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## Eco-friendly Wood Protection from Mold, Rot, Termites, and Fire

### Snapshot

May 8, 2012

Eco Building Products, Inc. ("Eco Building" or "the Company") is focused on developing safe, sustainable, and affordable solutions that address today's lumber industry challenges. The Company has created a platform for lumber protection centered on eco-friendly topical coatings proven to protect wood products from mold, wood rot, and termites, among other forms of decay, while simultaneously serving as a fire inhibitor. Eco Building's topical coatings, Eco Red Shield™, Eco Blue Shield™, and Eco Clear Shield™, are applied to above-ground, **framing-grade**<sup>†</sup> lumber and other wood products before construction to preserve the wood's structural qualities, while only adding an estimated \$1.00 per square foot to the cost of building materials. Eco Building has developed a distribution network for its products throughout most of North America and continues to expand its international presence. The Company's innovative wood treatment and coated wood products are marketed through comprehensive labor and material packages to U.S. builders, and are distributed internationally for offshore housing projects, including Eco Shelter™ and Eco Home developments for use in regions overcoming natural disasters or in need of sustainable housing solutions.

### Recent Financial Data

Ticker (Exchange)	ECOB (OTC.BB)
Recent Price (05/08/2012)	\$0.09
52-week Range	\$0.07 - \$0.33
Shares Outstanding	~206.8 million
Market Capitalization	~\$18.6 million
Average 3-month Volume	582,555
Insider Owners + >5%	~57.54%*
Institutional Owners	~2%
EPS (Qtr. ended 12/31/2011)	(\$0.01)
Employees	44



\* Includes 45.45% held by Manhattan Resources Ltd.

### Key Points

- In the past decade, there has been an increase in global demand for homes composed of wood-frame construction due to greater affluence in emerging countries and a correlating rise in demand for comfort. As well, failure of buildings during recent earthquakes in Haiti and other countries has fueled demand for safe, economical housing, such as that provided by Eco Building.
- There is also a need for improved wood products in the U.S. as new building practices involve the use of materials that may be more prone to mold, mildew, termites, and fire than previously experienced. As well, the recent housing downturn has created excess lumber inventory, which is increasingly susceptible to moisture damage and other forms of decay during periods of extended storage.
- In June 2011, the International Code Council (ICC) introduced a new building code relating to the method by which Eco Building treats lumber products (which the Company believes represents a considerable improvement over existing **pressure treatment** approaches). The Company has submitted its application demonstrating compliance to the ICC and is awaiting final approval. Approval under this code could further encourage widespread market adoption of its products as well as enable it to penetrate the roughly \$4 billion market for pressure-treated lumber products.
- In March 2012, the Eco Red Shield™ coatings achieved certification under the GREENGUARD Children & Schools Certification Program<sup>SM</sup> for indoor air quality. Coating wood products with Eco Red Shield™ has shown to significantly reduce the natural formaldehyde emissions from raw lumber, among other benefits.
- Eco Building's leadership has considerable industry experience, specifically as it relates to wood framing, lumber, building materials, forest products, and business strategy.
- For the quarter ended December 31, 2011, the Company reported revenues from product sales of \$996,845, up from \$368,482 in revenues for the year-ago quarter. As of December 31, 2011, Eco Building had cash on hand of \$72,799.

<sup>†</sup>**BOLD WORDS** WITHIN TEXT ARE REFERENCED IN THE GLOSSARY ON PAGES 64-66.



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## Company Background

The 21<sup>st</sup> century has presented numerous challenges for the lumber industry—from varying levels of demand (resulting in limited or excess wood supply) to changing materials and sustainability concerns. Moreover, natural disasters worldwide have resulted in billions of dollars in structural damage and countless casualties, particularly in developing countries—emphasizing a critical need for safer, more affordable housing that can be implemented on a broad scale.

Eco Building Products, Inc. (“Eco Building” or “the Company”) is focused on developing safe, sustainable, and affordable solutions that address the challenges of today’s lumber industry. The Company has created a new platform for lumber protection centered on a topical coating that has been proven to successfully protect wood products from mold, wood rot, termites, and other wood-ingesting insects, among additional forms of decay. This patent-pending chemistry can also include a value-added fire inhibitor designed to slow the treated lumber’s ignition time, **flame spread**, and smoke index.

Eco Building’s lumber coating is spray-coated onto above-ground vertical framing wood products, including **sheeting, engineered wood products (EWPs), and dimensional lumber**, in a controlled factory setting. Figure 1 illustrates a home in Dana Point, California, being built by FieldStone Homes ([www.fieldstone-homes.com/california](http://www.fieldstone-homes.com/california)). The lumber used in Figure 1 has been treated with Eco Building’s Eco Red Shield™, which offers protection against mold, rot, and termites, as well as incorporates the added fire inhibitor (Source: the *Orange County Register*, November 4, 2011).

In addition to Eco Red Shield™, the Company markets its proprietary technology as Eco Blue Shield™ for market segments requiring enhanced termite protection but not fire inhibition, and Eco Clear Shield™ designed for staining and clear-coat varnishes that protect wood while highlighting its natural beauty.

Importantly, Eco Building’s formulations are designed to be eco-friendly, unlike the most common method of treating wood today, pressure treatment. As described on page 14, pressure treatment entails applying potentially toxic chemicals in a manner that can weaken wood fibers, negatively affecting the long-term durability of a structure. The chemicals have also been known to leach into nearby soil or groundwater. In contrast, Eco Building has developed an innovative approach of creating a shield—or barrier—around wood that leaches into the center of the wood without using the harsh approach of pressure treatment. Studies by Louisiana State University (LSU) support the Company’s claims that, in addition to mold, rot, and termite protection, Eco Red Shield™ is able to preserve the strength of wood fibers over time.

As well, the Company’s coating has achieved certification under the GREENGUARD Children & Schools Certification Program<sup>SM</sup> for indoor air quality, indicating that it meets strict criteria for emissions of volatile organic compounds (VOCs) and is safe for use in environments where children spend long periods of time (e.g., schools, daycares, etc.).

### Availability of Eco Red Shield™ Lumber with Smart Components®

Beyond protecting the quality and strength of lumber by coating it with Eco Red Shield™, the Company has also combined its protected lumber with seismic-engineered walls called Smart Components®, which are designed to help prevent major damage in earthquakes and hurricanes. As such, Eco Building is helping to provide cost-effective, sustainable building materials that can be used to build seismic-engineered and quality-controlled structures.

Figure 1

Eco Building Products, Inc.

HOME UNDER CONSTRUCTION IN DANA POINT, CALIFORNIA, USING LUMBER TREATED WITH ECO RED SHIELD™



*Source: the Orange County Register, November 4, 2011.*

A number of recent catastrophic natural disasters have demonstrated an unmet global need for safe, affordable housing that is engineered to withstand strong winds, seismic activity, and excessive flooding. Damages and casualties in developing countries are typically higher than developed nations as these areas often lack sufficient building codes or code enforcement. As a result, Eco Building has targeted its proprietary wood coatings to both domestic and global markets where there is an unmet need for improved lumber practices.

Figure 2 summarizes Eco Building's products and services, which are distributed globally through a network of affiliates, wholesalers, and lumberyards. Through these products, Eco Building offers builders and consumers a way to ensure the quality of wood used in buildings—in the U.S. for single family and **multifamily** residential housing, custom homes, and commercial projects, as well as in expanding offshore markets that are looking toward safe, economical wood-frame housing as a way to rapidly meet demand. The Company's global housing solutions include its Eco Shelter™ and Eco Home platforms for offshore housing projects and humanitarian disaster relief (detailed on pages 33-39).

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Figure 2

Eco Building Products, Inc.  
PRODUCTS AND SERVICES

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**Eco Red Shield™**

A proprietary, ecofriendly formula to control moisture and protect lumber from mold, mildew, fungus, decay, rot, termites, and other wood-boring insects including Formosan termites, while also serving as a fire inhibitor

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**Eco Blue Shield™**

A proprietary, ecofriendly formula to control moisture and protect lumber from mold, mildew, fungus, decay, rot, termites, and other wood-boring insects including Formosan termites

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**Eco Clear Shield™**

A proprietary, ecofriendly formula designed for staining that also controls moisture and protects lumber from mold, mildew, fungus, decay, rot, and termites while serving as a fire inhibitor (*fire protection is optional*)

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**Eco Red Shield™ Smart Components®**

Pre-engineered, seismic wall systems built in a quality-controlled factory setting that are ready for shipment worldwide, and can be applied right out of the box

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**Eco Shelter™**

A pre-engineered, pre-packaged kit that comes pre-cut and ready to be assembled with a hammer and nails. An Eco Shelter™ is a simple design targeted for rapid-response disaster relief housing as well as special events, offices, meeting halls, storage sheds, medical clinics, and more. It is available in a variety of sizes and floor plans.

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**Eco Home**

Simple, cost-effective floor plans that are pre-engineered and constructed in a quality-controlled environment to be assembled onsite by local labor. These homes are designed to be long-lasting at a fair price, with quick and safe construction.

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Source: Eco Building Products, Inc.

## Market Opportunities

Eco Building is helping communities, governments, and regulatory agencies worldwide raise their standards on residential home safety by combining advanced engineering techniques with protected timber products. In April 2012, the Company's Eco Red Shield™ lumber was highlighted in *Construction Digital* as an emerging solution to today's global concrete problem—in which other countries are building with lower-quality concrete, posing a significant risk of collapse during severe weather or seismic activity.

Eco Building is not only providing coated lumber and novel housing solutions (e.g., Eco Shelter™ and Eco Home); it is also proactively seeking to help overseas governments adopt better building practices. These include employing prefabrication and sequencing (building homes in sequence) to rapidly deploy affordable wood-frame homes built with Eco Red Shield™-protected lumber. The Company further demonstrates to governments how products like Eco Red Shield™ can be combined with Smart Components® for safer housing in places such as Haiti, which is rebuilding after a devastating 7.0 magnitude earthquake in January 2010. Wood-frame buildings can often be safer than concrete in seismic hotspots.

### *Approval under a New Building Code*

In addition to its efforts in developing economies, Eco Building has worked with consultants and wood scientists to help pioneer a notable recent addition to the International Code Council's (ICC) building code. The ICC is responsible for creating a complete set of building safety and fire prevention codes that have been adopted at the state or jurisdictional level in all 50 U.S. states and Washington, D.C. ICC building standards are further accepted worldwide and by a number of U.S. federal agencies, including the General Services Administration, Department of State, and Veterans Administration (Source: ICC).

Previously, the building code emphasized pressure treating as a method to protect wood products but did not have a standard relating to how Eco Building coated lumber. In June 2011, the ICC introduced "AC433," its acceptance criteria for Liquid Borate Fungal Decay and Termite-resistant Treatment Applied to Wood Members, thereby creating a place in the code for Eco Red Shield™ as a unique coated lumber product (non-pressure-treated). After submitting a full engineering evaluation package in March 2012, the Company has received comments back from the ICC, which Eco Building reports are mainly procedural. The Company plans to submit final rebuttals, which it believes are likely to lead to final approval under this code.

AC433 compliance is anticipated to lead to approval of Eco Red Shield™ for applications in use categories "UC1," "UC2," and "UC3A." These designate use in interior, above-ground construction in dry or damp environments as well as exterior construction in above-ground, coated, and rapid water runoff applications. It is estimated that the pressure-treated wood industry generates roughly \$4 billion annually (Source: CBS News, February 11, 2009). As published in its Form 10-K filed with the U.S. Securities and Exchange Commission (SEC) on September 28, 2011, Eco Building anticipates that, within this market, "approximately 65% of the treated wood components sold annually fall into the UC1, UC2, and UC3A use categories—opening up significant opportunities for Red Shield products as a direct substitute or competitive product." Greater details of AC433 and how a UC1, UC2, and UC3A approval can expand the market for Eco Red Shield™ are provided on pages 16-18.

## Headquarters and Employees

The Company was incorporated in Colorado in March 2007 as N8 Concepts, Inc. In October 2009, it acquired EcoBlu Products, Inc., a Nevada corporation, through a reverse acquisition and adopted its corporate name. In July 2011, the Company changed its name to Eco Building Products, Inc. Eco Building has headquarters in Vista, California, which includes a product showroom and coffee shop called the Seattle Exchange. The Company has stated that 100% of the coffee shop's proceeds are directed to support its various humanitarian programs worldwide, several of which are presented on page 39. The Company's stock is traded on the Over-the-Counter Bulletin Board (OTC.BB) under the ticker "ECOB." As of September 26, 2011, Eco Building employed one part-time and 44 full-time employees with plans to hire additional key staff as operations develop.

## Market Trends

Over the past several decades, there have been several market trends within the lumber and construction industries that have created an opportunity as well as a need for improved methods of protecting the quality and strength of wood products, particularly from mold, fire, termites, and other forms of decay.

- (1) The industry has transitioned from mature, old-growth trees to **juvenile** lumber and lightweight construction, which require different, and more thorough, protection from hazards (mold, fire, termites, and others) than old-growth lumber products.
- (2) The decline in the U.S. housing market has necessitated better protection for excess, stored domestic lumber inventory while, in conjunction, offshore housing markets are growing, requiring faster and better building practices, such as can be achieved with wood-frame construction.
- (3) Preservative-treated (pressure-treated) wood is not adequately protecting today's lumber products. As well, it is costly and not eco-friendly.

## Transition from Old-Growth Wood to Juvenile Lumber

Old-growth forests filled with **Douglas fir** trees used to span the Pacific Northwest. However, in response to pent-up consumer demand following World War II and affordable mortgages for returning military personnel, Douglas fir has been harvested extensively for housing and other construction. Thus, the span and prevalence of these old-growth forests has significantly decreased as these trees can take up to 100 years to fully mature. Today, limited inventories of old-growth wood are often only available through private companies and the U.S. government.

Figure 3  
JUVENILE VERSUS OLD-GROWTH LUMBER



Source: Eco Building Products, Inc.

As a result, most lumber is now produced from smaller, juvenile trees grown in forests that are replanted and managed specifically for timber. Juvenile lumber (shown in Figure 3) can be harvested in one-third the time of the old-growth trees. As well, modern forest management techniques benefit both the environment and the construction industry by ensuring that trees remain disease-free and helping them grow in one-third the time required in natural forests—key advantages as consumers today are increasingly demanding environmentally friendly products and practices. As well, young trees, especially in the first six years of life, remove the most carbon from the atmosphere.

## Market Adoption of Engineered Wood Products (EWPs) Using Juvenile Lumber

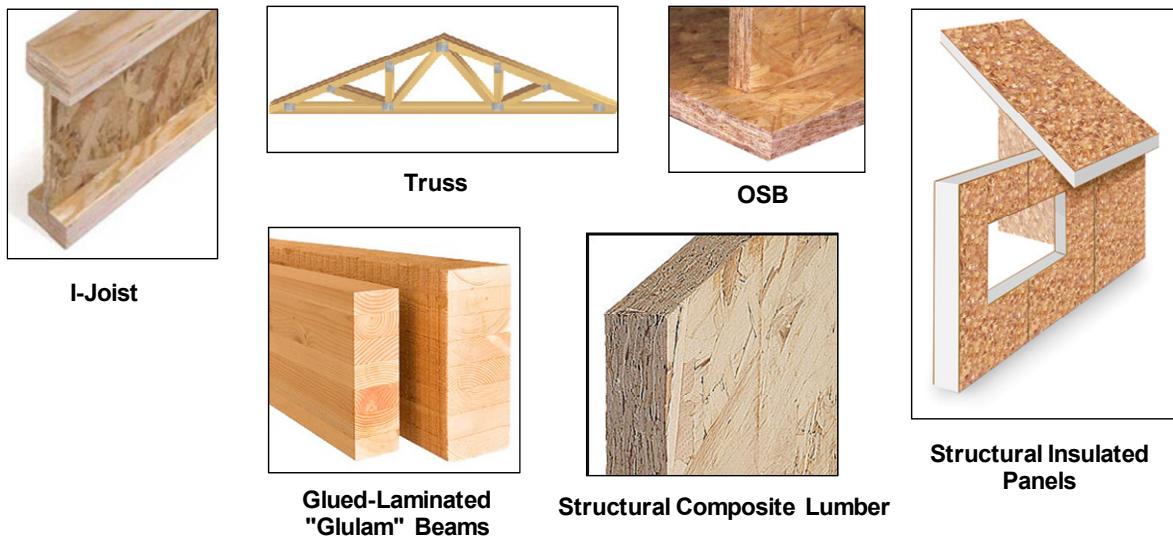
Over time, construction techniques have adapted to the change in supply from large, old-growth trees (e.g., fir trees) to smaller, juvenile logs. Whereas, in the 1950s, the majority of homes were built using solid sawn lumber framing supported by diagonal board **sheathing** on the floors, walls, and roof, as well as hardwood plank flooring, builders have since adopted lightweight structural products and construction techniques better suited to the use of juvenile lumber for building residential wood-frame houses. For example, in modern **light-frame construction**, builders erect a stable frame composed of studs and subsequently attach the interior and exterior wall coverings and roof. In North America and Australia, light-frame construction has become a dominant method due to its low cost and flexibility. Because light-frame construction requires fewer structural materials, builders are able to enclose a large area at minimal cost.

