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Sustainability Amidst Uncertainty: Columbia Forest Products' Pursuit of Sustainability in a Changing Market

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Sustainability amidst Uncertainty: Columbia Forest Products' Pursuit of Sustainability in a Changing Market

Free Online Copy

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This case is accompanied by a teaching note, available to faculty only. Please send your request to freecase@oikosinternational.org. The authors are thankful for any feedback and suggestions to further develop this case. Please contact the authors directly at scottm@sba.pdx.edu.

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Upon reading the latest report from the Department of Housing and Urban Affairs, Harry Demorest found his concerns confirmed – the construction of new homes had fallen yet again across the United States. Over the past month, new home starts had declined over 14% in December; this marked the end of 2007 during which housing starts were down 25% compared to the previous year and hit a low not experienced since 1993. The question was no longer “will there be a recession?” but rather “how long will the recession last?”

The fate of Columbia Forest Products, the company that Harry led for 16 years as Chairman and CEO, is tightly bound to the US housing market. CFP has over a 40% market share in hardwood plywood products, most of which go into new home construction. Further, over the past three years, CFP has embarked on a journey into sustainability. This journey is marked most profoundly by the introduction of PureBond® non-formaldehyde plywood in 2006. A first in the industry, PureBond® provides significant health benefits to CFP employees and customers by removing a known carcinogen from its products. It also has been a catalyst for CFP to pursue a more comprehensive, sustainability-inspired strategy. But in the midst of the dreadful housing market in the US, Harry and the rest of CFP executive team wondered if further pursuit of a sustainability strategy would be detrimental to their company’s competitiveness.

COLUMBIA FOREST PRODUCTS¹

Background: From Single Mill to National Competitor

In 1957, A.J. Honzel and a small group of business associates purchased a shuttered plywood mill in Klamath Falls, Oregon. Known as Klamath Hardwoods, the company was lead by Honzel until 1962. In 1963 Columbia Plywood Corporation purchased Klamath Hardwood. The name changed one more time when, in 1976, the employees purchased the company and it became Columbia Forest Products.

Through both external and organic growth strategies, CFP grew quickly in scale and scope of operations. Between 1963 and 1989 CFP added a laminated products division in Thomasville, North Carolina, acquired two hardwood plywood plants in Chatham, Virginia, constructed a hardwood plywood mill in Old Fort, North Carolina and purchased the hardwood veneer operations of Indian Head Company in Presque Isle, Maine and Newport, Vermont.

In the 1990s, CFP continued its aggressive growth strategy. In 1991, it purchased a half-round slicing operation in New Freedom, Pennsylvania, and a hardwood veneer face manufacturing mill in Rutherglen, Ontario. The following year it built a poplar core veneer plant in Craigsville, West Virginia. In 1996 and 1997, CFP acquired five more hardwood plywood plants – three in the US Southeast and two in Canada – as well as a raised panel and door plant in Corpus Christi, Texas. The late 1990s were marked by a few plant closing, including the hardwood plywood plant in Arkansas in 1998 that had been purchased only 2 years previous as well as the slicing plant in Pennsylvania in 1999 that had been acquired in 1991.

¹ The authors gratefully acknowledge the generous support of EcoWorks Foundation and Columbia Forest Products.

Overall, CFP maintained a consistent and aggressive growth strategy while seeking production efficiencies through adding production capacity and closing selected operations. This strategy proved beneficial – by the late 1990s, CFP had become the largest manufacturer of hardwood plywood in the United States.

Early 2000's to Current: A Period of Growth and Restructuring

From 2000 to 2007, CFP continued its acquisition and investment strategy. These efforts built up both CFP's plywood and flooring product divisions. Operations in Arkansas, Ontario and Oregon were expanded and new operations were purchased in Arkansas, Ontario, Tennessee, West Virginia and Kentucky. However, this expansion was mixed with a series of plant closures across its portfolio of operations. Other plants in North Carolina, Kentucky and Texas were closed. The mixture of acquisitions and divestitures over this period of time were motivated primarily by a desire to maximize the value and streamline production of the plywood and flooring divisions. In 2007, CFP sold its Columbia Flooring Division to Mohawk Industries, marking an important departure from being a manufacturer to being a supplier to the hardwood flooring industry.

