incinerated or disposed with general waste

Door Specification Example

| | |
|-----------------------|---|
| Door Style: | Square Line Profile |
| Face Material: | Greenlam Zebrano 732-39 |
| Backer: | White Backer |
| Edge Detail: | Matching ABS 2mm |
| Finish: | N/A (unless high-gloss poly is being applied) |

PVC Edgebanding comes in thicknesses of (0.5 mm, 2 mm, 3mm) and ABS comes in (0.5mm and 2 mm). Pentco’s Habitat, Habitat Queue, and Greenlam Laminates have matching ABS Edgebanding available.

The edge detail for Wood Veneer doors is your choice of (0.5 mm wood tape, or 2 mm solid wood edge).

Pentco offers 4 door profiles in our Fullwrap Division; for both HPL Laminate and Veneer product: Square Line, 90 Degree, Chamfered, and 180 Degree. Please see our website for profile diagrams.

5) Finish

- a.) High Pressure Laminates, for the most part, come pre-finished. Laminate manufacturers offer a variety of finishes such as wood grain textures, high gloss, suede, and more. A Polyurethane finish can be applied to any laminate or wood veneer. Polyurethane is a very thick, smooth High Gloss finish (looks like glass) and when applied to wood grain material (laminate or veneer) it gives it an incredible depth to the product for extremely high-end design applications.



5) Finish

b.) There are a number of options for finishes on **wood veneers**. You can choose standard Clear Lacquer finish - (sheen levels need to be specified). Our standard sheen level on Wood Veneers is 12 Degree, for a slightly higher sheen you can choose 30 Degree. The Polyurethane finish is classified as a 90 Degree sheen High Gloss.

Adding a stain to the wood veneer will alter it's color. Stain colors must be selected and then the degree of sheen in the lacquer finish must be specified. Pentco waterborne stains and finishes can help contribute points for your "LEED" or "GREEN" projects. (Currently only clear waterborne top coats are available.)



PHASE II

Wood Door Division.

PHASE II Door Components

When considering PHASE II doors as a part of your project, there are various components to consider. Each component is discussed in this section.

- 1) Material
- 2) Door Style
- 3) Profiles (Inner and Outer Edge Detail)
- 4) Finish

Door Specification Example

| | |
|-----------------------|----------------------------------|
| Material: | Eastern Maple |
| Door Style: | Shaker Door |
| Inner Profile: | Square Profile |
| Outer Profile: | 1/8" Radius |
| Finish: | Clear Lacquer 12 Degree Sheen |

1) Material

Pentco only uses high quality selected materials. PHASE II wood doors are available in a selection of fine woods including rift white oak, red oak, eastern maple, alder, and cherry with more species available upon special request.

2) Door Style

Pentco has a numerous selection of door styles to choose from. Styles from a flat recessed panel, to raised panel, mitred corners, or standard tenon joint construction. We continually strive to create and design fresh new looks. Our most recent European addition are the Tuscan and Verona Shaker. For a closer look at our Wood Door Styles please visit our website at www.pentco.com.

3) Profiles

Door profiles include both inner and outer edge detail, and are personally chosen to enhance the appeal associated with any urban, contemporary or traditional design. Your selection must be clear in your specifications. See example on left.

4) Finish

Pentco has the ability to use stains and lacquers that have very low VOC emissions. This helps to meet environmental standards and regulations. Pentco product with stains and finishes that meet the VOC requirements can help contribute points for your "LEED" or "GREEN" projects.

Waterborne finishes are available that have very low VOC levels. Pentco continues to develop its use of waterborne finishes. Currently only clear waterborne top coats are available. Waterborne coloured stains are currently in the testing process.

Standards and regulations can vary from region to region, as well as on a project basis. Please feel free to contact us at Pentco to discuss the various options available. We will try our best to enable you to meet your specific project requirements.



SOFTOUCH

Painted MDF Division.

SOFTOUCH Door Components

Pentco's capabilities for painting cabinet doors, panels, entry doors and finished parts are state of the art. New finishing machinery allows us to consistently produce doors of the highest quality and efficiency. SOFTOUCH doors can meet all of your project needs. Parts of the door to consider include:

- 1) Material
- 2) Door Style
- 3) Profiles (Inner and Outer Edge Detail)
- 4) Finish

Door Specification Example

| | |
|-----------------------|---------------------------------|
| Material: | MDF |
| Door Style: | 5500 Series |
| Inner Profile: | Shaker |
| Outer Profile: | Detail #5 (1/8" rad.) |
| Finish: | Frosty White 30 Degree Sheen |

1) Material

Softouch doors are manufactured out of CARB compliant MDF (Medium Density Fiberboard). FSC certified substrates are available upon request.