In addition to new construction techniques, the industry has developed a number of new building materials that are more suitable for smaller and lighter juvenile lumber. Home builders now use **oriented strand board (OSB)** for sub-floors, roofs, and walls, and **trusses** (illustrated in Figure 4) instead of **rafters** for roof systems. Known as engineered wood products (EWPs), these composite materials are designed to be more efficient and lightweight than their natural, solid sawn lumber counterparts. EWPs require less wood fiber to produce wood products with equivalent or even greater strength than solid lumber. Thus, they offer benefits in cost and flexibility, as well as sustainability in that they make optimum use of a renewable forest resource.

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Figure 4  
A SELECTION OF ENGINEERED WOOD PRODUCTS (EWPs)

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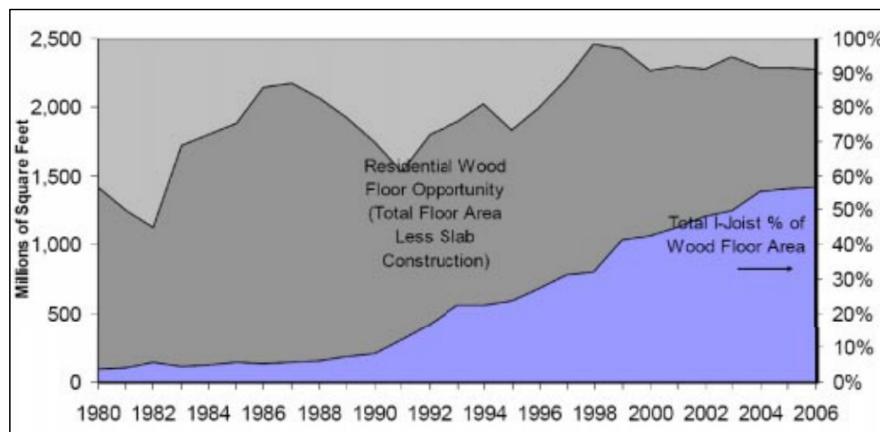
Sources: [www.midwestmanufacturing.com](http://www.midwestmanufacturing.com), [www.autodesk.com](http://www.autodesk.com), and [www.foremostcomponents.com](http://www.foremostcomponents.com).

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Lightweight components have had a significant impact on the U.S. wood industry. EWPs are replacing dimensional lumber in a number of applications, including those listed below.

- **Trusses.** Because juvenile lumber is shorter in height than mature lumber, several pieces of wood may need to be connected to span the distance of a single piece of old-growth lumber. As a result, roofs are now commonly composed of trusses made from 2x4s and nail plates instead of 2x10 or 2x12 rafters built using old-growth wood. Trusses are designed to support large loads and can be produced economically. It is estimated that wood roof truss systems are currently used in 60% of U.S. homes (Source: *Fire Engineering* magazine).
- **OSB Sheeting.** Younger trees do not produce the same quality **veneer** as old-growth lumber. To address this issue, the industry has developed OSB sheathing, which is made of lumber from small trees that are chipped down and glued together. OSB is produced as a solid panel made from a combination of waterproof heat-cured adhesives and rectangular wood strands. It produces strength and performance characteristics similar to plywood, and can be used for roof, floor, and wall sheathing.
- **I-Joists.** Floor systems previously constructed with 2x10 or 2x12 dimensional lumber are now built with **I-joists**, a type of EWP that uses less lumber than solid wood but is still equipped to support heavy loads over long spans. When compared to sawn lumber, wood I-joists are stronger, stiffer, and lighter weight. They are a preferred product for larger room spans and open-design floor plan designs, which are favored by many homebuyers and designers. As an example of market adoption of EWPs in general, I-joists have captured over a 50% share of the residential flooring market (shown in Figure 5 [page 8]), with the potential to reach a 70% share by 2020 (Source: the American Wood Council's *Engineered Wood Products Primer Awareness Guide* 2006). The American Wood Council estimated that, as of 2006, over 6.5 million homes had I-joist floor or roof components.

Figure 5  
I-JOIST MARKET SHARE OF WOOD FLOORS



Source: the American Wood Council's Engineered Wood Products Primer Awareness Guide, 2006.

### Increasing Global Demand for Wood-Frame Buildings and EWPs

In the past decade, there has been an increase in global demand for homes composed of wood-frame construction (Source: the Canadian Wood Council [CWC]). Several factors have contributed to this increase, including greater affluence of emerging countries and a correlating rise in demand for comfort. As well, building failures during recent devastating earthquakes in Haiti and China have fueled demand for safer housing. Wood-frame construction is a proven, economical, and flexible technique for producing homes that are compliant with building codes.

Accordingly, Eco Building is working to bring U.S. building practices to emerging economies in other countries and, in the process, show local tradesmen how to construct safer, more economical buildings using wood frames and protected lumber. The Company believes that the wood-framed homes used widely throughout the U.S.—which have been developed and improved upon for half a century—can be produced on a large and standardized scale and potentially perform better during earthquakes and hurricanes than unreinforced or poorly designed and constructed concrete or masonry buildings.

Eco Building has developed a process to factory build the components that go into overseas American-style houses. Approximately 80% of each building's components are assembled in a U.S. quality control third-party setting, which helps ensure that each building has adequate engineering values regardless of where it is ultimately erected. The Company plans to bring its technically advanced building systems into countries that in the past had not considered lumber products as a viable building resource. Moreover, by protecting the lumber and using it to build components in the U.S. before shipping the final product to emerging countries, Eco Building may help raise the export value of the lumber. As well, by building the components and prefabricating buildings in the U.S., the Company may help create jobs for U.S. workers.

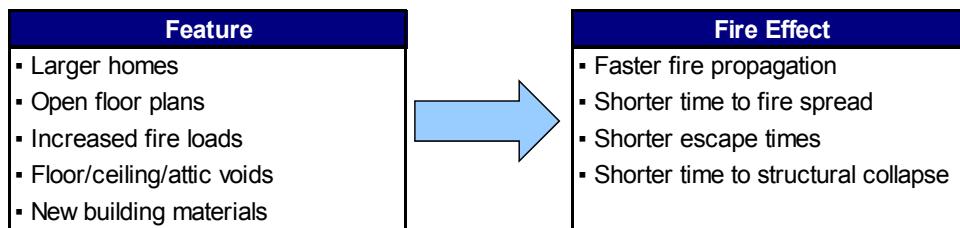
Greater details on Eco Building's offshore housing projects are presented on pages 33-39.

### Juvenile Lumber and EWPs are More Susceptible to Fire, Termites, and Other Risks

Juvenile lumber naturally exhibits different properties than old-growth wood. Not only are juvenile trees significantly shorter in height but young lumber burns faster because it is lighter and more porous than old-growth wood. Consequently, EWPs made from juvenile lumber are more vulnerable to fire, burning faster than solid dimensional lumber. As well, the adhesives used in the manufacture of some EWPs are combustible and may ignite if exposed to high temperatures. Thus, newer homes may ignite more quickly than older, solid lumber homes and can collapse within minutes. Table 3 (page 29) illustrates the difference in average collapse times for homes built with lightweight construction versus legacy construction (solid dimensional lumber).

In a 2005 report from the National Institute for Occupational Safety and Health (NIOSH), the agency noted the relationship between firefighter injuries/deaths and truss system failures due to wood roof and floor truss systems collapsing without warning. While engineered building components provide adequate strength under normal loads, these products often weaken and fail under fire conditions. As an example, Figure 6 highlights some of the features of I-joist systems (a widely used EWP) as well as their fire-related disadvantages.

Figure 6  
BENEFITS AND FIRE-RELATED DISADVANTAGES OF WOOD I-JOISTS



*Source: UL University - Structural Stability of Engineered Lumber in Fire Conditions - Underwriters Laboratories.*

As described on pages 21-32, Eco Building's Eco Red Shield™ formulation includes a fire inhibition compound specifically designed to slow ignition, inhibit flame spread, and reduce the smoke produced during a fire—without significantly increasing the cost to builders. Accordingly, while EWPs and the juvenile lumber used for building today is considerably more prone to severe fire damage, lumber coated with Eco Red Shield™ is intended to provide homeowners a safer alternative to proactively protect their properties.

Juvenile trees also have more wood pulp, making them increasingly susceptible to mold, excess moisture, rot, and termites. Each year, thousands of homes in the U.S. are infested by termites, causing billions of dollars in damage and requiring specialized treatments (described on pages 26-28). Eco Red Shield™ includes a natural pesticide that can be applied to lumber before construction to prevent termite infestations, thereby preserving structural integrity and reducing the need for costly, inconvenient termite treatments. Studies have also shown that Eco Red Shield™ can prevent mold growth and wood rot on treated lumber, as described on pages 24-25.

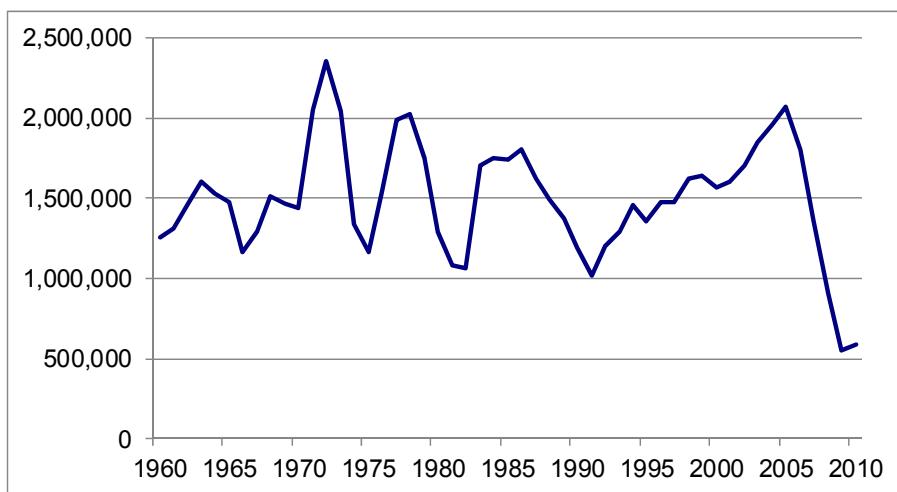
If not properly treated, deterioration in wood caused by mold, termites, and other decay can lead to significant structural damage, reducing the strength and integrity of wood used in construction. As such, buildings may be weaker than anticipated and have a decreased ability to withstand strong winds and seismic activity. Eco Red Shield™ is designed to complement other engineering systems, such as California-based Trussed, Inc.'s Smart Components®, which entail innovative walls that have improved performance in the face of seismic activity. Eco Building and Trussed, Inc. have entered into a relationship whereby Trussed, Inc.'s seismic walls (Smart Components®) are built using lumber protected with Eco Red Shield™ (described on pages 31-32). Accordingly, Eco Building emphasizes the importance of using protected lumber to build homes in order to maintain the benefits and strength afforded by specialized hurricane, tornado, and earthquake engineering.

## U.S. and Global Housing Markets, and Their Effects on Lumber Practices

### Lowest U.S. Housing Starts in Decades

Over the past 50 years, the lumber and construction industries in the U.S. have adapted to varying demand for new homes. During the most recent housing bubble in the U.S., home construction starts peaked at nearly 2.1 million in 2005, with housing prices reaching record high levels in 2006 (Sources: U.S. Census Bureau and the Standard & Poor's/Case-Shiller® Home Price Index). More recently, there have been significantly fewer starts than in the past 50 years, as illustrated in Figure 7. By 2009, housing starts had decreased approximately 75% from 2005. In 2010, housing starts increased slightly to 587,000, which was still significantly below the 30-year average of 1.6 million starts per annum.

Figure 7  
U.S. HOUSING START DATA (1960 TO 2010)



Source: U.S. Census Bureau.

As the housing market struggles to recover, multifamily housing has grown faster than other sectors in recent months, in part due to increased demand for rental units. In September 2011, the National Association of Home Builders (NAHB) reported that the Multifamily Production Index (MPI) increased for the fourth consecutive quarter, reaching its highest point since 2006 (Source: NAHB press release, September 8, 2011). Multifamily units are larger than traditional single-family homes and must be able to withstand more weight (Source: Forest Business Network, August 15, 2011). By incorporating its lumber coating with Trussed, Inc.'s Smart Components®, Eco Building is increasing its ability to target the expanding multifamily housing sector, as Smart Components® are particularly beneficial for multistory buildings. Additionally, multistory buildings often require greater fire controls, encouraging the implementation of products like Eco Red Shield™, which offer fire inhibition properties.

### How the Domestic Housing Downturn Has Affected the Quality of Lumber in Use

The decrease in U.S. housing starts in recent years has resulted in reduced domestic demand for North American lumber. During the housing market bubble, sawmills and timberland owners in the U.S. and Canada expanded their lumber inventories in an attempt to accommodate high market demands. Consequently, the subsequent housing downturn created an excess of lumber inventory. In order to recognize this lumber on the balance sheet and thus borrow against the asset, lumber mills that ramped up tree farms to meet construction demands during the boom have continued to produce and ship the lumber to lumber reload centers where the wood is expected to be employed. However, this has largely not been the case as the lumber sits unused.

As a result, mold in pre-construction wood may be more rampant during housing market downturns, when excess inventories of lumber are stored for an extended time exposed to natural elements, such as rain, snow, and flooding (as illustrated in Figure 8). In addition to mold, excess moisture in the stored wood can make the wood more attractive to termites and lead to deterioration, or “wood rot,” which significantly impacts the strength and quality of the wood. Wood that is only 5% affected by rot has an 80% **engineering loss** (Source: the University of California Berkeley’s College of Natural Resources). Although lumber is hardy and can retain its strength and durability for many years, damage from fungi, wood rot, and termites will weaken wood fibers and jeopardize the structural integrity of the lumber and the building of which it is a part. Once it is eventually used in construction, this uncoated, stored lumber could significantly impact a building’s overall structural integrity as well as ability to withstand hurricane-force winds and seismic activity.

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Figure 8  
POST-HURRICANE FLOODING NEAR AN EAST COAST LUMBER STORAGE FACILITY

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*Source: Eco Building Products, Inc.*

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In June 2010, engineering firm Vector Structural Engineering, LLC ([www.vectorse.com](http://www.vectorse.com)), issued a **white paper** titled *Protecting timber before and after construction – Methods to prevent timber degradation*. The paper described risks associated with timber-framed structures that are not being addressed by engineers, contractors, or timber suppliers and highlighted methods to prevent timber degradation. Specifically, Vector emphasized that protecting timber before and after construction is important as factors such as mold, decay, fungi, and termites can cause timber degradation, health problems, and a loss of structural integrity of the completed structure.

#### *Broken System for Grading Lumber*

Current building codes require lumber to be inspected and graded as it leaves the lumber mill. However, this does not take into account the length of time that lumber may be stored—potentially outdoors where it is exposed to rain and other moisture—before it is used to build. In a high-demand market, this is a sufficient practice due to the shortened timeframe between production and construction. However, in markets with low housing demand, lumber may be stored for months to years after leaving the mill, without any safeguards for re-grading the wood before it is used in construction.

Thus, because lumber is graded at the mill (instead of immediately before construction), many homes are being built with wood that has been structurally compromised. While buildings are designed to withstand seismic movement and hurricane-force winds, if the quality of the lumber has deteriorated since it was graded, the constructed building may not perform as well as expected in the case of an earthquake, hurricane, or other disaster.



## Eco Building is Meeting the Need for Protected Lumber

In order to adequately and effectively address this issue, Eco Building operates under the premise that there must be a paradigm shift in the industry, where lumber is re-graded before it is employed by builders and the grading is verified by independent third parties. Such a change in the construction process may help reduce the use of lumber affected by wood rot, mold, or other effects of extended storage. Until then, applying protective products to wood can serve as a barrier to wood rot, mold, and other fungi. This improves the quality of built products by ensuring that wood remains as durable and strong as when it was originally graded at the mill.

Eco Building's coatings can serve as this needed barrier to moisture and can be applied to lumber before construction to prevent the causes of mold, wood rot, and other forms of decay. The Company's proprietary chemistry includes an eco-friendly copolymer that forms a barrier of protection preventing wood **delamination** and swelling due to rain or excess moisture. Moreover, Eco Red Shield™ is designed to kill existing mold, if any, and prevent future growth within the wall cavity. After application, mold is inhibited from growing on the cured film surface of wood coated with Eco Red Shield™. As a result, Eco Red Shield™ has the ability to protect lumber from mold and wood rot before it arrives at the construction site—offering the industry an affordable, eco-friendly solution for protecting wood products throughout the supply chain.