CFP remains the largest manufacturer of hardwood plywood and veneer products in North America and also produces laminated products and hardwood logs. It maintains a 40% market share in the hardwood plywood segment, earns approximately one billion dollars in annual revenue and employs approximately 4,500 people. All the company's employees share in the success of CFP as the company continues to operate under the employee stock ownership plan (ESOP) established in 1976.

CFP's veneer is created using Northern Appalachian hardwoods such as birch, red oak, maple, ash, poplar, cherry, hickory, pine, walnut and others. Columbia's rotary cut veneer ranges in thickness from 1/30 to 1/42 of an inches and is sold throughout the decorative plywood, furniture, cabinetry, door and profile-wrap industries. Its products are used in cabinets, architectural millwork, commercial fixtures, and assorted other applications in homes and commercial buildings. The company sells its products to original equipment manufacturers, wholesale distributors, and mass merchandisers.

To complement CFP's domestic sourcing activities, its international division began importing hardwood plywood in 1995. Since then, Columbia has grown to become the largest importer of Russian birch plywood in North America. With a wide selection of imported panel and flooring products from Indonesia, Malaysia, Taiwan, Africa and countries throughout South America and Europe, inventories are maintained regionally at strategic North American ports and CFP's plant sites.

HARDWOOD PLYWOOD INDUSTRY

A Mature Industry

Plywood is made from an odd number of constructional veneers glued face to face with the grain running in alternate directions (cross bonding). The glued veneers are then placed between the shelves of a large hydraulic press where they are heated and squeezed together tightly. The heat dries the glue and adheres the veneers together. Then the plywood is trimmed and can be sanded to give a smoother finish. Exhibits A and B describe the processes of making veneer and plywood.

In 1905, the Portland Manufacturing Company was recorded as the first company in the United States to utilize plywood in commercial applications. In the following century, plywood manufacturing grew into a major domestic industry earning approximately \$3.13 billion in revenue in 2006. It remains a fairly fragmented industry with 301 companies manufacturing plywood at the end of 2006. At this time, the annual revenue per company was \$10.39 million and the average gross profit margin was 11.06%.

Although fragmented, the industry is highly competitive. It is characterized by relatively slow growth, a lack of product differentiation, and production overcapacity. Further, relationships in the industry – particularly along the supply chain - are by nature relationship based. Builders are loyal to suppliers because they value predictable prices and material quality.

With the competition fierce and demand slackening, major North American producers of paper and wood products, including Abitibi Consolidated Inc., Domtar Inc., Weyerhaeuser Co., and Louisiana Pacific Corp., have gone through a series of consolidations in recent years. These consolidations are primarily in the form of facility shutdowns to attempt to ameliorate the excess of supply. The changes in the structure of the industry are creating new challenges for existing competitors in the industry.

Key External Pressures

Housing Trends

Hardwood plywood and veneer is used for furniture, high-end cabinetry, and architectural millwork in homes and commercial buildings. The industry's performance, therefore, correlates directly to home building and remodeling trends. Housing starts, a measurement of initial construction of residential units each month and an indicator of overall demand for residential wood products, had risen from 2001 through 2005. This rise was fueled by favorable interest rates and steadily increasing home prices. However, starting in 2006, both housing starts as well as housing permits had began a significant downward trend, driven by a financial crisis in the subprime mortgage markets and excesses in housing supply. This translated to a substantial decline in demand for and sales of residential wood products.

International Competition

The slumping housing market has been one of two major forces causing the US plywood industry to restructure. The second is the rise of international competition. Most US companies in the plywood and veneer industry manufacture their products within the domestic market in which labor and manufacturing costs are much higher than in many emerging markets. Between 2002 and 2006, imports of hardwood plywood to the US rose 93%, from 2.2 million to 4.4 million cubic meters. China's share of total imports increased from 10% to 54% over the same period of time, while imports from other countries declined. The entry of Chinese hardwood plywood manufacturers into the US market was sudden and aggressive. Within only a few years the US plywood market's competitive landscape was significantly altered – mostly to the detriment of US manufacturers. Due to low labor costs, tariff avoidance, and government subsidies designed to encourage export, Chinese manufacturers maintain a substantial price advantage over U.S. manufacturers. This holds true even though a large percentage of Chinese plywood exports are manufactured using raw logs imported from overseas. However, Chinese products suffer from quality and consistency issues and generally higher levels of formaldehyde emissions compared to plywood provided by US domestic manufacturers.