We have the ability to use product that can contribute to "LEED" or "GREEN" projects. These substrates have Formaldehyde emissions 0.01-0.04 ppm and contain no added urea formaldehyde (NAUF).

2) Door Style

SOFTOUCH can manufacture just about any door style tailored for your project and budget. For a closer look at our series of door styles please visit our website at www.pentco.com.

3) Profiles

The machined profiles of Softouch products are very similar to what is available to Pentco's PHASE II Division wood doors. Door profiles include both inner and outer edge detail. Profiles are personally chosen to enhance the appeal associated with any urban, contemporary or traditional design. Your selection must be clear in your specifications. See example on left.

4) Finish

Pentco uses high quality paints and lacquers. We have the ability to use coatings that have VOC levels as low as 275 g/l. These coatings meet many environmental standards, including the new regulations for California. Waterborne clear top finishes are available that have very low VOC levels. Pentco products with paints and finishes that meet the VOC requirements can help contribute points for your "LEED" or "GREEN" project.

Custom Color Matching

Pentco has a number of stock colors used for SOFTOUCH doors. These include Frosty White, Antique White, Grey, and more. Custom color matching is also available. Color swatches, provided by the customer can be matched making the options endless when it comes to our painted product. (*Please note there are extra fees associated with custom color matching. Please contact us for more details about our custom color matching option.)





LAMINEER

Greenlam Eco-Friendly Laminate Veneer.



Greenlam Laminates

Pentco distributes and uses Greenlam Laminates in our own products. a relatively new product to North America, Greenlam brings a new array of high quality, eco-friendly high pressure laminates in many contemporary styles and colors.

Apart from the selection and quality of Greenlam's products, Pentco has chosen this line due to the company's stand in doing their part to be environmentally responsible. Below is listed a few ways Greenlam has taken steps to be good stewards of our environment.

Air Pollution

Greenlam laminates are GREENGUARD certified for indoor air quality as they emit less than 0.1 ppm of total aldehydes. Greenguard gives the building process an eco-friendly trust and assurance and qualifies it for LEED credits. **Greenlam even meets the stringent VOC emission norms for Schools and Children thus supporting a pollution free environment for educational establishments.**

Alternative Fuel

Greenlam uses innovative technology to run its manufacturing facility on alternative fuels thereby completely eliminating the use of natural gas or other petroleum products in its boilers. Greenlam uses Bio Mass (recycled agricultural waste) as fuel.

Reducing the Carbon Imprint

Greenlam's efforts in the environmentally friendly manufacturing process has earned it \$800,000 worth of carbon credits. Greenlam has been in the forefront of reforestation campaigns and has a dedicated team working year-round to plant new seedlings in the forests of India. Greenlam uses stainless steel plates instead of paper to impart surface on the majority of laminates it produces.

Recycling

Portions of damaged sheets of non-decorative laminate are used as protective barriers on top of stacks of laminate ready to be shipped. Rolls of Kraft paper are unwound and saturated with phenolic resin, dried and are cut to a uniform length in preparing this paper to become the underlying core of our laminate. This paper contains 40% recovered material (byproducts from lumber operations). The corrugated cores on which our papers arrive are recycled into other cardboard products.

Matching ABS Edgebanding

Lamineer stocks a wide range of matching ABS edgebanding tapes for the Greenlam product line. ABS (Acrylonitrile-Butadiene-Styrene) is quickly replacing PVC as the material of choice for Edgebanding materials in North America, and is the edgebanding choice in Europe. ABS edgebanding has many environmental and practical processing advantages over PVC. Some of these advantages include:

Environmental Advantages:

- No chlorine
- No heavy metals
- No formaldehyde

Practical Processing Advantages:

- Higher heat resistance
- Lighter in weight
- Higher impact resistance than PVC
- Can be incinerated or disposed with general waste



Greenlam Laminates are GREENGUARD® certified.

(including the GREENGUARD® Schools and Children Classification)

GREENGUARD® Environmental Institute (GEI) is an organization that oversees the GREENGUARD Certification Program for low-emitting products, including the standards for interior products and testing protocols.

For more information please refer to page 4 of this guide.

www.greenguard.org
www.greenlam.com

For more information please visit:
www.greenlam.com





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