Accordingly, Eco Building has reported that, while single-family housing starts have declined, the Company has been successful encouraging the use of its lumber products among home builders. Eco Building has further secured various multifamily and custom home projects and believes that its market share can continue to increase despite reduced domestic housing starts. Greater details of recent orders for the Company's coated lumber are provided on pages 40-44.

## Increasing Quantities of North American Lumber Are Being Shipped Offshore

A rise in demand for North American lumber from foreign markets, such as China and Japan, has helped to support the domestic lumber industry in recent years. Historically, 90% of Canada's lumber exports were shipped to the U.S. However, with the housing downturn significantly impacting U.S. demand for Canadian wood, less than 70% of lumber exports were shipped to the U.S. in late 2010. In contrast, the export market for softwood logs and lumber shipped from North America to China was expected to exceed \$1.6 billion in 2010—up 457% from \$350 million in 2008. Lumber exports from the U.S. to China have risen from 256,000 cubic meters in 2007 (less than 1% of the region's total log production) to roughly 2.4 million cubic meters in 2010 (7% of total log production) (Source: Wood Resources International LLC). Likewise, Canada's lumber exports to China have increased 700% since 2008 (Source: Business Insider Inc. [[www.businessinsider.com](http://www.businessinsider.com)], February 22, 2011).

In 2007, Russia—one of China's largest timber sources—increased tariffs on wood exports, indirectly aiding the North American lumber export market (Source: *Wall Street Journal*, February 8, 2011). As well, natural disasters worldwide, including a magnitude 7.0 earthquake that struck Haiti in 2010 and an 8.9 magnitude earthquake and devastating tsunami that caused significant structural damage to northern Japan in March 2011, have increased the demand for lumber as millions of individuals were left homeless and without adequate shelter.

Nevertheless, the U.S. wood products industry still faces a depressed market and excess inventory as the increase in exports does not replace the industry's core market: domestic home construction (Source: Forest Business Network, August 15, 2011). Moreover, the lumber commodity market is largely driven by housing starts. As such, countries with growing housing markets typically receive a larger and better selection of inventory for construction. Thus, in Eco Building's experience, countries with housing markets that are slowing, declining, or recovering—such as in the U.S.—may receive leftover inventory (less desirable wood) for construction. In a multi-pronged approach, Eco Building seeks to address both market opportunities: protecting the lumber both sitting and being used in the U.S. as well as capitalizing on expanding overseas demand for wood-frame housing (a sizable market in which Eco Red Shield™ can be applied).

## Eco Building Seeks to Capitalize on Expanding Offshore Housing Markets

Eco Building is focused on expanding sales in international markets. In particular, the Company emphasizes projects in developing countries that are experiencing a rising percentage of housing starts and that still construct buildings using brick and block, making it difficult to safely and economically keep pace with consumer demand. In contrast, by using prefabrication and sequencing building techniques, Eco Building estimates that it can build 50 wood-frame houses in the time it takes to complete one home using steel, concrete, and block in developing countries. The prefabrication process is illustrated in Figure 9. Homes built in sequence can be built rapidly with faster wood assembly, which has contributed in large part to the U.S.'s ability to meet housing demand over the past century. Eco Building believes that emerging economies have similar housing demand as the U.S., but are unable to meet these demands due to the typical building practices employed. Wood is not often used in developing countries due to termites, which originated overseas and then migrated to the U.S. Coated lumber protection affords the ability to implement offshore housing projects that efficiently and quickly capitalize on rising demand.

Figure 9

Eco Building Products, Inc.

FACTORY-BUILT WALLS



*Source: Eco Building Products, Inc.*

### Using Modern Building Techniques to Support Markets with High Housing Demands

Among other strategies, Eco Building directs efforts toward ambassadors and governments, educating leaders on how the U.S. has kept pace with construction booms. Lumber can be more cost effective and faster to build with than concrete and steel in areas with pent-up demand, such as during the housing boom in the U.S. in 2005, which supported over two million new construction homes. These homes were constructed of wood frames (versus solid lumber), which use less material but produce equivalent engineering strength. The U.S. has constructed wood-frame buildings since World War II, when housing demands were skyrocketing. This technique can be applied to other areas of the world that are experiencing rapid housing growth and can no longer keep up with demand using conventional concrete and brick building techniques.

### *Environmental Benefits of Building with Lumber*

Eco Building aims to encourage building with lumber in countries that do not typically build with wood by combining sustainable practices with the latest building technologies. While concrete and brick are produced from natural resources, they are not sustainable to the extent of meeting global housing demands. In contrast, lumber is sustainable through reforestation. Modern lumber-built houses are also more energy efficient than concrete block buildings, which exhibit solar vascular tendencies by absorbing heat during the day and emitting it at night.

Moreover, many offshore regions, particularly in the Caribbean, are highly dependent on tourism revenue. As housing markets in these areas expand, construction runoff can endanger valuable local resources, in particular, the beaches. Eco Building's products leave no waste nor do they use toxic materials, virtually eliminating the potential for hazardous ground water runoff.

## Existing Preservative-Treated (Pressure-Treated) Wood Techniques

An unmet need exists for improved lumber protection that is both low-cost and eco-friendly, as many of today's solutions for protecting wood products from fungal decay, termites, and other insects and problems entail preservatives or pesticides that can be costly, may compromise engineering values, or could be toxic. While wood preservation can be achieved using a range of chemical preservatives that can be applied through various techniques—including brushing, dipping, and **steeping**—pressure treatment is considered to be the most permanent method available for preserving timber life.

The treatment process forces chemical preservatives into wood using a vacuum or pressure, creating a deep and uniform penetration that results in high absorption rates of the preservative. However, pressure-treated wood can be costly due to equipment and energy costs. As well, the treatment process may destroy wood fibers and thus degrade lumber quality, particularly in plywood, OSB, and EWPs (Source: *Architectural Record*, November 2007).

Moreover, there are often attempts to restrict the quantity of toxic chemicals used for pressure treating, as they have the potential to leach into soil or groundwater. The U.S. National Park Service recommends using treated wood only when necessary—further validating the market opportunity for non-chemical or less toxic alternatives that are improvements over traditional wood protections.

For many years, **chromated copper arsenate (CCA)**, a highly toxic chemical, was used as the preservative in residential pressure-treated lumber. However, published scientific studies suggest that arsenic slowly leaches from CCA-treated wood products into nearby soil and water. In 2003, the industry agreed to voluntarily eliminate the use of CCA for residential purposes and, as of January 2004, the U.S. Environmental Protection Agency (EPA) banned CCA products from wood intended for most residential applications. Less-toxic alternatives to arsenic-based chemicals have emerged in the marketplace, including alkaline copper quaternary (ACQ) and copper azole (CA), which are less likely to leach and be absorbed by the human body. However, preservation with these chemicals is more costly than CCA treatment. As well, recent increases in copper prices have raised the cost of these materials.

As new buildings and structures are erected, there is greater demand for products to improve protection against fungi and bacteria as well as offer protection from fire, termites, and wood rot. Specifically, markets seek out products that offer each of these advantages in a single formulation or finished good. The negative environmental and cost implications of termite infestation, mold, and wood rot—such as disposing of the affected materials in a local landfill, sacrificing new trees to save an existing structure, and fumigating to eradicate termites—are each additional factors fueling consumer demand for improved wood protection products.

### Eco Red Shield™ is an Alternative to Pressure Treatment

To develop Eco Red Shield™, Eco Building began with similar elements to those historically used in pressure-treated products but then removed toxins and incorporated modified ingredients. The Company encapsulated natural pesticides in cross-linking acrylic copolymers, which lock solids—the eco-friendly HARTINDO AF21 Total Fire Inhibitor and **disodium octaborate tetrahydrate (DOT)**, an industry-approved natural pesticide for preventing wood-ingesting insects (e.g., termites)—into the wood substrate so that they cannot leach out and into nearby soil or groundwater.

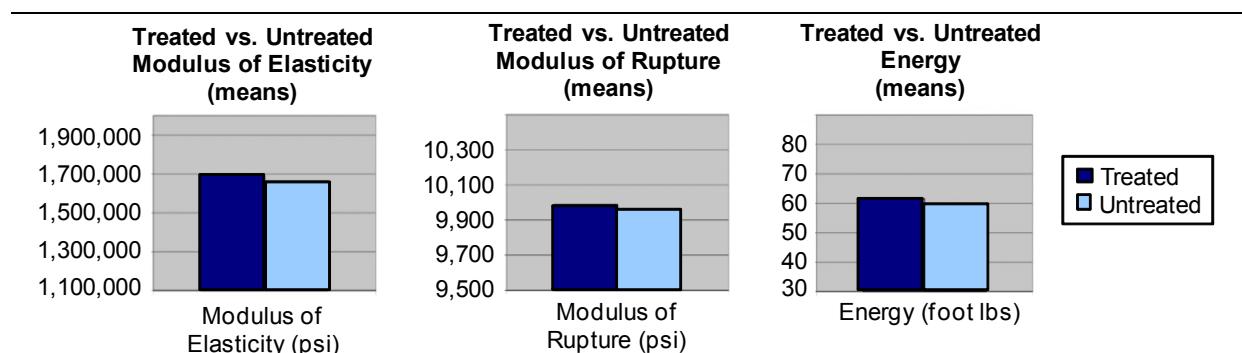
While pressure treatment is focused on achieving a deep penetration of the treatment into the wood, Eco Building, in contrast, emphasizes the creation of a shield—a barrier—around the wood. Over time, its **borates** migrate into the center of the lumber because they leach toward moisture, and wood naturally has moisture content in its center. Eco Building encapsulates borates with a polymer that essentially keeps the shield intact. In this way, the Company has enabled its product to be an effective topical coating, which is a key advantage. A topical coating may be more easily applied to wood, including lumber, EWPs, panels, and any other vertical framing members. Eco Building's coatings are sprayed onto all six sides of lumber in a controlled environment (similar to a car wash), ensuring that the entire wood piece is protected without affecting the grade of lumber. To Eco Building's knowledge, pressure treatment cannot be performed on certain EWPs, while a topical coating such as Eco Red Shield™ can.

An additional advantage to Eco Building's patent-pending technique is its use of a lower concentration of borates while achieving the same effect in termite protection as current products, as described on pages 27-28. Moreover, positioned as an affordable technology, Eco Red Shield™ is estimated to only marginally increase the cost of building materials. A full description of the product, which may ultimately be able to penetrate a considerable portion of the pressure treatment market, is provided on pages 21-32.

#### *Testing by LSU for Wood Fiber Strength and Corrosion Effect*

Unlike pressure-treated products, which may affect the strength and durability of wood fibers as a result of the pressurizing process, third-party testing conducted by Louisiana State University's (LSU) Wood Durability Laboratory (WDL)—an ISO 17025-accredited facility—demonstrated that Eco Red Shield™ did not have an adverse effect on the wood fiber strength of **laminated veneer lumber (LVL)**. Eco Building selected LVL due to its strength and uniform manufacturing. As illustrated in Figure 10, two LVL groups—coated and uncoated—were evaluated for bending stiffness (modulus of elasticity), bending strength (modulus of rupture), and energy. No significant differences in flexural properties or energy were reported among the two groups. The testing adhered to ASTM D198 guidelines for static tests of structural-sized lumber. Based upon the results and analysis by LSU, Eco Building supports claims that the application of Eco Red Shield™ by an authorized treatment facility does not affect wood fiber strength.

Figure 10  
STRENGTH TESTING DATA OVERVIEW



Source: the Louisiana State University AgCenter's Wood Durability Laboratory (WDL), "Flexure Testing of LVL Treated With Eco Red Shield™ Protection vs. Untreated LVL," August 2011.

The WDL also studied the corrosion effect of Eco Red Shield™ on five metals—steel, brass, two types of galvanized steel, and aluminum alloy—using American Wood Protection Association (AWPA) guidelines for evaluating the corrosion of metal when in contact with treated wood. Compared to untreated southern **yellow pine**, untreated Douglas fir, and ACQ-positive control samples, Douglas fir coated with Eco Red Shield™ at five retention levels (5%, 7%, 10%, 12%, 15%) performed similarly to untreated southern yellow pine and Douglas fir when in contact with brass, aluminum, and two types of galvanized steel, and caused less corrosion than ACQ treatment on both galvanized steels, although it caused more corrosion in contact with raw steel than controls.

#### **Wood Pressure Treatment Market**

Pressure-treated wood has been used for more than half a century to help protect wood from termites, insects, and fungal decay. Despite concerns over the toxicity and leaching potential of pressure-treating with preservatives and chemicals, this industry generates roughly \$4 billion annually (Source: CBS News, February 11, 2009). Market leaders for the pressure-treated sector include Arch Chemicals, Inc. (now part of Lonza Group Ltd.), Osmose Holdings, Inc., Hoover Treated Wood Products, Inc., Weyerhaeuser NR Company (WY-NYSE), and Universal Forest Products, Inc. (UFPI-NASDAQ).

Eco Red Shield™ is intended for use in all vertical framing applications as well as in all horizontal above-ground (concrete contact) applications, which the Company estimates compose the majority of the \$4 billion pressure-treated wood market. Eco Building anticipates that it could receive AWPA approval for use in categories UC1, UC2, and UC3A lumber (above ground, interior, dry/damp environments as well as exterior, above-ground, coated, and rapid water runoff applications) as soon as June 2012, allowing it to penetrate the pressure-treated wood industry as a competitive or substitute lumber treatment.



## Building Codes

In response to the aforementioned market trends, Eco Building has developed proprietary topical coatings to address the unmet need for improved lumber protections. Importantly, the Company has also been instrumental in the establishment of new building codes to recognize the availability and effect of its method of coating lumber.

In conjunction with the industry's transition to juvenile lumber and lightweight EWPs, regulatory oversight has had to adapt to the new practices and materials in effect. In many cases, building codes are still in a period of change and regulations continue to be updated. In the U.S., each state develops and enforces its own building codes. Many states incorporate elements from model energy codes developed by leading building code organizations, such as the International Code Council (ICC). Model energy codes are typically updated every three years.

Generally, building codes are changing from a prescriptive approach, which requires specific manufacturing techniques and materials, to a performance-based system allowing builders to use a product as long as it performs in accordance with manufacturing standards and building code requirements. This change in approach encourages product innovation.

### New Building Codes Opening Further Market Opportunities for Eco Building

Building codes widely recognize pressure-treated lumber; however, Eco Building is commercializing a new lumber treatment that centers on a topical coating. As described on pages 14-15, the Company's technology differs vastly from pressure-treated products that are produced by impregnating chemicals into lumber via a vacuum or high-pressure chamber. Due to the fundamental differences between Eco Red Shield™ and pressure treatment, Eco Building successfully petitioned the ICC for the addition of a platform to recognize the benefits and differences of coated lumber for termites and wood rot.

#### AC433 Creates a Space in the Building Code for Eco Building's Products

Eco Building worked with consultants and wood scientists to help pioneer a new platform in the ICC's building codes relevant to the method and application by which Eco Building treats lumber. The new code, called acceptance criteria for Liquid Borate Fungal Decay and Termite-resistant Treatment Applied to Wood Members ("Acceptance Criteria 433" or "AC433"), was approved by the ICC in June 2011. It is designed to evaluate factory-applied, borate termite/fungicide on wood products for protecting structures from **subterranean termites** and fungal decay.

With the advent of AC433, the ICC's building code now effectively identifies topical coatings, such as Eco Red Shield™, as a unique coated lumber product (non-pressure-treated). The passage of AC433 was a highly significant milestone for the Company as it establishes a place for its products in building codes—intended to encourage their use globally as accepted methods of preventing fungal decay and termites.

AC433 establishes the requirements that a liquid borate fungal decay and termite-resistant treatment applied to wood members must meet in order to be recognized by the ICC Evaluation Service® under the 2009 and 2006 **International Building Code**® and the 2009 and 2006 International Residential Code®.

Eco Building is in the process of meeting AC433. As of March 9, 2012, the Company had submitted a full engineering evaluation package to the ICC and was awaiting final approval, which is expected to provide certification for Eco Red Shield™ applied to wood products that are approved for concrete contact. Details of the required testing that Eco Building has conducted in an effort to become AC433 compliant are provided on page 17.

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Being certified through the ICC's process under AC433 could enable widespread acceptance for Eco Building's coatings, as the ICC's international codes (which altogether represent a complete set of building safety and fire prevention codes) have been adopted by all 50 states and Washington, D.C. at the state or jurisdictional level. The codes are accepted worldwide and by a number of U.S. federal agencies, including the Architect of the Capitol, General Services Administration, National Park Service, Department of State, U.S. Forest Service, and Veterans Administration (Source: ICC).

### **Eco Building is Demonstrating Compliance with AC433**

Eco Building has reported that the testing required in order to meet AC433 has been completed with accredited testing agencies. Eco Building believes that issuance of an Evaluation Report (abbreviated an "ESR") from the ICC Evaluation Service® is likely imminent based on the Company's submission to the ICC on March 9, 2012. ESRs are used by code officials to verify that new building products comply with code requirements, based on the relevant acceptance criteria, which, in this scenario, is AC433.