Domestic Survival Strategies: Specialization and Differentiation

Intense competition domestically and internationally, commodity products, and production overcapacity are all creating havoc in the US plywood industry. To survive, the US-based companies are struggling to compete on a cost basis. Recent moves by International Paper and Weyerhaeuser to concentrate on a few major businesses indicate that the forest products industry is rapidly shifting to a more specialized focus. In 2007, International Paper sold eighteen mills and closed one in North America. Weyerhaeuser recently closed six facilities in North America, sold a European sales division for Engineered Wood Products, and sold its timber rights. International Paper also purchased the Containerboard Packaging & Recycling Business from Weyerhaeuser. Across the industry, companies are searching for relatively narrow segments of the market where they can attain high market shares and better returns in a capital-intensive industry.

Although the plywood industry is affected high rivalry, fierce competition, and declining margins, it may be possible that competitive advantages can be achieved through product differentiation, product innovation, and improved supply-chain management. Implementing a 'sustainability'-based strategy that incorporates environmentally-sound policies and practices throughout a company's value chain potentially provides a viable differentiation strategy in this mature industry.

SUSTAINABILITY AS DIFFERENTIATION

Building construction, maintenance, and demolition have a profound impact on the environment and well-being of communities. Buildings in the United States account for 65% of electricity consumption, 30% of raw materials use, and 30% of greenhouse gas emissions. Increasing population growth, resource consumption, and energy costs are creating a significant market transformation in the US building industry.

Green building – defined as the utilization of environmentally preferred building practices and materials in the design, location, construction, operation and disposal of buildings – has experienced tremendous growth, and seems to remain resilient during the housing downturn. Based on this growth in demand for green building materials, the price premium required for green building is shrinking, reducing one of the few barriers to growth and entry. However, despite this growth, green building currently represents only 2 percent of the commercial edifices and 0.3 percent of new homes in the US.

FMI, a construction management consulting firm, projected that by 2008 nearly \$21.2 billion of new nonresidential construction will employ the use of green-building principles—a 58% increase. By 2010, approximately 10% of commercial construction starts are expected to be 'green', and the total value of green building construction starts is forecasted to be at \$60 billion. Another market researcher, SBI, predicts that the market for green building materials, which has been growing at a rate of 23% annually through 2006, will slow slightly, to 17% in the upcoming years.

Sourcing FSC Certified Wood

According to the Food and Agriculture Organization, an additional 25 to 30% of the greenhouse gases released into the atmosphere each year – 1.6 billion tons – are caused by deforestation. The majority of this deforestation is in the tropics, and approximately 70% of

it is tied to logging and logging roads. These forests are also vitally important for other uses and ecological services such as non-timber forest products, medicinal plants, protection of biodiversity, watershed protection, production of fish and wildlife, and providing a home for indigenous people.

The Forest Stewardship Council (FSC) created the first worldwide certification system based on a set of 10 principles established for forests and forest products (See Exhibit C: Forest Stewardship Council Principles). This certification empowers consumers to express their demand in the market for responsible forestry by offering an independent, global and credible label for forest products. FSC involves a complex tracking system called chain of custody that allows manufacturers and traders to demonstrate that timber comes from a forest that is responsibly managed in accordance with the FSC Principles. The flow of FSC certified wood is tracked through the entire supply chain- including processing, transformation and manufacturing - all the way to the final product. Such certification generally adds a price premium of between 0.05% - 2.5% to hardwood plywood.

Building Green with LEED Certification Standards

The United States Green Building Council (USGBC) is a 501(c) (3) non-profit community of leaders working to make green buildings accessible to everyone within a generation. In 1998, the USBC established the Leadership in Energy Efficiency and Design (LEED) framework which has quickly become the dominant accrediting body for green construction.

LEED addresses all building types and emphasizes state-of-the-art strategies in five areas: sustainable site development, water savings, energy efficiency, materials and resources selection, and indoor environmental quality. The LEED system awards points for improvements in categories such as Sustainable Sites, Energy and Atmosphere, Materials and Resources, and Indoor Air Quality. Buildings may be rated silver, gold, or platinum depending on how many points they are able to achieve. Registered LEED projects grew from 5 in 2001 to over 9,800 in 2007, with another 1,280 already certified. In 2008, there were LEED projects in every state and 41 countries.