Eco Building engaged LSU's Wood Durability Laboratory (WDL) to perform testing confirming the efficacy of Eco Red Shield™. LSU's results have supported using the coating to prevent termites, corrosion, rot, and decay while maintaining wood fiber strength (as summarized on page 15). Details of LSU's termite testing are provided on pages 27-28.

In addition to using these studies to show AC433 compliance, the Company has submitted data collected with LSU to leading wood product manufacturers in an effort to obtain approval to coat their products with Eco Red Shield™. Based on this data, Weyerhaeuser, Pacific Woodtech Corp., Boise Cascade Holdings, L.L.C., Louisiana-Pacific Corp. (LPX-NYSE), and Roseburg Forest Products Co. have issued letters stating that coating their wood products with Eco Building's topical formulation in a non-pressurized manner does not void the original manufacturer's warranty (unlike pressure-treating or soaking wood with preservatives, which does void the warranty).

#### *Quality Control Program*

Working with independent consultants, Eco Building has implemented a comprehensive quality control program in line with industry standards. In order to meet the AC433 criteria, the Company must institute a quality control program monitored by third-party inspection organizations, which perform unannounced factory visits every quarter to ensure compliance with quality control guidelines. Eco Building reports that it has engaged Third Party Inspection (TPI) services and commenced Q21 audits of all coating facilities in the U.S.

Additionally, to create uniformity across all Eco Red Shield™ lumber, Eco Building has already developed a proprietary quality management system incorporated into the mixing process to ensure that each batch is accurately produced according to the Company's patent-pending formulation. Each step of chemistry blending is monitored by a computer and stored in an online database.

### **Opportunity to Seize a Sizeable Share of the Pressure Treatment Market**

Eco Building anticipates that once it meets AC433, it will likely obtain UC1, UC2, and UC3A approval for use of Eco Red Shield™ lumber, as defined in Table 1 (page 18). These standards comprise part of the American Wood Protection Association's (AWPA) Use Category System, which designates what systems are determined to be effective in protecting wood products under specified exposure conditions. Once Eco Red Shield™ achieves a UC1, UC2, and UC3A approval, it would be approved for use on wood and wood-based materials used in interior construction that are not in contact with the ground, including furniture, construction furnishings, **millwork**, interior beams, timbers, flooring, framing, and sill plates, among others. UC1, UC2, and UC3A approved service conditions are areas where the Company believes that it may have several competitive advantages over traditional preservative treatments.

As published in its Form 10-K filed with the U.S. Securities and Exchange Commission (SEC) on September 28, 2011, Eco Building anticipates that, within the estimated \$4 billion pressure treatment industry, "approximately 65% of the treated wood components sold annually fall into the UC1, UC2, and UC3A use categories—opening up significant opportunities for Red Shield products as a direct substitute or competitive product."

Table 1  
A SUMMARY OF SERVICE CONDITIONS FOR USE CATEGORY DESIGNATIONS

*The highlighted categories are targeted by Eco Building, which the Company estimates represent the majority of the \$4 billion pressure treatment market for treated wood products. Beyond UC1 and UC2 uses, the Eco Red Shield™ warranty also extends for 10 years to wood components in an exterior exposure or in an interior space that creates an exterior environment, if top-treated by an appropriate exterior paint, sealer, or stain (i.e., UC3A and UC3B uses).*

Use Category	Service Conditions	Use Environment	Common Agents of Deterioration	Typical Applications
<b>UC1</b> Interior/Dry	Interior construction; Above ground; Dry	Continuously protected from weather or other sources of moisture	Insects only	Interior construction and furnishings
<b>UC2</b> Interior/Damp	Interior construction; Above ground; Damp	Protected from weather, but may be subject to sources of moisture	Decay fungi and insects	Interior construction
<b>UC3A</b> Above Ground (Protected)	Exterior construction; Above ground; Coated & rapid water runoff	Exposed to all weather cycles, not exposed to prolonged wetting	Decay fungi and insects	Coated millwork, siding, and trim
<b>UC3B</b> Above Ground (Exposed)	Exterior construction; Above ground; Uncoated or poor water runoff	Exposed to all weather cycles, including prolonged wetting	Decay fungi and insects	Decking, deck joists, railings, fence pickets, uncoated millwork
<b>UC4A</b> Ground Contact (General Use)	Ground contact or Fresh water; Non-critical components	Exposed to all weather cycles, normal exposure conditions	Decay fungi and insects	Fence, deck, and guardrail posts, crossties, and utility
<b>UC4B</b> Ground Contact (Heavy Duty)	Ground contact or Fresh water; Critical components or difficult replacement	Exposed to all weather cycles, high decay potential, includes salt water splash	Decay fungi and insects with increased potential for biodegradation	Permanent wood foundations, building poles, horticultural posts, crossties, & utility poles (high decay areas)
<b>UC4C</b> Ground Contact (Extreme Duty)	Ground contact or Fresh water; Critical structural components	Exposed to all weather cycles, severe environments, extreme decay potential	Decay fungi and insects with extreme potential for biodegradation	Land & freshwater piling, foundation piling, crossties, and utility poles (severe decay)
<b>UC5A</b> Marine Use (Northern Waters)	Salt or brackish water and adjacent mud zone; Northern waters	Continuous marine exposure (salt water)	Salt water organisms	Piling, bulkheads, bracing
<b>UC5B</b> Marine Use (Central Waters)	Salt or brackish water and adjacent mud zone; NJ to GA, south of San Francisco	Continuous marine exposure (salt water)	Salt water organisms incl. creosote tolerant <i>Limnoria tripunctata</i>	Piling, bulkheads, bracing
<b>UC5C</b> Marine Use (Southern Waters)	Salt or brackish water and adjacent mud zone; South of GA, Gulf Coast, Hawaii, and Puerto Rico	Continuous marine exposure (salt water)	Salt water organisms including <i>Martesia</i> , <i>Sphaeroma</i>	Piling, bulkheads, bracing
<b>UCFA</b> Fire Retardant (Interior)	Fire protection as required by codes; Above ground; Interior construction	Continuously protected from weather or other sources of moisture	Fire	Roof sheathing, roof trusses, studs, joists, paneling
<b>UCFB</b> Fire Retardant (Exterior)	Fire protection as required by codes; Above ground; Exterior construction	Subject to wetting	Fire	Vertical exterior walls, inclined roof surfaces or other construction which allows water to quickly

\* NOTE: Wood processing and treated wood are regulated by a number of organizations in addition to AWPA (e.g., U.S. EPA, state or local governments). The existence of AWPA Standards for treated products does not imply that all other regulatory bodies recognize or permit the use of the particular combination of preservatives, processes, and/or wood species listed in the AWPA Standards.

Sources: American Wood Protection Association (2011) and Eco Building Products, Inc.

## Additional Codes and Standards Relevant to Eco Building's Business

In the U.S., California (where Eco Building is headquartered) ranks among the leading localities for the establishment of local building codes demanding tougher standards for termite infestation, mold, fire, and seismic activity. New fire safety codes for products like engineered wood joists could further increase demand for fire-inhibiting coatings. However, the fire-inhibiting products for lumber that have been available for decades can be costly and toxic, as many rely on pressure treatment. There are not yet building codes that regulate topical fire inhibitors, such as Eco Red Shield™. Presently, due to cost constraints, the fire inhibitors that are used are primarily employed for multifamily structures rather than in single-occupant residential construction.

### Fire Codes

Depending on the overall construction of a building, homes built with EWPs may include large unprotected areas that can increase the severity of a fire. Wide, open areas, such as in attics, accelerate the pace of a fire, rapidly spreading flames to other areas of the home, leading to faster collapses. Attic fires are considered to be one of the most destructive and dangerous types of fires, especially when the attic and roof structure are composed of wood-framed and sheathed construction (Source: *Controlling the Spread of Attic Fires* from The Warren Group, Inc., a forensic engineer and consultancy company). Pages 28-30 further detail the manner in which today's building materials and home designs have increased risks of severe fire damage, occurring as materials ignite faster and flames and smoke spread throughout the structure more rapidly.

In response to the increased risks of severe fire damage, many authorities are beginning to require the inclusion of fire sprinklers in residential construction. It is important to note that such a requirement is regionalized, with California having fire codes that are independent of what is required in other regions, such as Pennsylvania, for example. Presently, most areas employ building codes that gauge sprinkler requirements based on building size and construction, allowing many smaller homes and other buildings to be built without this preventive measure. For example, apartment and motel structures up to 14,000 square feet in size (per story) can be constructed without sprinkler protection in some jurisdictions. As such, the size of buildings that can be constructed without sprinklers can result in significant losses—financially and otherwise—in the event of severe fires (Source: *Controlling the Spread of Attic Fires*).

As well, draft stops (vertical barriers designed to subdivide attics into smaller areas in an effort to slow or prevent the fire from quickly spreading throughout the attic) may also be employed. While provisions for draft stops have been included in many building codes for decades, a portion of builders and owners do not build draft stops due to time or economic constraints or because they lack knowledge of current codes. Employing technologies that slow or prevent fire from rapidly sweeping through the attic—which can ultimately cause the ceiling to collapse and subsequently penetrate the living areas below—can help increase the amount of time that firefighters have to control a fire before it engulfs an entire building.

Certain building types must also be rated for fire resistance. Multifamily dwellings and commercial structures may require more stringent fire resistance, as these buildings are tall, have high square footage, and often have limited access to exit paths (e.g., windows and doors). In contrast, smaller one- or two-family homes with multiple exit paths are not required to be fire-resistance rated. Fire-resistance rated structures must be rated using a standard fire-resistance test, such as the **ASTM E119** Standard Test Methods for Fire Tests of Building Construction and Materials. To comply with these requirements, manufacturers must supply ASTM E119 test reports on wall or floor assemblies that demonstrate compliance with current and applicable building codes.

An obstacle in changing the building codes to require all wood to be fire rated in an effort to better protect against fires is the cost to builders. While products to inhibit fire spread exist in the market, the majority of homebuilders are unable to achieve the benefits due to prohibitive costs for including these materials during home construction.



## **Engineered Wood Products (EWPs)**

EWPs may be certified by an independent third-party agency, which can confirm that a product meets the performance criteria required by current building codes. To ensure product quality and performance over time, certification agencies conduct both scheduled and unannounced audits at manufacturing facilities. As part of this process, the agency reviews and verifies quality control test results and collects test samples to ensure that the EWP continues to meet required criteria. Importantly, topical coatings such as Eco Building's may be particularly beneficial at offering mold, decay, termite, and fire protection for EWPs that cannot optimally be pressure treated. Currently, to the Company's knowledge, patented pressure or other impregnation-type treatments may actually breakdown the glues used in EWPs, thereby altering the strength of the wood fiber.

## **Current Building Codes May Not be Adequate for Termite Protection**

Pressure-treated wood is subject to twisting, cupping, splitting, and bowing as the moisture from the treatment process dries over time, particularly when one side of the wood dries faster than the others. Pressure treatment is often not suitable for many wood-framing applications, such as plywood, OSB, or EWPs, due to its impact on the structural integrity of these components.

Presently, in California, building codes require treated wood (such as pressure-treated wood) to be used up to the sill plate level on homes (anything that is in contact with concrete). It is not required for use in vertical framing applications. This creates opportunity for a termite infestation as only the lower portion of the structure is adequately protected.

Eco Building's coating improves upon current building code mandates by providing a solution that is able to protect more elements of the structure—concrete contact and vertical framing applications—from termite damage without affecting the strength or quality of the wood.

## Eco Building's Proprietary Coatings

Eco Building has developed a novel, patent-pending formulation called Eco Red Shield™ that can be applied to above-ground, framing-grade lumber (e.g., Douglas fir and yellow pine). Eco Red Shield™ is easily flood coated (sprayed in a controlled environment) onto all six sides of wood in a process similar to a car wash. Once applied, Eco Red Shield™ works as a preventive measure against mold, wood rot, and termites that also has the ability to inhibit the spread of fire.

The application of Eco Red Shield™ is estimated to add roughly \$1.00 per square foot to the cost of building materials (e.g., a typical 3,000-square foot home built with Eco Red Shield™ costs an additional \$3,000). Thus, the formulation is considered to be a low-cost add on that can benefit a range of lightweight construction materials. Figure 11 illustrates lumber coated with Eco Red Shield™.

Figure 11  
Eco Building Products, Inc.  
ECO RED SHIELD™ COATED LUMBER



### Key Attributes

- Protects against:
  - Mold growth
  - Termites
  - Wood rot
- Acts as a fire inhibitor
- Can be used as a paint primer

*Source: Eco Building Products, Inc.*

### Formulation Composition

The ingredients in Eco Red Shield™ are natural and have shown to be safe for humans, with a **Level 1 health rating** per the National Fire Protection Association's (NFPA) Chemical Hazard Label. The health ratings on the Chemical Hazard Label range from 0 (no unusual hazard) to 4 (may be fatal on short exposure). A Level 1 rating indicates that a substance is not toxic or fatal, although it may be irritating to some individuals.

The formulation of Eco Red Shield™ includes the Company's proprietary WoodSurfaceFilm™ technology as well as Newstar Holdings Pte Ltd's fire inhibitor coating technology, called the HARTINDO AF21 Total Fire Inhibitor, which has also shown to be eco-friendly and noncorrosive. Eco Building entered into an agreement with Singapore-based Newstar in January 2011, under which the Company receives an exclusive supply of AF21 with certain distribution, marketing, and sales rights in exchange for committing to purchase an increasing quantity of AF21 over four years.

WoodSurfaceFilm™ Application Mixture includes disodium octaborate tetrahydrate (DOT), an industry-approved natural pesticide for preventing wood-ingesting insects, including termites. DOT controls moisture levels in wood substrates, causing termites that graze on the wood to dehydrate and die. In addition, by controlling excess moisture, DOT also protects against wood rot—before, during, and after construction.

## WoodSurfaceFilm™ Technology Is Found to Be Safe for Indoor Air Quality

Figure 12  
GREENGUARD CHILDREN & SCHOOLS  
CERTIFICATION



Source: the GREENGUARD Environmental Institute.

In March 2012, Eco Red Shield™ coatings achieved GREENGUARD Children & Schools Certification. The Children & Schools Certification Program<sup>SM</sup> requires that products intended for use in environments where children spend significant periods of time (e.g., schools, daycares, etc.) meet strict criteria for emissions of volatile organic compounds (VOCs). These requirements are more stringent than the GREENGUARD Indoor Air Quality Certification Program for products used in offices or other indoor spaces. To maintain the GREENGUARD Children & Schools certification, Eco Red Shield™ coatings must undergo quarterly quality monitoring testing and an annual recertification test.

Raw lumber naturally releases small quantities of formaldehyde. Independent testing data from UL Air Quality Sciences, Inc. (UL AQS) has shown that raw lumber does not meet GREENGUARD Children & Schools emissions limits for formaldehyde. However, coating raw lumber with Eco Red Shield™ has shown to significantly reduce the natural formaldehyde emissions. When compared to the standards defined by the GREENGUARD Environmental Institute's certification program, results to date have demonstrated the following: (1) below-quantifiable levels for formaldehyde; (2) total VOCs measured a magnitude of 10 times lower than established limits; and (3) total **aldehydes** measured approximately 75% below limits established by GREENGUARD Children & Schools classifications. These studies helped demonstrate that Eco Building's proprietary wood treatment is safe for indoor air quality.

The GREENGUARD Children & Schools Certification Program<sup>SM</sup> is a product of the GREENGUARD Environmental Institute ([www.greenguard.org](http://www.greenguard.org)), which was founded in 2001 to improve health and quality of life by enhancing indoor air quality and reducing people's exposure to chemicals and other pollutants. In line with that mission, the institute certifies products and materials for low chemical emissions and provides a free resource for choosing healthier products and materials for indoor environments. It administers an active quality management program for each product certified.

Figure 13  
Eco Building Products, Inc.  
ECO BLUE SHIELD™ AND  
ECO CLEAR SHIELD™



Source: Eco Building Products, Inc.

### Product Line Extensions: Eco Blue Shield™ and Eco Clear Shield™

In addition to Eco Red Shield™, Eco Building has developed two additional formulations, called Eco Blue Shield™ and Eco Clear Shield™ (as illustrated in Figure 13), based on its patent-pending, eco-friendly chemistry. Eco Blue Shield™ offers the same protection as Eco Red Shield™ against mold, wood rot, and wood-ingesting insects (e.g., termites); however, Eco Blue Shield™ was developed specifically for the Company's customer segments seeking a wood treatment but not requiring the fire inhibitor compound included in Eco Red Shield™. Shipments of Eco Blue Shield™ have commenced to the Company's southern U.S. markets, particularly Louisiana, as these regions are more severely afflicted by termites, which Eco Blue Shield™ protects against. Figure 16 (page 26) illustrates regional U.S. termite prevalence.

Eco Clear Shield™ is designed to protect wood while showing its natural beauty. Thus, this product is targeted for staining applications or use as a clear-coat varnish on interior and exterior beams and trim, including Calvert curved glulam beams. It is designed to work against mold, termites, and wood rot, while offering an optional fire inhibitor.

Similar to Eco Red Shield™, both Eco Blue Shield™ and Eco Clear Shield™ are topically applied with chemical solids controlling moisture, affording many of the same benefits over pressure-treated products.

## Ten-Year Limited Product Warranty

Eco Building's wood treatment is accompanied by a 10-year limited product warranty against mold, wood rot, or wood-ingesting insects for non-ground-contact interior wood components of a covered structure that have been treated with Eco Red Shield™ at a licensed coating facility. The Company also extends its warranty to cover wood components exposed to the elements in a vertical framed state for up to 12 months during the construction process, and treated components in an exterior exposure or in an interior space that creates an exterior environment, if top-treated by an appropriate exterior paint, sealer, or stain (for 10 years). Eco Building carries an \$11 million product liability policy and a \$5 million mold policy.

## Building Owners' Need for Protection from Mold and Wood Rot

Mold is a fungus prone to growth in warm and damp conditions. Mold growth on interior framing lumber (illustrated in Figure 14) can occur during and after construction as well as in the lumberyard where the wood is stored (particularly if outside for prolonged periods). If moisture and nutrients are present, mold can reproduce and release microscopic spores that spread to other building materials and furnishings. Based on an array of surveys conducted over the years, it is estimated that approximately 50% of U.S. homes have visible evidence of a dampness problem or mold contamination, with dampness and mold also common in schools and office buildings (Source: Lawrence Berkeley National Laboratory).

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Figure 14  
MOLD PRESENCE ON LUMBER

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Sources: International Association of Certified Home Inspectors, Inc. ([www.nachi.org](http://www.nachi.org)) and KC Home Inspections ([www.kchi.ca](http://www.kchi.ca)).

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Within a residence, the spread of mold spores is accelerated by forced air systems that circulate the **mycotoxins**. Additionally, the prevalence of mold may be increased as a result of the recent housing downturn, which has necessitated that excess lumber supply be stored—often in exposed conditions where it begins to grow and harbor mold and other fungus before being sold.

Mold's mycotoxins are also associated with a range of health problems, even at part-per-billion (ppb) detection levels. The U.S. Department of Agriculture (USDA) and the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) possess decades of definitive evidence of fungal poisons as a health hazard. Mold toxins have been found to cause minor health problems, such as coughing, wheezing, and nasal and throat irritation, to serious ailments, including cancer, tuberculosis, lupus, sudden infant death syndrome (SIDS), chronic fatigue disorder, fibromyalgia, and other diseases (Source: CleanWaterPartners.org, an environmental law firm).

In addition to health concerns, mold places financial pressure on homebuyers as many insurance policies exclude coverage for mold damage. Once mold is present in the walls of a home, the cost to treat a 2,000 square-foot house could range from \$2,000 to \$3,000, on average. If drywall and carpets need to be removed and replaced, the cost could be significantly higher (Source: the *Palm Beach Post*, July 15, 2011). Furthermore, the harsh chemicals that may be used as fungicides/sporicides are costly, may harm the environment, and may not be a truly effective means of safeguarding health.

## *Wood Rot Significantly Reduces the Strength of Wood*

Wood rot (deterioration) can also be caused by many types of fungi that digest the areas of wood that give it strength and stiffness. Fungi thrive in moist environments and often grow in areas exposed to humidity or temperature change. Once wood rot occurs, structural integrity is permanently lost. As such, any areas affected by rot typically must be replaced. Replacement materials needed to repair damage caused by wood rot alone are estimated to account for nearly 10% of U.S. annual wood production (Source: Ohio State University).

When the core of lumber has excess moisture, it can start to rot. A piece of lumber with 5% rot could have up to 80% engineering loss and, if used to build a home, could significantly impact the building's overall structural integrity as well as its ability to withstand hurricane-force winds and seismic activity (Source: the University of California Berkeley's College of Natural Resources).

Rot can often be prevented by controlling the wood's exposure to moisture, as most wood decay fungi grow only on wood with high moisture content (20% or more). Green (unseasoned) lumber, as defined by the North American softwood lumber industry, is wood with a moisture content of 19% or more—thus making it a prime target for decay fungi.

## **Validating the Efficacy of Eco Red Shield™ Mold and Rot Protection**

Mold growth can typically be prevented by controlling excess moisture—a primary function of Eco Building's proprietary coating technology. Eco Building has previously partnered with a mold testing company in Texas, Realtime Laboratories, Inc. ([RTL] [www.realtimelab.com](http://www.realtimelab.com)), to further study the relationship between mold/mycotoxins and the lumber used to build homes. Led by Dennis G. Hooper, M.D., Ph.D., RTL's research team includes multiple scientists knowledgeable in molds and mycotoxins. The laboratory develops and performs enzyme tests that can detect the presence of mycotoxins in both environmental samples (e.g., lumber) as well as in human bodily fluids (e.g., urine).

In June 2010, Eco Building announced results of an extensive two-month fungal poison study conducted by RTL on the effectiveness of its coated wood products versus non-coated samples. The study tested Douglas fir, spruce pine fir, OSB, birch plywood, and drywall samples with and without coatings. The samples were kept in a controlled environment designed to mimic fungal growth conditions: a dark incubator held at 28°C with 30% to 55% humidity. After incubation, **enzyme-linked immunosorbent assay (ELISA)** tests were used to evaluate the effectiveness of the barrier. The study targeted mycotoxins and fungal poisons that are generated as part of the fungi's survival mechanism—such as in response to competing fungi or harsh manmade chemicals (e.g., bleach).

Data from RTL's study indicated that wood products coated with Eco Red Shield™ were 100% effective as barriers and inhibitors of fungal growth (and thus the generation of fungal poisons). No growth was detected even after inoculation with 10 species of fungi. Similarly, drywall coated with Eco Building's product did not have any detectable levels of mycotoxins following inoculation with trichothecene-producing fungi (i.e., black mold). In contrast, non-coated wood products had a 100% occurrence rate post inoculation with **aflatoxin**-producing fungi and a 33% occurrence rate post inoculation with **ochratoxin**-producing fungi. Drywall without Eco Building's protective coating produced significant mycotoxin levels following inoculation with strains of black mold.

Beyond confirming the benefits of an Eco Red Shield™ coating on lumber, the study scientifically proved that building materials can harbor significant health risks given their propensity for fungal growth and, more importantly, deadly fungal poisons. Technologically advanced building materials, such as Eco Red Shield™, have shown to prevent fungal poisons.

## *Additional Studies from RTL Further Demonstrating Eco Building's Mold Advantage*

The ASTM has promulgated a Standard Test Method for the Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber (known as ASTM D3273). This test entails mixing three common mold spore strains into a soil solution and then hanging both treated and untreated wood samples in a controlled chamber several inches above the inoculated soil for four weeks. At the end of this period, samples are classified as having visible mold growth or no mold growth.

Eco Building opted to evaluate the efficacy of its coating product against criteria that it believed to be more stringent than the ASTM D3273 guidance. RTL developed a test to evaluate mold growth on OSB, Douglas fir, and Spruce pine fir samples (with and without Eco Red Shield™) by directly inoculating samples with mold. Eco Building believes that this testing method more accurately depicts mold growth in a home environment because, in this scenario, the surface of the wood is directly inoculated (which is where the mold growth starts in a home) versus the ASTM D3273 test, in which the mold indirectly contaminates the samples as wood is suspended above mold-inoculated soil.

In RTL's test, each sample was screened for the presence of mold spores or mycotoxins prior to use. For each wood type, RTL tested an untreated control as well as specimens treated with a subsurface film solution with and without the AF21 fire inhibitor. The samples were inoculated with 10 types of fungus and then incubated at 28°C for up to 18 days with 40% to 50% humidity. Final cultures of OSB, Douglas fir, and spruce pine fir samples with Eco Building's coating (collected in September 2010) were negative for fungal growth whereas all non-coated samples tested positive for fungal spores. Results from ELISA tests found no mold presence versus raw wood samples, which had up to 1.3 ppb of fungal spores. As well, because Eco Building's coating inhibited fungal growth, no harmful mycotoxins were produced on any treated wood samples.

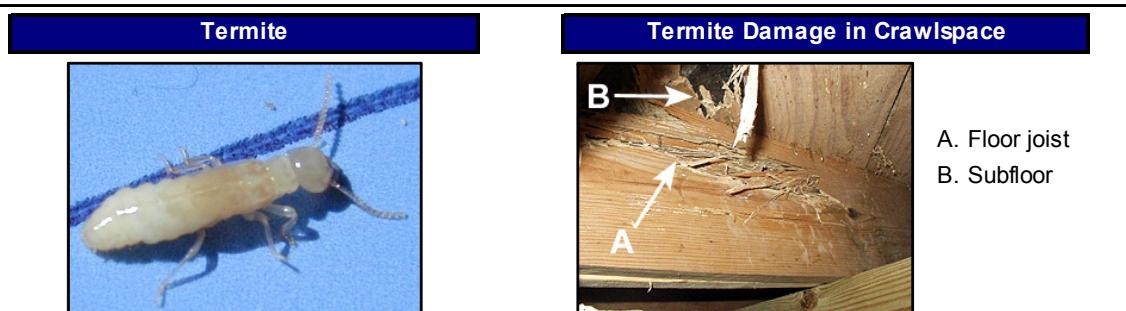
Subsequently, RTL evaluated the ability of Eco Building's technology to not just ward off mold growth but also to kill existing fungal spores. At the conclusion of the original testing, the wood samples that had not been coated with Eco Building's product possessed quantifiable mold and mycotoxin contamination levels: raw spruce pine fir, Douglas fir, and OSB samples had fungal levels of 3.4 ppb, 2.9 ppb, and 2.8 ppb, respectively. RTL then sprayed each of these samples with the Company's WoodSurfaceFilm™. Roughly two weeks later, no detectable limits of mycotoxins were present on the tested wood. Approximately six weeks after coating, no mycotoxins were detected. Similarly, fungal spores were not detected at 5 or 30 days. As such, data demonstrated that the spray solution could kill existing spores and fungal elements when applied directly to a moldy raw wood surface, with no growth detected after six weeks. As well, the spray rendered mycotoxins not present or undetectable on the samples.

Research has shown that even a small area of mold can render the air quality in a house poisonous. In order to eradicate a mold problem, the source of the mold should be addressed (e.g., a leaky pipe), any live mold must be killed, and further growth must be prevented. While RTL has conducted in-house studies to demonstrate that mold growth on lumber is inhibited after being treated with Eco Red Shield™ technology, the Company believes that its product is most effective before a home is constructed, when all six sides of the wood can be thoroughly coated. This is because it is virtually impossible to coat an entire wood surface once it has been used in construction.

## Termites

Termites (pictured in Figure 15) live in colonies of up to hundreds of thousands of insects. They feed on materials that contain cellulose, including dead wood and wood byproducts, and need water to survive. Moreover, termites frequently coexist with decay fungi, further weakening the structural integrity of lumber and the building it supports.

Figure 15  
TERMITE AND TERMITE DAMAGE



Sources: NC State University ([www.ces.ncsu.edu](http://www.ces.ncsu.edu)) and [www.securitypest.com](http://www.securitypest.com).

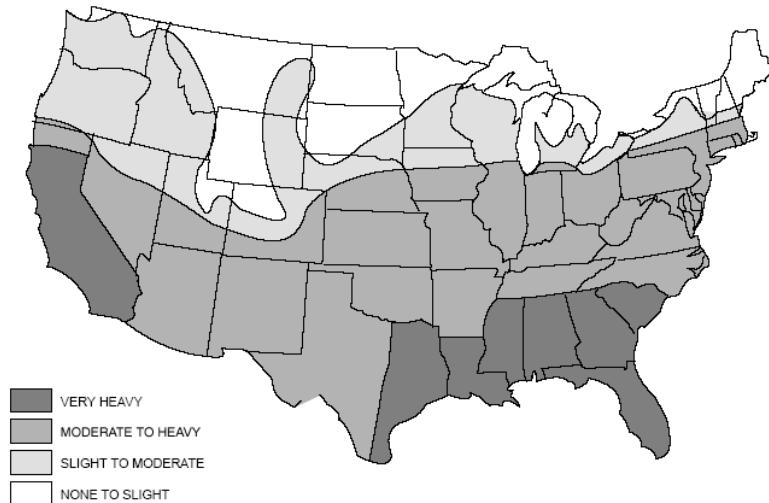
Termites are typically classified in groups according to their feeding behavior. Widely used general groupings include subterranean, soil-feeding, **drywood**, dampwood, and grass-eating termites, although subterranean and drywood termites are primarily responsible for damage to man-made structures. Structural lumber placed into susceptible environments can fall victim to termites within months (Source: the University of California Berkeley's College of Natural Resources, 1993). The biggest danger of a termite infestation is the loss of structural support for the building. Homes that are built to withstand seismic activity and hurricane-force winds may lose strength, develop "weak spots," and become significantly more susceptible to damage if they have been compromised by termites. Findings from studying buildings damaged by earthquakes have revealed that termite infestations can significantly weaken a structure's ability to withstand even moderate seismic activity (Source: Home Saving Termite Control Inc. [<http://www.drywoodtermitecontrol.com>]).

Termite treatments, which include bait/monitoring systems, fumigation, and many other approaches, are toxic, costly, and frequently inconvenient for homeowners. Ultimately, wood that has been deteriorated by termites may need to be removed and replaced to ensure the strength and safety of the building.

## *Termites Have a Significant Economic Impact in the U.S.*

Figure 16 illustrates the geographic risk of termites, which is higher in California and the southeast. According to a recent report by Dr. Vernard R. Lewis, a cooperative extension specialist in insect biology for UC Berkeley, costs to control and repair drywood termite damage are rising in California, with current estimates exceeding \$300 million annually (Source: *Assessment of Devices and Techniques for Improving Inspection and Evaluation of Treatments for Inaccessible Drywood Termite Infestations - Executive Summary* 2010). Dr. Lewis further estimated that subterranean termites consume at least one billion **board feet** of lumber each year in California alone, which is equivalent to a wooden wall measuring 1 foot thick by 17 feet tall spanning from Oregon, through California, to the Mexican border.

Figure 16  
TERMITE RISK ACROSS U.S.



*\* Note: Lines defining areas are approximate only. Local conditions may be more or less severe than indicated by the region classification.*

Source: the International Code Council's (ICC) "International Residential Code 2000: For One- and Two-Family Dwellings."

## Eco Red Shield™ Can Protect Wood and EWPAs Against Termites

Eco Building's Eco Red Shield™ coating creates an eco-friendly barrier designed to resist termite colonization in lumber and EWPs. The Company's topical formulation incorporates DOT—a type of borate that is widely used in existing preservative-treated products to protect against termites—as well as other components that have termicidal properties. When termites graze on wood treated with Eco Red Shield™, the DOT pesticide incorporated into the product causes them to dehydrate and ultimately die.

## *Requiring Less DOT than Current Industry Standards While Achieving the Same Efficacy at Controlling Termites*

Third-party testing conducted by the Wood Durability Laboratory (WDL) at LSU's AgCenter has found that Eco Building's novel ingredient combination creates an effective barrier against termites while potentially requiring less DOT than the standard industry load factor, which is typically 10%. The ingredients in Eco Building's formulation (beyond DOT) have termicidal properties that improve its efficacy and performance against termites. This enables the use of lower concentrations of DOT—potentially reducing costs and the need for deep penetration techniques used in conventional pressure treatment. Samples treated with the Company's formulation—even at 5% DOT loading—resulted in 100% termite mortality.

### *Third-Party Testing Validates the Potential of Eco Red Shield™ to Resist Termite Attack*

In July 2011, LSU AgCenter's WDL released results evaluating the ability of Eco Building's coating to resist Formosan termites—a species of subterranean termites that nest in the soil. The study evaluated the termite resistance of Eco Building's formulation in a ladder series test using five different retention levels (5%, 7%, 10%, 12%, 15%) on Douglas fir lumber and OSB versus untreated southern yellow pine lumber, Douglas fir lumber, and OSB. Each treatment group had five test samples. In total, the test included 65 samples, composed of 50 treated samples and 15 control samples. Each sample was placed in a jar on an aluminum barrier above sand and water. Subsequently, 400 termites were placed in the jar on the side opposite of the sample. After 28 days, the samples were rated using the American Wood Protection Association's (AWPA) rating system, with "0" indicating a complete failure to resist termites and "10" representing effective resistance, and measured for weight loss and termite mortality.

As shown in Table 2, the untreated southern yellow pine, Douglas fir, and OSB control sample groups resulted in an average of nearly 12.25%, 11.70%, and 14.40% termite mortality, respectively. When protected with Eco Building's preservative at 5% to 15% retention levels, the samples resulted in 100% termite mortality.