Currently, LEED certification only carries bragging rights, however state and local governments are beginning to provide incentives towards attainment of such goals.

The pace of growth had also increased every year since the LEED framework was introduced. There were several contributing factors to the rapid adoption of green building:

- Awareness of green design principles and building techniques has spread quickly throughout the architecture and development community. Innovative methods and processes are becoming “best practice” for many design and building firms.
- The availability and quality of environmentally sound building materials and products has also expanded considerably as the movement has gained traction. Acceptance of new or substitute products grows as they build a track record in the industry.
- Green buildings yield significant savings in comparison with traditional construction. Energy savings, worker productivity, and public relations and marketing can benefit from building green.

By all appearances, the housing slump has not slowed the pace of LEED registration for new construction. Mandates and incentives from local governments have encouraged and in many cases mandated green building for new construction, and new LEED ratings systems are in pilot phase for residential, existing buildings, schools, and neighborhood development. In the first five months of 2007, more than 100 green building bills were introduced at the state level.

The Critics of FSC and LEED

However, there has been some criticism of LEED certification and Rainforest advocacy groups have maintained that LEED certification is not doing enough to protect rainforests. LEED only awards a single, optional point for selecting woods independently-certified as coming from well-managed forests (i.e., under the protocol of FSC) out of a total of 69 points that can be earned. Because a minimum of 52 points earns a rating of "platinum," and there is no specific requirement to avoid destructively-harvested rainforest woods, it is still possible to use these woods and still achieve the highest possible level of LEED certification. Exhibit C: Rainforest Relief Policy Draft outlines how some one advocacy group, Rainforest Relief, seeks to ensure that tropical hardwood is sourced responsibly through local policy initiatives.

COLUMBIA FOREST PRODUCTS' PURSUIT OF A SUSTAINABILITY STRATEGY

Early Adoption of Forest Stewardship Council Standards

CFP is no stranger to the Forest Stewardship Council certification standards. CFP joined the FSC in 1999 and by 2007 sourced more than 30% of its wood from FSC-certified forests. This initiative provided CFP with the ability to offer a line of environmentally friendly decorative panels and veneered particleboard that carried the FSC certification.

Ed Woods, executive vice president of CFP, stated in regards to producing only FSC certified products, "I don't think we have enough raw materials sources to go a hundred percent. That would be a goal." There is simply not enough FSC wood being produced, but CFP continues to both encourage suppliers to be certified and search for more sources of FSC certified wood. With the explosion of the green building movement and LEED point system, Woods believes that increasing the percentage of its products that utilize certified wood could position CFP to be ready to meet the increasing demand.

Eco-Innovation in Product: The Introduction of PureBond®

In 2007 CFP unveiled PureBond® formaldehyde-free plywood adhesive. With this innovation CFP has a proprietary adhesive with greater bonding strength, better moisture resistance, and no off-gassing of formaldehyde, all without added cost to the customer.

Doctor Kaichang Li, an Assistant Professor at Oregon State University's College of Forestry, invented PureBond®. Utilizing principles of biomimicry,² Dr. Li developed a method to

² The derivation of scientific advances through the study of natural processes. Popularized by Janine Benyus in her book of the same name.

create a protein-based adhesive modeled from a mussel's innate ability to attach to shoreline rocks. Li and his team replicated this adhesive by blending protein-rich soy flour with the same amino acids used by the mussels. The resulting product provides a cost-effective alternative to formaldehyde resins. Not only did PureBond® outperform formaldehyde in terms of strength, water resistance, and toxicity, but it was soon cheaper to produce than formaldehyde-based alternatives.

At a cost of \$250,000 per facility, in addition to significant costs for development of the technology, CFP converted its veneer-core hardwood plywood plants to formaldehyde-free manufacturing. Using a patented, non-toxic, soy-based adhesive cooperatively developed in conjunction with CFP, Oregon State University, and Hercules Incorporated, CFP became the only producer in the industry with a cost neutral alternative to formaldehyde-based adhesives.