Table 2  
SUMMARY DATA EVALUATING ECO BUILDING'S PRESERVATIVE COATING AGAINST TERMITES

Sample Treatment (% retention)	Sample IDs	Termite Mortality	Sample Weight Loss	Sample Rating
SYP* controls	C1-C5	12.25%	34.15%	0
Douglas fir controls	D1-D5	11.70%	38.20%	0
OSB controls	O1-O5	14.40%	12.09%	0
Douglas fir (5%)	5-1 to 5-5	100%	0.15%	9
Douglas fir (7%)	7-1 to 7-5	100%	0.50%	10
Douglas fir (10%)	10-1 to 10-5	100%	0.98%	10
Douglas fir (12%)	12-1 to 12-5	100%	0.73%	10
Douglas fir (15%)	15-1 to 15-5	100%	0.51%	10
OSB (5%)	5-1 to 5-5	100%	0.27%	9
OSB (7%)	7-1 to 7-5	100%	2.14%	10
OSB (10%)	10-1 to 10-5	100%	1.76%	10
OSB (12%)	12-1 to 12-5	100%	2.12%	10
OSB (15%)	15-1 to 15-5	100%	0.69%	10

\* SYP = Southern yellow pine

Source: LSU AgCenter's Wood Durability Laboratory, "Formosan Subterranean Termite Resistance to Wood Treatments Plus a Southern Yellow Pine Control," July 2011.

Moreover, untreated southern yellow pine, Douglas fir, and OSB control samples lost an average of 34.15%, 38.2%, and 12.09% weight, respectively. In contrast, treated samples lost only 0.15% to 2.14% weight. Using the AWPA's rating system, untreated samples received a score of 0 versus samples treated with Eco Building's preservative, which received a score of 9 or 10, depending on the retention level.

Based on the data collected, Eco Building's treatments demonstrated significant potential to protect against termite damage even using 5% DOT—roughly half of the typical industry load factor for protection against Formosan termites.

LSU AgCenter's WDL is accredited per ISO 17025 requirements. As well, the study met the AWPA's Standard Method for Laboratory Evaluation to Determine Resistance to Subterranean Termites (E1-09) and was published per the International Code Council Evaluation Service's (ICC-ES) acceptance criteria for test reports (AC85).

#### *Pursuing Regulatory Compliance for Termite Protection*

The Company has submitted a complete engineering package to achieve compliance with the ICC's newly adopted acceptance criteria for evaluating borate that is factory applied to the surface of wood products before construction to protect against subterranean termites as well as fungal decay (called AC433). Greater details of this initiative are provided on pages 16-18.

#### **Fire Inhibitor**

##### *Modern Home Fires Kill Thousands Annually in the U.S.*

Fire protection is an important element for any structure. There are several key reasons to protect lumber in today's wood industry and construction market, as outlined below.

- (1) New-growth lumber, which has replaced old-growth lumber in recent years to help the wood industry keep up with consumer demand, burns more quickly than older mature wood.
- (2) Traditional construction techniques were conceived with old-growth lumber and have not fully evolved with the transition to juvenile lumber, which is more porous and dries out quicker.
- (3) Slowing the ignition time and flame spread of the fire gives more time for firefighters to arrive at the scene and contain the fire, potentially preventing further spread of the fire and preserving as much of the structure and personal effects as possible.

There were over 362,000 residential structure fires in 2009, which resulted in 12,650 civilian injuries and over 2,500 fatalities as well as an estimated \$7.6 billion in damage (Source: the National Fire Protection Association's [NFPA] *Fire Loss in the United States During 2009*). Furthermore, in 2009, over 78,000 firefighter injuries were reported, with more than 32,000 occurring at the scene of a fire (Source: NFPA).

A considerable portion of the injuries, deaths, and financial losses incurred during fires are due to the speed at which a structure fire accelerates. Once a fire begins, its severity is exacerbated in large part by the materials and construction of the home. Modern light-frame construction has been under massive scrutiny by U.S. fire marshals due to the speed at which its building materials can burn in a fire. Homes built with light-frame construction may collapse more quickly than homes built with traditional solid dimensional lumber, posing a greater risk to inhabitants and firemen alike.

Framing lumber can dry to a tinder-like state, particularly in attics where the environment is extremely dry and hot. Dry lumber ignites more rapidly, reducing the amount of time firefighters have to arrive at the fire and extinguish the flames before significant damage occurs. As well, many of the EWP's now employed in construction may burn more rapidly than prior wood products, leading to faster collapse times for roofs. Such scenarios are hazardous both for civilians trying to exit the home as well as for firefighters who enter the building in order to rescue trapped or injured individuals.

Based on data collected from the International Society of Fire Service Instructors (ISFSI), homes constructed with solid dimensional lumber may last 18 minutes to nearly 80 minutes before collapse. In contrast, modern lightweight construction could collapse in roughly 6 minutes to 30 minutes, providing significantly less time for firefighters to contain the fire. Table 3 (page 29) further clarifies this difference.

Table 3  
COLLAPSE TIME FOR VARIOUS ASSEMBLIES

Modern Lightweight Construction			
Structural Element - Ceiling Finish	Ceiling Materials	Floor/Roof Subfloor/Finish	Collapse Time (min:sec)
12-inch Wood I-Joist Floor - Without Ceiling	None	OSB and Carpet	6:03
12-inch Wood I-Joist Floor - With Ceiling	Gypsum Board	OSB and Carpet	26:45
14-inch Finger Joint Truss Floor - Without Ceiling	None	OSB and Carpet	13:06
14-inch Finger Joint Truss Floor - With Ceiling	Gypsum Board	OSB and Carpet	26:45
14-inch Metal Gusset Truss Floor w/ Cord Splices and Framed Stair Opening - Without Ceiling	None	OSB and Carpet	13:20
14-inch Metal Gusset Truss Floor - With Ceiling	Gypsum Board	OSB and Carpet	29:15
14-inch Metal Gusset Truss Floor w/ Cord Splices, Recessed Lights and Ducts - With Ceiling	Gypsum Board	OSB and Carpet	30:08
Metal Gusset Truss Roof - With Ceiling	Gypsum Board	OSB and Shingles	13:06
Legacy Construction (Solid Dimensional Lumber)			
Structural Element - Ceiling Finish	Ceiling Materials	Floor/Roof Subfloor/Finish	Collapse Time (min:sec)
2x10 Joist Floor- Without Ceiling	None	1x6 and Hardwood	18:45
2x10 Joist Floor - With Ceiling	Gypsum Board	OSB and Carpet	44:45
2x10 Joist Floor - With Ceiling	Lath and Plaster	1x6 and Hardwood	79:45
2x6 Joist and Rafter Roof - With Ceiling	Gypsum Board	1x6 and Shingles	40:00

*Source: the International Society of Fire Service Instructors (ISFSI).*

### Independent Testing Supports the Use of Eco Building's Fire Inhibitor Technology

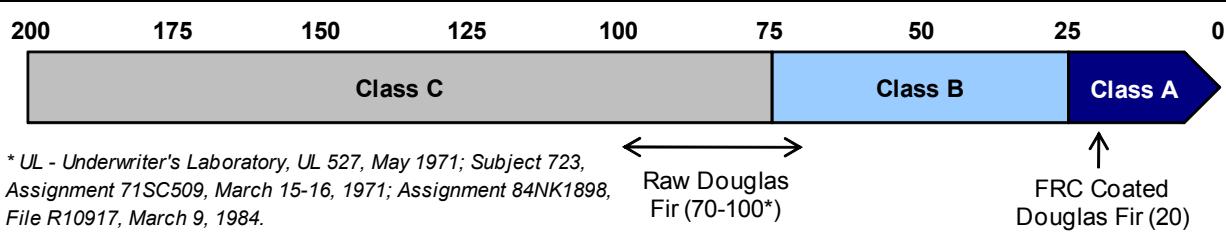
In contrast to untreated framing lumber, which can ignite rapidly when dried out, lumber protected by Eco Building may significantly slow ignition, decrease flame spread, and reduce the smoke produced during a fire. While there are not yet established building codes for topical coatings (such as Eco Red Shield™) for fire resistance, data from accredited fire laboratories have nevertheless shown that Eco Building's coated lumber could result in safer homes than those built with unprotected lumber in terms of ignition time, smoke index, and flame spread.

#### *Class A Fire Inhibitor Coating for OSB is in Development*

The fire inhibitor used in Eco Building's coating has been evaluated in **ASTM E84-08**, **UL 723**, and **ASTM D3806** surface burning characteristic tests to date. In December 2010, Eco Building completed fire testing at QAI Laboratories, where the technology met Class A specifications based on the ASTM's E84 surface burning characteristics scale. E84-08 is a standard test designed to evaluate the surface burning characteristics of building materials based on flame spread and smoke produced. For flame spread, the E84-08 test rates wood in three classes, with Class A being the most stringent rating for fire resistance: (1) Class A (flame spread 0 to 25); (2) Class B (flame spread 26 to 75); and (3) Class C (76 to 200).

An E84-08 test was used to compare the degree of burning for uncoated Douglas fir, spruce pine fir, and OSB to the same materials coated with Eco Building's low-cost fire inhibitor technology. The compound met Class A standards for flame spread and reduced smoke production, significantly slowing ignition time and reducing smoke produced on treated products versus untreated, raw materials in the laboratory. For example, whereas raw Douglas fir produces Class B to Class C ratings (scoring 70 to 100 on the ASTM E84 index scale), Douglas fir coated with an Eco Building formulation (referenced as FRC™ in Figure 17 [page 30]) earned Class A ratings (20 on the ASTM E84 index).

Figure 17  
ASTM E84 SURFACE BURNING CHARACTERISTICS OF UNCOATED AND FRC™-COATED DOUGLAS FIR  
(2x4 STUDS)



Source: Eco Building Products, Inc.

It is important to note that the current Eco Red Shield™ formulation does not yet have a Class A fire resistance rating when applied to OSB wood products, although the current product is believed to function as a beneficial fire inhibitor. In the above ASTM testing, Eco Building's coated OSB earned a Class A rating and scored "0" on the ASTM E84 scale, versus raw OSB, which holds Class C ratings (147 to 158 on the index). Given the results of these studies, which have demonstrated that Eco Building's fire inhibitor technology can achieve a Class A rating on OSB, the Company is presently working to develop this into a commercial formula.

#### *Creating Affordable Fire Protection*

Eco Building cannot achieve UL Marks or building certification from Underwriters Laboratories Inc. on its products because the current building codes do not afford criteria for factory-applied topical coatings. Currently, only pressure treating methodologies are acceptable under the ICC regulations. Moreover, the Company believes that UL-certified fire products are costly for builders and homeowners. Eco Building's goal is to make fire protection affordable for every home built going forward and to set its own standards for performance and protection. Figure 18 provides the Company's estimated cost comparison of an eight-foot stud with fire inhibitor coating technology versus UL-approved pressure-treated lumber and raw lumber, noting that the prices listed in the Figure are approximations and are subject to fluctuation.

Figure 18  
COST COMPARISON OF AN EIGHT-FOOT STUD WITH FRC™ TECHNOLOGY VERSUS PRESSURE-TREATED AND RAW LUMBER (BASED ON ECO BUILDING'S ESTIMATES AND SUBJECT TO FLUCTUATION)



\* Note all prices are for comparison purposes only and are subject to fluctuation.

Source: Eco Building Products, Inc.

Importantly, while Eco Building's products can slow the spread of fire—allowing more time for firefighters to extinguish flames and prevent other areas of the home from igniting—it is still possible for a home to be destroyed by fire if not contained quickly. Eco Building only maintains that its fire coatings delay the ignition of treated materials versus untreated materials as certified by independent laboratories.

## Integration with Smart Components®

### *Wood-frame Construction is Suitable for Buildings in Seismic Hotspots and High Winds*

Over the years, it has been shown that structures built with lumber can be erected at a lower cost than steel and can withstand seismic activity as well (if not better) than concrete. North American single-family homes are considered by many to be among the safest places in an earthquake (Source: the Canadian Wood Council [CWC]). Wood-frame buildings have properties that naturally enhance their performance in an earthquake—including strength, stiffness, **ductility**, **redundancy**, and connectivity, in addition to their lightweight nature. Moreover, seismic engineering using light-gauge materials, such as lumber, can be an effective technique for building multifamily units, such as apartments and assisted living facilities.

In 2009, the performance of mid-rise wood-frame buildings was evaluated in a series of seismic tests, called NEESWood Capstone tests, which used the world's largest **shake table** in Miki City, Japan. Shake tables simulate the ground motions of an earthquake. A 14,000-square-foot, wood-frame condominium tower was constructed and tested on the shake table, which simulated 6.7 to 7.5 magnitude earthquakes. Following the series of tests, minimal damage to the seven-story structure was found, suggesting that the building demonstrated sufficient strength and ductility during earthquake scenarios. Data from this study—which was part of a four-year research effort involving five universities, the governments of the U.S., Canada, and Japan, and several wood manufacturers—may be sufficient to demonstrate to code officials, architects, and builders that a mid-rise wood-frame structure can be effectively engineered to resist severe seismic events (Source: the Engineered Wood Association, July 24, 2009).

In addition, wood-frame structures are suitable for high-wind environments, and thus regions that are at risk for hurricanes. The current International Building Code® allows wood-framed structures in high wind areas if they are engineered to withstand internal and external wind pressures and include steel straps, clips, hold downs, and other connectors that increase the reliability of timber structures.

### Global Need for More Accessible, Affordable Protection from Earthquakes, Hurricanes, and Tornadoes

In recent years, natural disasters have caused billions of dollars in structural damage as well as millions of casualties worldwide. While wealthier countries, such as the U.S., have resources that can be devoted to seismic monitoring and disaster-resistant buildings, less developed countries often lack building codes, government enforcement, skilled labor, and budgets for issues like seismic engineering or developing reinforced construction that can withstand high winds. Particularly in disaster-prone regions, housing standards are often ignored in order to quickly construct shelters for displaced people.

Moreover, even when homes are built with technologies designed to withstand strong winds and high levels of seismic activity, the lumber in the homes remains susceptible to mold, termites, and other forms of decay that weaken wood fibers. Accordingly, such lumber may lose its strength, negatively impacting homes and buildings' safety during earthquakes, hurricanes, and tornadoes.

### *Eco Red Shield™ with Seismic Engineering*

Eco Building is helping to preserve the benefits of seismic engineering by combining Eco Red Shield™ with California-based Trussed, Inc.'s Smart Components®, which are cost-effective building products to help structures withstand lateral forces (e.g., seismic activity or high winds) while meeting critical load resistance requirements. Smart Components® include prefabricated trussed frames and wall panels that can be incorporated into lumber-based structures during construction to help prevent major damage in seismic and hurricane events. Trussed, Inc.'s structural shear walls are a recent improvement in seismic wood framing that can replace steel parts, particularly on high-density projects, such as multifamily structures, as illustrated in Figure 19.

Figure 19

MULTISTORY STRUCTURE WITH ECO RED SHIELD™ AND SMART COMPONENTS®



Source: Eco Building Products, Inc.

In July 2011, Eco Building entered into agreements with Trussed, Inc. to produce Smart Components® exclusively with Eco Red Shield™, as illustrated through renderings of the combination in Figure 20.

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Figure 20

Eco Building Products, Inc.

#### EXAMPLES OF SMART COMPONENTS® WITH ECO RED SHIELD™ CONSTRUCTION

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*Source: Eco Building Products, Inc.*

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#### *Quality-controlled Factory Production*

The widespread failures observed in the 2010 Haiti earthquake were the result of unreinforced or poorly designed and constructed concrete or masonry buildings, and could be anticipated in any seismic areas with similar construction practices (Source: Vector Structural Engineering, LLC, April 2011).

In contrast, Smart Components® seismic walls with Eco Red Shield™ lumber are produced in a quality-controlled factory setting—an element that Eco Building believes distinguishes it from many other framing and building companies. Production of seismic-grade products in a quality-controlled factory in the U.S. addresses the issue of inconsistent quality control in the field, particularly in less-developed countries. As such, each wall is produced according to precise specifications to achieve the desired engineering values that withstand seismic movement and hurricane winds, regardless of where it is constructed. The Company believes that factory-fabricated lumber assemblies may be more stable in seismic events than concrete and brick buildings, and provide additional value-added benefits due to the inclusion of Eco Red Shield™ (which protects against mold, termites, wood rot, and fire).

#### *Installation and Design Benefits*

Smart Components® are manufactured using typical dimensional lumber, metal connector plates, and patented concentric hold-down connectors, which serve as key load-transfer mechanisms. These wall systems are designed for simple installation—requiring significantly fewer parts than conventional shear wall installation and pre-manufactured shear wall kits—and may eliminate the need for plywood sheathing as well as the mold or nail penetration problems associated with conventional shear panels. Because Smart Components® eliminate the necessity for outside sheeting (e.g., plywood), Eco Building estimates that builders using Smart Components® can build faster as they do not need to scaffold the outside of the structure to install sheeting.