While only a component of green construction, CFP's PureBond® product line helps a building project achieve higher environmental standards with positive benefits to indoor air quality and sustainable sourced wood. Since its introduction the demand for PureBond® has been strong. Ed Woods, stated that “we've definitely noticed PureBond® being specified and folks seeking it out.” Exhibit D shows examples of Columbia Forest Products' PureBond® and Forest Stewardship Council certified products.

Building a Brand and a Reputation – the Good and the Bad

This technological innovation had clear implications for CFP's product line and reputation. When CFP first announced its intentions to adopt formaldehyde-free resins, the plywood industry reacted with boycott threats and an extensive public relations campaign against CFP. Elizabeth Whalen, Director of Sustainability at CFP, recalls that the “advertising campaign was fairly controversial. It was incredibly effective from my viewpoint and the rest of us at Columbia, but it actually irritated the industry even more when we came out with it just because of the messaging. Their opinion implied that we were demonizing formaldehyde—which was sort of the point.”

In early 2007, California Air Resources Board (CARB) enacted strict regulation focused on indoor air quality. Under the new regulations, manufacturers that continue to use formaldehyde-added resins in regulated products must obtain third-party certification that emissions standards are met. Distributors, importers, fabricators and retailers must record product purchase dates, supplier names, and evidence that they have obtained compliance documentation from the supplier to establish a product's chain of custody.

With this legislation CFP found itself in a very advantageous position for two reasons. First, it is the only hardwood plywood company in the industry with a cost-competitive alternative to formaldehyde-based products. This is a significant, albeit not indefinite, advantage, particularly in California. The second, and more subtle, advantage results from the relationships that CFP will be able to develop. It is the only company that can tell its customers not to worry about the new regulations. Price, delivery schedules, and performance will not be affected for customers of CFP when the regulations take effect. If CFP can create those relationships while competitors struggle to satisfy the CARB regulations, CFP may have an opportunity to capture and retain considerable market share.

THE FUTURE OF CFP'S SUSTAINABILITY STRATEGY

After achieving success with PureBond® and incorporating FSC certified wood into its products, the questions for CFP now are “what else should it consider doing to clearly establish itself as an environmental leader?” and “what else should it actually do given the severe downturn in the US housing market?”

Existing Product Differentiation

As a forest products company, CFP is always going to be involved in a resource extraction industry. Currently, there is not enough FSC-certified wood to satisfy market demand, and new sources are expensive and take time to develop. CFP may be able to develop new substrates on which to apply hardwood veneers, but uncertainty remains around the costs and performance of the new substrates. For example, in recent years, wheat board has found some success in the marketplace as a substitute for wood in cabinetry. However, wheat board and other substrates based on renewable, rather than extractive, resources remain limited in supply, leaving CFP to confront the same constraints it has with FSC-certified wood. Further, the conversion of its mills to utilize PureBond® cost CFP millions of dollars; there is little capability to accurately forecast the costs of switching to alternative substrates.

CFP is also considering other applications for its proprietary PureBond® adhesive. Multi-dimensional fiberboard (or, MDF) and particleboard products are made by gluing sawdust and mill waste into sheets for use in cabinetry and furniture. These products are also key materials in home and commercial construction. If CFP were able to formulate PureBond® to be as effective in these products as it has in veneer core plywood, it may be able to capitalize further on the emerging green building segment.

Vertical and Horizontal Diversification

Entirely new products might offer other options for CFP's sustainability strategy. CFP is thinking about the potential extension of PureBond® into a line of wood and wall glues to be sold to both commercial and consumer markets. Given that there are very limited offerings in this segment that are non-toxic, this presents an intriguing option. Initial discussions with Hercules, the supplier of PureBond® suggest that it may be willing to sign an agreement that provides CFP the exclusive rights to market and sell related products based on the PureBond® formulation. However, CFP has never offered packaged products and the distribution channels for such products are very different from those CFP currently utilizes for its hardwood and veneer products.

With the rapid growth of the green building industry, CFP is also looking at the possibility of expanding vertically to manufacture its own line of cabinetry. Currently there are only a few companies offering hardwood cabinetry that is environmentally sound and these companies maintain a limited selection and operate at relatively small scales. CFP may be able to develop its own branded line of cabinetry that builds from the reputation it created through the introduction of PureBond®.