As well, Smart Components® provide design flexibility and may lower material and labor costs. They may also provide builders with a cost-effective and more sustainable product that is believed to be safer in seismic hotspots than concrete. The products are designed to support sustainability by using raw materials more efficiently. When combined with Eco Red Shield™, Smart Components® are believed to offer more fire inhibition than traditional panel products held together with flammable resins and glues.

#### *Commercial Implementation*

Eco Building has licensed rights to Trussed, Inc.'s proprietary design software package and patented technology, and has executed a supply agreement for Red Shield coatings applied to lumber utilized in manufacturing Smart Components®. The Company believes that the incorporation of Smart Components® complements both its local business initiatives as well as its offshore projects in countries such as Haiti and Ghana. To date, Eco Building has converted two **tract** home builders to the use of Smart Components® with Eco Red Shield™ protection. Additionally, all new contracts of two stories or more are being converted to the use of Smart Components®, and the Company is introducing the technology in countries recovering from recent disasters, as described on the following pages.

## Eco Building's Global Initiatives

Eco Building has been in the process of bidding for offshore contracts for over a year in regions including the Caribbean and Africa. The Company is working with leadership in the Caribbean to encourage the implementation of improved building materials and methods, including lumber. To this extent, Eco Building's president and chief executive officer (CEO), Mr. Steve Conboy (biography on page 45), has met with the Jamaican government to discuss the type and quality of construction employed during a housing boom. Eco Building is moreover working with the U.S. commercial service director of the U.S. Department of Commerce in Ontario, California, as part of a government initiative to help small U.S. businesses obtain offshore contracts. The Company has met with the organization to complete the necessary due diligence and to design safeguards that protect it in these contracts. Through this initiative, Eco Building could receive government funding to support its offshore efforts.

In addition to pursuing offshore housing projects, Eco Building strives to provide quick, safe, and cost-effective housing solutions for regions in need after a natural disaster. The Company is further actively involved in a number of humanitarian initiatives, as described on page 39.

### In the Wake of Natural Disasters

Eco Building takes an active role in educating developing countries and areas recovering from natural disasters, as these events cause significantly more damage in poorer, less developed regions, such as Haiti. A 7.0 magnitude earthquake in Haiti in January 2010 caused more than 200,000 deaths, whereas an equivalent-size tremor in California in 1989 killed 63 people, which was mainly due to an extraordinary freeway collapse (Source: *The Engineer* [[www.thengineer.co.uk](http://www.thengineer.co.uk)] February 9, 2010).

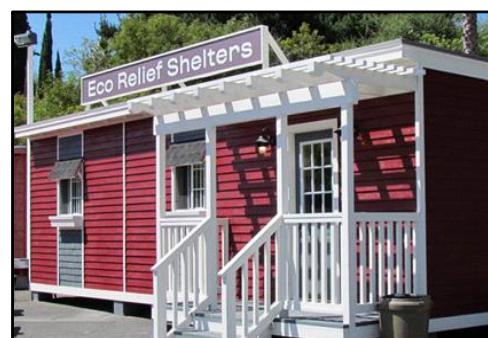
Research is ongoing to determine how overseas construction can be made safer during natural disasters. Looking at best practices worldwide and introducing methods related to traditional techniques in a particular region may help reduce casualties and costs. Specifically, in earthquake-prone regions, it is important to be able to design and construct earthquake-resistant structures and do so at a low cost. For Haiti, which is in a critical time of rebuilding, incorporating engineering features that better prepare the country for future natural disasters is crucial. Thus, with more durable buildings, should a similar situation arise in the future, fewer fatalities would likely occur.

### The Eco Shelter™ Project: Providing Transitional Housing to Disaster Areas

There is significant global demand for transitional housing that is low cost, environmentally friendly, and easily and rapidly constructed. The Eco Shelter™ Project is designed to facilitate the rapid building of shelters in disaster areas (such as illustrated in Figure 21). Each Eco Shelter™ is produced in a quality-controlled factory using lumber protected with Eco Red Shield™ and is packaged as a prefabricated, pre-cut kit. By incorporating seismic walls built with Smart Components® (described on pages 31-32), the shelters can also be engineered to withstand earthquakes and hurricane force winds up to 150 mph. Each Eco Shelter™ kit can be shipped to disaster areas and quickly constructed as they include all necessary materials (e.g., hammers and nails) and do not require measuring or cutting. The entry-level shelter (a 12' by 12' cottage) has been constructed by two experienced carpenters in less than two hours.

Figure 21

Eco Building Products, Inc.  
16' x 32' ECO SHELTER™



*Source: Eco Building Products, Inc.*

Figure 22 (page 34) illustrates the process of building an Eco Shelter™—from kit to shelter. Video footage of its assembly can be viewed at [www.youtube.com/ecobluproducts](http://www.youtube.com/ecobluproducts).

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Figure 22  
Eco Building Products, Inc.  
OVERVIEW OF THE 12' x 12' ECO SHELTER™ BUILDING PROCESS: FROM KIT TO FINISH

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*Source: Eco Building Products, Inc.*

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Eco Building's prefabricated kits are highly customizable. Thus, they can be used for an array of purposes, as depicted in Table 4. To illustrate, schematics for several Eco Shelter™ models are included in Figure 23 (page 35).

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Table 4  
Eco Building Products, Inc.  
ECO SHELTER™ USES

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Building Types				
▪ Offices	▪ Meeting Halls	▪ Classrooms	▪ Medical Clinics	▪ Emergency Relief Housing
Applications				
▪ Events	▪ Remote Locations	▪ Rapid Relief Areas	▪ Property Management	

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*Source: Eco Building Products, Inc.*

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#### *Supplying Safe, Sustainable, and Affordable Building Solutions during Haiti's Rebuild*

The Eco Shelter™ Project has been deployed in parts of Haiti to help rebuild villages following a 7.0 magnitude earthquake in January 2010. Eco Building aims to construct safer buildings—from shelters to school campuses—using prefabricated kits that incorporate robust engineering techniques as well as Eco Red Shield™. Based on experience, Eco Building's leadership has found that excess wood inventory stored outside and exposed to the elements for prolonged periods in the U.S. is shipped to developing countries that have been ravaged by natural disasters. The Company's management has spent significant amounts of time in Haiti teaching the local people to check for moldy or rotted wood that is structurally compromised before using it to reconstruct buildings.

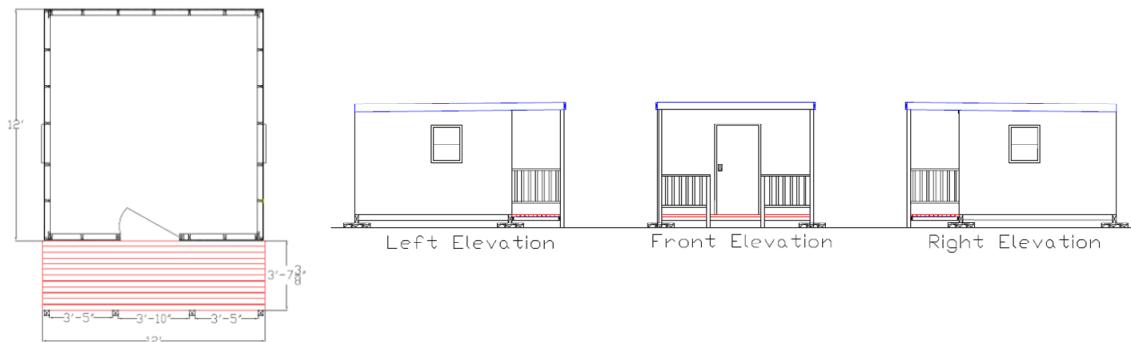
Concrete is often used as the key building material in lesser developed countries; however, with no enforced building codes, the use of lower-quality materials or incorrect formulations becomes prevalent and can result in weak structures. In Haiti, concrete buildings exhibited widespread structural failures during the January 2010 earthquake. As a result, a year later, an estimated one million individuals were still homeless and living in tent camps. Additionally, without adequate quality controls, buildings are more vulnerable to collapse during an earthquake due to inconsistent materials and varying pounds per square inch (PSI).

Eco Building's goal is to teach locals how to install factory-built seismic walls versus manually building walls with concrete. The Company has established numerous affiliates domestically and worldwide to support its novel way of wood-frame building.

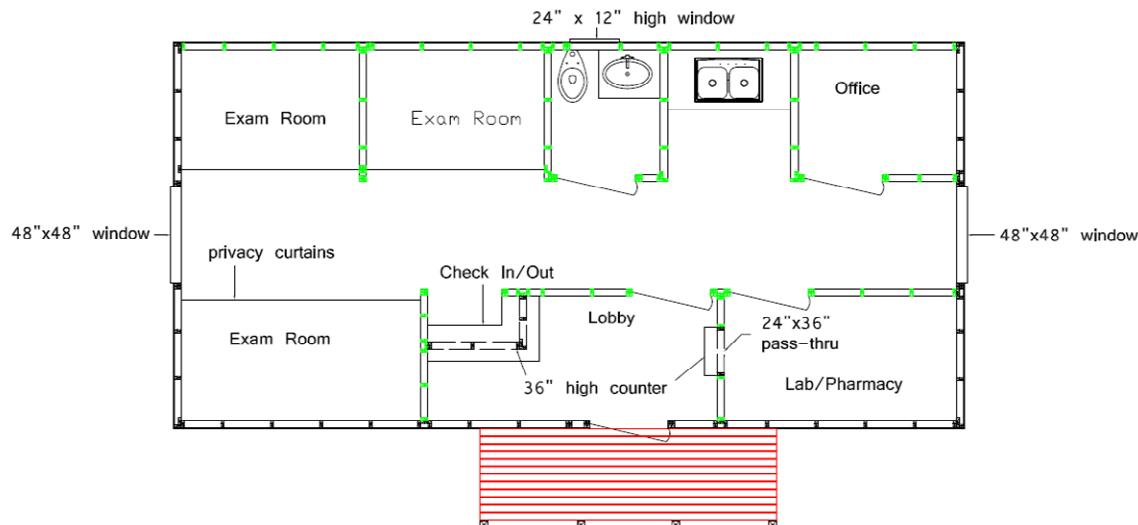
Figure 23

Eco Building Products, Inc.  
ECO SHELTER™ SCHEMATICS

**Emergency Relief Housing (e.g., a 12 foot by 12 foot cottage)**



**Medical Clinics (e.g., a single-story medical building)**



**Classrooms (e.g., a 16 foot by 32 foot school house)**



Source: Eco Building Products, Inc.

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Figure 24  
Eco Building Products, Inc.  
ECO NO-BOIS LUMBERYARD IN HAITI



Source: Eco Building Products, Inc.

Establishing a presence in Haiti has facilitated a number of new opportunities for Eco Building. As shown in Figure 24, Eco Building is shipping lumber coated with Eco Red Shield™ to the ECO NO-BOIS (“Eco Wood”) wholesale lumber distribution facility in Port Au Prince, Haiti, for delivery to local building supply companies. The Company is focused on increasing its wholesale position in a market gaining momentum from the rebuilding requirements. Eco Building has also shipped Eco Red Shield™ lumber to a number of nonprofit organizations in Haiti, as well as organized food drives, donated shelters, and commenced building a village in Carrefour, Haiti, for Light Ministries, Inc. (<http://lightministriesinc.org>), an outreach program.

Eco Building has further been engaged by the Jewish Renaissance Foundation to serve as the Foundation’s construction management firm for its proposed Jewish Renaissance School of Verrettes and Jewish Renaissance School of Leogane in Haiti. Eco Building is responsible for forming a project management team, specifically to provide architectural, engineering, and general contractor services. The schools are intended to serve grades 7 through 12 and students aged 12 through 18. In addition to education, the Foundation emphasizes addressing the overall socioeconomic capacity of its students and families.

The Company reports that the Haitian government is evaluating the use of Eco Building’s coated lumber in the rebuild of the country. Gils Aubry, an Eco Building representative running the ECO NO-BOIS operations, met with Haiti’s president, Michel Martelly, in August 2011 to discuss the advantages of using Eco Red Shield™ lumber versus standard pressure-treated lumber, as well as the benefits of the Company’s new seismic wall system designed by Smart Components®.

#### Aid & International Development Forum (AIDF)

In June 2010, Eco Building participated in the Aid & International Development Forum (AIDF), a global event for humanitarian aid, disaster relief, and development effectiveness in Washington, D.C. Eco Building’s CEO, Mr. Conboy, addressed the challenges in reconstructing Haiti’s earthquake-stricken cities and demonstrated the concept of rebuilding using wood-frame construction techniques to government officials and non-governmental organizations (NGOs), the United Nations (UN), and commercial sectors. Eco Building also introduced its innovative and low-cost “New Hope Shelter,” a 12’ by 12’ basic disaster relief shelter that is easily constructed and provides hurricane and earthquake resistance.

#### *Combining Not-for-Profit Initiatives with Green Building Education*

The Company is focused on creating opportunities for charitable giving, applying 100% of donated funds to rebuild villages using Eco Shelters™. In July 2011, Eco Building partnered with Smooth FM 98.1, a San Diego radio station, collecting food, medicine, and monetary contributions to help build and ship Eco Shelters™ to Haiti.

As well, the Company recently opened a new humanitarian coffee shop—called the Seattle Exchange—in its corporate office, which includes a computer lounge and is expected to showcase videos of Eco Building’s global work. The shop may include focused green initiative seminars hosted by GC Green Inc., an environmental consulting firm and contractor based in San Diego, California, to teach market professionals about green building concepts. The Company plans to donate 100% of the coffee shop’s proceeds to its humanitarian efforts.

## Eco Home

In addition to its disaster shelters and transitional buildings as provided through the Eco Shelter™ Project, Eco Building seeks to offer well-made and long-lasting homes at a fair price to individuals in need. The Company's Eco Home initiative addresses this need through simple, cost-effective, pre-engineered homes. The key to this program is speed of construction. Eco Homes are constructed in a quality-controlled environment and can be assembled onsite by local labor. All Eco Home floor plans contain lumber protected with Eco Red Shield™ and are U.S.-styled homes intended for low- to middle-income families in foreign countries. The homes are sold as a pre-engineered kit and are available in one-, two-, and three-bedroom models that can be configured in a variety of ways (for which renderings are shown in Figure 25). These structures have been created to function in a neighborhood or village concept. Additional Eco Home models are targeted for high-density, multistory buildings.

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Figure 25  
Eco Building Products, Inc.  
RENDERINGS OF ECO HOMES

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*Source: Eco Building Products, Inc.*

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Eco Home kits are anticipated to be cost-effectively transported anywhere in the world. The Company sees opportunities for its Eco Home in several markets, including Haiti, Jamaica, Egypt, Ghana, and Kenya, and could seek to increase its presence in these markets. To this extent, Eco Building has already executed a Memorandum of Understanding (MOU) with the Ministry of Water Resources, Works, & Housing in Accra, Ghana, under which Eco Building plans to build affordable houses in Ghana for middle and lower income workers of government ministries, departments, agencies, and public and private sector institutions. The Company is also working with the Social Security National Investment Trust on a home development project in Ghana. The Company expects to hold a final meeting with prominent government officials of Ghana in mid-2012. The purpose of the meeting is to perform due diligence and negotiate final contract terms and conditions.

## Eco Life™ Village Housing Project

In line with its global strategy, the Company has recently initiated a village housing project called Eco Life™. The Eco Life™ Village is a model village that can be deployed in multiple locations. In Carrefour, Haiti, the Company is working to develop an Eco Life™ Village on property owned by Light Ministries, Inc. It entails a sustainable, off-the-grid neighborhood that includes nine homes, a medical building, a bath house, as well as a laundry, kitchen, and waste management facility. The Company plans to use the village as a model community, with potential to develop up to an estimated 100 home communities in the future. A rendering of a conceptual Eco Life™ Village is provided in Figure 26 (page 38).

Including wood framing, insulation, roofing materials, and exterior coatings, Eco Building expects that the building technologies utilized in the Eco Life™ housing project can create energy efficiencies versus the current standard of concrete block as well as offer benefits in engineering, quality, safety, speed of construction, volume production, costs, durability, maintenance, and homeowner satisfaction.

Figure 26  
 Eco Building Products, Inc.  
 CONCEPTUAL RENDERING OF AN ECO LIFE™ VILLAGE

### Eco Life™ Village Layout



### Construction of Individual Homes/Shelters



### Renderings of a Completed Eco Life™ Village



Source: Eco Building Products, Inc.

## Additional Humanitarian Programs

Eco Building supports a number of additional humanitarian initiatives, several of which are summarized below where information has been made available.