Making Sustainability Strategies Profitable

All of these strategies rely on demand in the marketplace. As Harry Demorest said, “...what really drives change are, in my opinion, consumers.” Is there enough demand in the marketplace for green products, and if so, is that demand so great that customers will pay a

premium for it? PureBond® recovered the development investments quickly because it was cost neutral to CFP's customers; they did not have to pay more for a formaldehyde-free product. The key question remained: Would there be sufficient demand in the marketplace so that CFP can recoup any investments made in future sustainability-related initiatives?

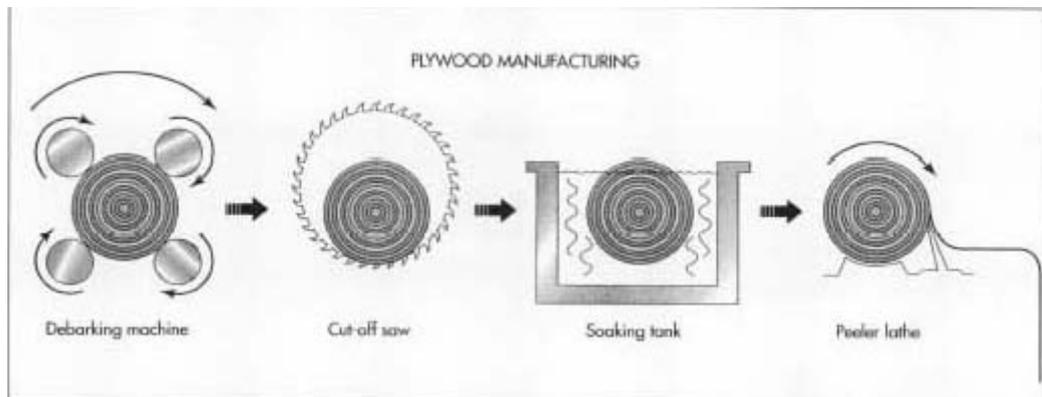
Despite the encouraging signs of growth in the green building market, it is still a very small portion of the overall construction market. In 2006 green homes made up only 0.3 percent of the housing market. Although the growth rate in the green building segment remains high during the current downturn it is not certain that the size of the market will justify significant investments.

The threat of domestic and international competition is ever present. Elizabeth Whalen is well aware that the advantage provided by PureBond® is only temporary. She estimates that CFP's domestic competition will be able to offer competitive non-formaldehyde products in 1 ½ to 2 years. It would likely take China and other overseas manufacturers another year at least to offer comparable products.

The final consideration is CFP's reputation. It has spent many years building recognition for its sustainability initiatives. By further pursuing a sustainability-based strategy, CFP invites greater public scrutiny. Given the recent criticisms of LEED and FSC, CFP needs to be clear on how it commits itself to sustainability and the reputation that it built as a result. There is always the potential that well intentioned and ambitious sustainability efforts can turn into PR disasters.

The potential disadvantages and pitfalls of pursuing sustainability strategies can be difficult to anticipate and react to effectively. CFP must be able to commit to a clear strategy and prosper in the intensely competitive hardwood plywood industry.

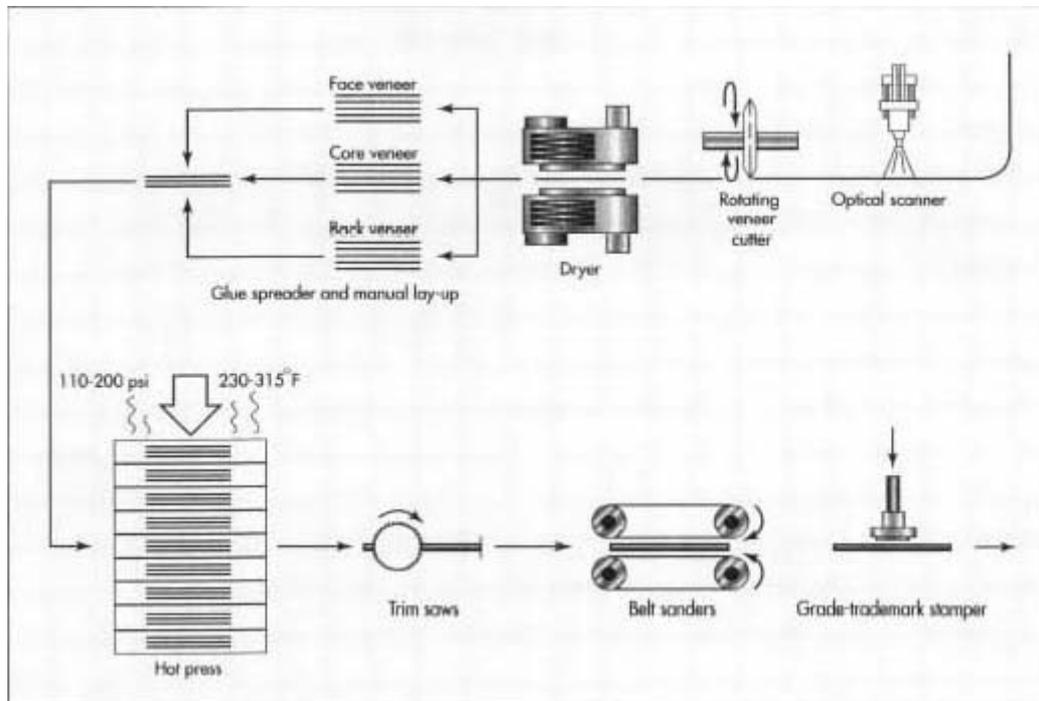
Exhibit A: Making Veneer



The Five Basic Steps

1. **Debarking:** Either with sharp-toothed grinding wheels or with jets of high-pressure water the bark is removed from the log as it is slowly rotated about its long axis.
2. **Sectioning:** Debarked logs are cut into sections about 8 ft-4 in (2.5 m) to 8 ft-6 in (2.6 m) long, suitable for making standard 8 ft (2.4 m) long sheets. These log sections are known as peeler blocks.
3. **Softening:** Before the veneer can be cut, the peeler blocks must be heated and soaked to soften the wood. This process takes 12-40 hours depending on the type of wood, the diameter of the block, and other factors.
4. **Peeling:** The heated peeler blocks are then transported to the peeler lathe, where they are automatically aligned and fed into the lathe one at a time. As the lathe rotates the block rapidly about its long axis, a full-length knife blade peels a continuous sheet of veneer from the surface of the spinning block at a rate of 300-800 ft/min (90-240 m/min). When the diameter of the block is reduced to about 3-4 in (230-305 mm), the remaining piece of wood, known as the peeler core, is ejected from the lathe and a new peeler block is fed into place.
5. **Rolling:** Wet strips of veneer are wound into a roll, while an optical scanner detects any unacceptable defects in the wood. Once dried the veneer is graded and stacked.

Exhibit B: Making Plywood



The Four Basic Steps:

1. **Laying Up and Gluing:** Appropriate sections of veneer are assembled for a particular run of plywood and the process of laying up and gluing the pieces together begins. In the simplest case of three-ply sheets, the back veneer is laid flat and is run through a glue spreader, which applies a layer of glue to the upper surface. The short sections of core veneer are then laid crossways on top of the glued back, and the whole sheet is run through the glue spreader a second time. Finally, the face veneer is laid on top of the glued core, and the sheet is stacked with other sheets waiting to go into the press.
2. **Pressing:** Glued sheets are loaded into a multiple-opening hot press, which can handle 20-40 sheets at a time. The press squeezes them together under a pressure of about 110-200 psi (7.6-13.8 bar), while at the same time heating them to a temperature of about 230-315° F (109.9-157.2° C).
3. **Finishing:** Higher grade sheets pass through a set of 4 ft (1.2 m) wide belt sanders, which sand both the face and back. Intermediate grade sheets are manually spot sanded to clean up rough areas. Some sheets are run through a set of circular saw blades, which cut shallow grooves in the face to give the plywood a textured appearance.
4. **Stamping:** Finished sheets are stamped with a grade-trademark that gives the buyer information about the exposure rating, grade, mill number, and other factors.

Exhibit C1: Forest Stewardship Council Principles

PRINCIPLE #1: COMPLIANCE WITH LAWS AND FSC PRINCIPLES. Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC Principles and Criteria.

PRINCIPLE #2: TENURE AND USE RIGHTS AND RESPONSIBILITIES. Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.

PRINCIPLE #3: INDIGENOUS PEOPLES' RIGHTS. The legal and customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognized and respected.

PRINCIPLE #4: COMMUNITY RELATIONS AND WORKER'S RIGHTS. Forest management operations shall maintain or enhance the long-term social and economic well being of forest workers and local communities.

PRINCIPLE #5: BENEFITS FROM THE FOREST. Forest management operations shall encourage the efficient use of the forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.

PRINCIPLE #6: ENVIRONMENTAL IMPACT. Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

PRINCIPLE #7: MANAGEMENT PLAN. A management plan -- appropriate to the scale and intensity of the operations -- shall be written, implemented, and kept up to date. The long-term objectives of management, and the means of achieving them, shall be clearly stated.

PRINCIPLE #8: MONITORING AND ASSESSMENT. Monitoring shall be conducted -- appropriate to the scale and intensity of forest management -- to assess the condition of the forest, yields of forest products, chain of custody, management activities and their social and environmental impacts.

PRINCIPLE # 9: MAINTENANCE OF HIGH CONSERVATION VALUE FORESTS. Management activities in high conservation value forests shall maintain or enhance the attributes which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

PRINCIPLE # 10: PLANTATIONS. Plantations shall be planned and managed in accordance with Principles and Criteria 1 - 9, and Principle 10 and its Criteria. While plantations can provide an array of social and economic benefits, and can contribute to satisfying the world's needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

Exhibit C2: Rain Forest Relief Policy Draft

A POLICY TO PROTECT TROPICAL AND TEMPERATE RAINFORESTS BY ELIMINATING MUNICIPAL PURCHASES OF WOOD PRODUCTS CONSISTING, IN WHOLE OR IN PART, OF TROPICAL OR TEMPERATE RAINFOREST WOODS THAT ARE NOT HARVESTED SUSTAINABLY.

WHEREAS, the rate of rainforest loss is high and accelerating;

WHEREAS, clearing and burning of rainforests is linked to atmospheric imbalance, global warming, species extinctions, loss of indigenous cultures, loss of potential medicines, and displacement of local peoples;

WHEREAS, commercial logging is currently directly responsible for 12% of tropical deforestation,

WHEREAS, according to the United Nations Food and Agriculture Organization commercial logging is indirectly responsible for up to 70% of tropical deforestation due to the access provided to shifting cultivators by logging roads;

WHEREAS, commercial logging is the greatest cause of deforestation in tropical Southeast Asia;

WHEREAS, commercial logging is the greatest cause of the loss old-growth temperate rainforests;

WHEREAS, a large portion of the wood produced from commercial logging in the tropics is exported to the United States and other industrialized nations;

WHEREAS, it is in the interest of the health, safety and welfare of all who live, work and do business in Portland, Oregon that measures be taken to reduce and stop the destruction of rainforests worldwide;

NOW, THEREFORE, BE IT RESOLVED BY THE PORTLAND CITY COUNCIL that the City of Portland, Oregon will not use, purchase, or fund the purchase of products containing, in whole or in part, wood from tropical forests, or tropical or temperate rainforests, excepting those woods that are proven to have been harvested in an environmentally sound manner in accordance with the guidelines set forth in Paragraph A

Paragraph A

Terms of this resolution will be met if it can be proven through an independent certification program accredited by the Forest Stewardship Council that the rainforest wood product has come from a forest operation that can be shown to meet the following conditions:

Local Involvement

Local communities are involved in all stages of planning and management of diverse forest products for sustainable yields.

Land Rights

Projects must not interfere with aboriginal or traditional land rights of indigenous peoples, or other current land tenants.

Ecology

- Timber harvesting cannot adversely affect beneficial physical processes such as climate regulation, the surface or ground water quality or the overall watershed function.
- Timber harvesting must maintain soil productivity and not increase erosion rates.
- Timber harvesting must not use synthetic or other harmful pesticides or herbicides.
- Timber harvesting does not diminish ecological integrity or species richness (number of species of flora and fauna, including trees) at the scale of the logging operation or the watershed in which it is located.

Exhibit D: Columbia Forest Products' Sustainability-Based Products



Kitchen cabinets made by Neil Kelly Cabinets, using Columbia Forest Products' PureBond® formaldehyde-free hardwood plywood.



Columbia Forest Products' Forest Stewardship Council certified plywood panels.