- *YouthBuild USA.* Eco Building has partnered with YouthBuild to hire and train troubled and at-risk teenagers to assist in home building projects in the U.S. as well as in offshore housing projects, such as in Haiti, Indonesia, and African countries. The Company employs superintendents who have been laid off to mentor and teach young people about best practices for constructing homes and buildings in developing countries. YouthBuild and other work programs also help prefabricate the Company's Eco Shelter™ kits.
- *Pathways/Africa.* In August 2011, Eco Building executed a Memorandum of Understanding (MOU) with Dr. Dorothy M. Leveque to represent the Company's products in Ghana, Tanzania, and South Africa. Dr. Leveque is a member of the Board of Directors, president, and chief executive officer (CEO) of Pathways/Africa, a nonprofit organization. She is providing a satellite office location in Cape Town to establish relationships in Africa to support local housing requirements at competitive pricing. In addition, Dr. Leveque is assisting with local intelligence gathering for suitable building designs and local requirements, including building schools and dormitories. All proceeds earned under the terms of this relationship are being donated to Pathways/Africa.
- *Jamaica.* Eco Building is working with Consulate General Genevieve Brown Metzger, along with JAMPRO (Jamaica's investment and export promotion agency) and the Prime Minister, to provide concessions and incentives for the Company to set up a facility in Kingston, Jamaica. The Jamaican government has a large demand to develop master planned communities for low-income housing and Eco Building is currently in negotiations to provide such low-income housing at an affordable price to the government. The coating is expected to take place in the U.S., with the Company shipping coated lumber (duty free) into Jamaica.

The Company continues to take its product to the demand. Low-income housing has vast needs and Eco Building's product and building methodology can provide a solution to meet the demand.

## Customers and Affiliates

Eco Building maintains a variety of strategic relationships ranging from the wholesale and distributor level to community and government organizations. The Company has commercial projects ongoing and is seeing rapid market adoption in the custom home and residential market. The Company has also reported increasing interest from developers of multifamily projects seeking lumber protection at a small incremental cost to their lumber package. As well, Eco Building is shipping products internationally.

Eco Building markets a line of EWP's including dimensional lumber, wall and floor panels, I-joists, glued-laminated (or "glulam") beams, LVL beams, truss lumber, and trim. These products can be coated at the Company's production facilities and at the mill or distributor with Eco Building's proprietary formulas and coating machines.

Table 5 summarizes some of the sectors, customers, and partners that Eco Building has targeted, followed by brief overviews of several of the Company's projects either ongoing or completed to date. Note that the accompanying descriptions are representative of Eco Building's activities in a variety of sectors thus far but are not intended to be an exhaustive collection of projects.

Table 5  
Eco Building Products, Inc.  
SECTORS, CUSTOMERS, AND PARTNERS

▪ Commercial Projects	▪ Communities (Builders)	▪ International
▪ Distributors and Wholesalers	▪ Custom Homes	▪ Affiliates (e.g., Eco Prime LLC, Guthrie Lumber, Interstate + Lakeland Lumber Inc.)
<b>A Selection of Customers and Partners</b>		
Heritage Building and Development	American Lung Association	Integrity Home Improvement
Brookfield Homes	BIA San Diego	Interstate + Lakeland Lumber Inc.
Shea Homes	Pacific Woodtech	Calvert Company
FieldStone Homes	California Truss Company	School of Mold Health
AWC Construction	Trussed, Inc.	Fortified Design for Brands
Glen Hansen Construction	Max Equipment Rental	Cornerstone Communities
Top Line Roofing	C.A. Luce Termite Control	

*Source: Eco Building Products, Inc.*

### Commercial Projects

- In June 2011, S&H Contracting, Inc. ([www.shcontracting.com](http://www.shcontracting.com)), a San Diego-based commercial framing company, ordered nearly one million board feet of lumber coated with Eco Red Shield™ protection to build a four-story, multi-use hotel. As of May 2012, this project was 75% shipped.
- In March 2012, the Company signed a contract to supply Eco Red Shield™ lumber, trusses, and hardware to build a Men's Residence at Rivers Edge Ranch in Lucerne Valley, California. This project was waiting on the concrete slab to be completed. Recently, Rivers Edge received a gift to pay for the slab, enabling this project to move forward.

### Communities (Builders)

Eco Building offers product packages customized to meet the needs of builders. These entail comprehensive value packages that bundle coated lumber and coated EWP's with engineering, framing, and delivery services. The pricing of these packages is designed to be cost neutral to builders' raw lumber alternatives in terms of cost per square foot. In addition to competitive pricing, the Company believes that its bundled value packages distinguish it from other manufacturers of chemical wood coatings that do not offer such services directly to builders. Several of Eco Building's recent sales to builders are profiled on page 41.

- In June 2011, Eco Building received nine additional home contracts from Heritage Building and Development for framing lumber components and trusses coated with Eco Red Shield™. Heritage is building a 5,300-acre planned community (Otay Ranch) in Chula Vista, California. This follow-on order represented estimated gross revenues of \$148,000. To date, Eco Building has now been a partner for nearly 75 Heritage houses.
  - In February 2012, Eco Building was awarded an additional production release to supply materials coated with Eco Red Shield™ for Heritage projects in the Otay Mesa community in Chula Vista, representing over \$304,000 in gross revenues. In March 2012, the Company received an additional production release for over \$350,000 in contract orders.
- Also in June 2011, Eco Building was awarded a contract to supply Eco Red Shield™ lumber and trusses for 88 homes at Brookfield Homes' "Green Door" project in Ontario, California. E Build & Truss, Inc., a wholly owned subsidiary of Eco Building (described on page 44), was awarded the framing contract with the inclusion of an Eco Red Shield™ lumber and truss package for 88 two-story homes ranging from 1,828 to 2,054 square feet. To date, Eco Building has completed 28 houses under this contract. In April 2012, the Company announced another release of six homes. Eco Building has now been awarded several additional production releases on this contract. The Company stated in a press release (dated June 30, 2011) that it believes that this project could result in up to \$1 million or more in gross revenues (provided all homes are released for construction).
- In October 2011, Fieldstone Homes ([www.fieldstone-homes.com](http://www.fieldstone-homes.com)) announced that it was employing Eco Red Shield™ in the building of The Cove neighborhood in Dana Point, California. Eco Building's framing lumber was in the process of being erected for six homes being built on a private cul-de-sac. Figure 1 (page 3) illustrates one of these Dana Point homes at the framing stage. The homes at The Cove range in size from 3,100 to 3,600 square feet, with three to six bedrooms.
- In November 2011, the Company delivered dimensional lumber coated with Eco Blue Shield™ for the first five homes of an 85-home subdivision in New Orleans, Louisiana. Three additional homes were released for delivery in December. In March 2012, the Company shipped another three homes, with orders to ship three additional homes in May 2012. This subdivision is being rebuilt from Hurricane Katrina and the builder seeks to employ green building technologies.
- In December 2011, Eco Building received an order from TWR Framing to supply lumber, floor, and roof trusses for Requeza Ridge, a nine-home community in Encinitas, California, that is being developed by Fieldstone Homes. These homes range from 1,747 to 2,199 square feet.

#### Multifamily Units

- In August 2011, Eco Building secured an order of over \$650,000 in materials coated with Eco Red Shield™ for a four-story, multifamily project being built by Legacy Building Services in San Diego, California. The 90,000-square foot building has 86 units and may qualify for **LEED certification**.
- In October 2011, the Company secured an order for lumber, labor, trusses, and EWPs coated with Eco Red Shield™ to build 37 triplexes representing 111 units for Cornerstone Communities' "Veranza II" project in Chula Vista. The first release of the contract entailed building 12 units, including models, for over \$176,000 in gross revenues. An additional release was secured in early 2012 for an additional nine units (over \$132,000 in gross revenues). Ultimately, this project may represent over \$1.6 million in gross revenues for Eco Building, with the release of additional units for construction being sales driven.
- In April 2012, the Company received a commitment for the use of Eco Red Shield™ lumber to remediate a 340-unit condominium complex called Quail Ridge in Oceanside, California, including replacing handrails, stairways, structural beams, and facia with termite, wood rot, and mold issues.

#### *International Orders*

- In May 2011, the Company secured an 18-truckload order for Eco Red Shield™ lumber valued at over \$260,000. The non-treated lumber was purchased in southern Georgia and successfully coated by an affiliate of the Company, EcoPrime, LLC (overviewed on page 43). The coated lumber was transported to Savannah for shipment to Haiti.

### Distributors and Wholesalers

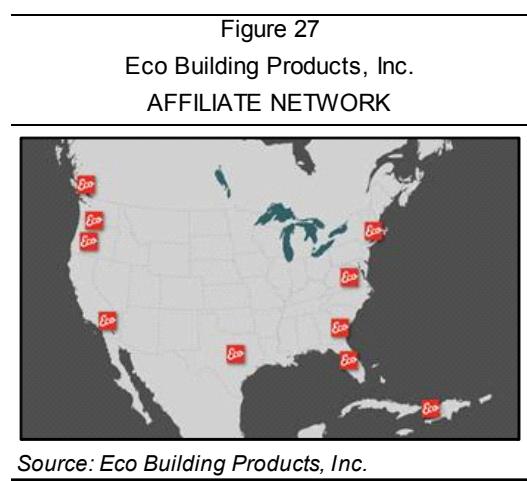
- In June 2011, Eco Building shipped Eco Red Shield™ panels to Dash Lumber and Supply, a coated lumber distributor in New Orleans. Eco Building expects Louisiana to be a growing territory, as mold, wood rot, and termites are prominent. As well, Louisiana customers have demonstrated an affinity for eco-friendly products. Dash Lumber continues to order product from Eco Building.
- In October 2011, Pro Build in Plant City, Florida, ordered Eco Building's coating service from one of the Company's Floridian distribution affiliates, Mid-State Truss Company of Lakeland, Florida, for approximately 21,000 board feet of Southern yellow pine lumber.
- In February 2012, the Company shipped a tote of WoodSurfaceFilm™ concentrate to Northern Crossarm Company, a wood treatment company in the Great Lakes states area.
- In April 2012, Eco Building shipped WoodSurfaceFilm™ concentrate to the National Industrial Lumber Company (NILCO), a wholesale industrial lumber company that has 10 locations across four states.

### Custom Homes

The Company has received significant demand for its products from production homes, custom homes, and multifamily units, particularly in Southern California. From August 2011 to October 2011, Eco Building reported that it had secured over 14 additional projects, reflecting a considerable increase in orders from custom homebuilders. Eco Building believes that the demand it is experiencing in the custom home sector supports its strategy of marketing to homeowners and builders, rather than lumber companies.

- In June 2011, Eco Building shipped a complete house package of lumber coated with Eco Red Shield™ to rebuild a 3,800 square foot home destroyed by fire in 2007.
- In July 2011, the Company received an order to supply all framing wood components coated with Eco Red Shield™ for an approximately 15,000 square foot custom home in Litchfield County, Connecticut.
- In August 2011, the Company received orders to supply lumber, truss, and EWP packages for four custom home projects in San Diego and San Clemente, totaling over \$160,000 in gross revenues.
- In September 2011, Eco Building received an order to supply a lumber and EWP package totaling over \$134,000 in gross sales for a 10,000 square foot custom home in Newport Beach, California.
- In January 2012, Eco Building initiated the delivery of Eco Red Shield™ lumber to homeowners building a custom home in Litchfield County, Connecticut.
- In April 2012, Eco Building was awarded an order to supply Eco Red Shield™ lumber to build a 7,100 square foot custom home in Alpine, Utah.

### Distribution Affiliates



Eco Building is partnered with wood coatings applicators throughout the U.S. and Canada (as illustrated in Figure 27), which supply wood products coated with Eco Red Shield™ globally. These affiliates coat lumber using Eco Building's proprietary chemistry. The entities hold rights to distribute the Eco Red Shield™ lumber; however, since international freight shipments are costly, most affiliates are focused on regional distribution.

Four of the Company's affiliates are particularly notable due to their proximity to ports, which facilitate shipment of wood products for Caribbean and African projects. These are Structural Technologies, LLC in Doswell, Virginia; EcoPrime, LLC in Augusta, Georgia; Mid-state Truss Company in Lakeland, Florida; and Guthrie Lumber & Distribution Centers, Inc. in Austin, Texas.

Additionally, Eco Building has an affiliate in British Columbia, Canada, with future plans to penetrate the Canadian market. The Company is also considering opening a manufacturing facility in Kingston, Jamaica, to help build housing for Haiti and the local Jamaican market as well as other offshore efforts if a favorable tax and duty climate is created for Eco Building in Jamaica.

#### *Eco Building's Oregon Coating Facility*

In November 2011, Eco Building announced that it entered into a five-year lease for a large coating facility (approximately 30,000 square feet) in Salem, Oregon. This facility has rail access and is strategically located in the heart of the timber-producing corridor ranging from northern Washington to southern Oregon. By its location, Eco Building can purchase timber products from various lumber mills in the corridor while strategically managing the supply chain and minimizing the impact of freight costs. Accordingly, Eco Building's strategy is to purchase lumber directly from some of the largest lumber mills in the world, apply its coatings, and then ship to all of its wholesale lumber positions in various markets across the U.S. without added freight costs.

Eco Building aims to produce full unit quantities of protected lumber products, occupying a portion of the facility by deploying two coating lines with provisions to expand up to eight coating lines.

#### *Distribution Agreements*

A selection of the Company's current third-party distribution agreements are summarized below.

- **Korean Markets.** In September 2011, the Company announced that it received an order for Eco Red Shield™ concentrates for immediate shipment to Hana Corporation of South Korea. Hana Corporation's Cyberwood Ltd division, has ordered enough concentrates to process approximately 820,000 board feet of lumber. Cyberwood Ltd is planning to treat panel and dimensional lumber as well as wood flooring substrates for distribution into the South Korean market. Cyberwood has indicated that all aspects of Eco Red Shield™ lumber protection are desired in the local markets.
- **Structural Technologies, LLC (Doswell, Virginia).** In June 2011, Eco Building entered into a non-binding MOU with Structural Technologies, a company specializing in applying wood coatings, manufacturing wood components, and consulting services in Virginia. Structural Technologies incorporates Eco Red Shield™ into its prefabricated roof, wall, and floor assemblies. The company also distributes product to Eco Building's international housing projects.
- **Interstate + Lakeland Lumber Corp. (Tri-State Area, New York).** In June 2011, Eco Building finalized a non-binding MOU with Interstate + Lakeland Lumber, a lumber company servicing the tri-state New York metropolitan area. Interstate + Lakeland Lumber produces and distributes Eco Red Shield™ protected lumber products from its Bethel, Connecticut, facility.
- **EcoPrime, LLC (Augusta, Georgia).** In April 2011, Eco Building finalized an affiliate, purchase, distribution, and services agreement with EcoPrime (formerly Bluwood South, LLC), a lumber coater providing green building components for homes and commercial projects in the southeastern U.S. and in rebuild areas, such as New Orleans and Haiti. EcoPrime produces Eco Red Shield™ lumber for southern U.S. markets and facilitates shipments to the Caribbean and Africa.
- **Guthrie Lumber (Austin, Texas).** In March 2011, Eco Building finalized an affiliate, purchase, distribution, and services agreement with Guthrie Lumber & Distribution. Under the agreement, Guthrie produces products coated with Eco Building's formula in an Austin, Texas, facility. Guthrie holds rights to distribute lumber into its entire market. The agreement also calls for Guthrie to stock and distribute the Company's EWP and all future private-label Company products. Family-owned Guthrie Lumber began in the early 1980s as a company focused on the wholesale lumber business. Its customer base ranges from local hardware stores to mega distributors and lumber dealers.

## Providing Turnkey Solutions for Southern California Builders

In mid-2011, Eco Building established E Build & Truss, Inc. as a wholly owned subsidiary. Located on several acres in Oceanside, California, E Build & Truss has full production capabilities, allowing the Company to offer turnkey products—including Eco Red Shield™ lumber, truss packages, and labor services—to meet the market demands of Southern California builders. The E Build & Truss lumber yard is shown in Figure 28. As well, the site may be used to prefabricate homes and shelters for Eco Building's humanitarian efforts.

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Figure 28  
E BUILD & TRUSS, INC. SUBSIDIARY TRUSS YARD

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Source: Eco Building Products, Inc.

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### Private-Label Branding

Eco Building has partnered with Calvert Company, Inc., a glulam timber manufacturer, to produce a private label of Calvert's current line of glulam beams with Eco Red Shield™. Glulam is a structural timber product composed of several layers of dimensioned timber glued together. The combined product is called Red Beam. Douglas fir, pine, and cedar beams are now also available with a clear coat of Eco Building's protection to highlight the wood's natural beauty.

The Red Beam product is being shipped to wholesalers throughout the U.S. Eco Building anticipates that the agreement with Calvert may facilitate the Company's plan to introduce its products to the Japanese, Chinese, Australian, and Korean markets. Calvert Company's Beam has received Japanese Agricultural Standards (JAS) approval in Japan.

Additionally, Eco Building has established a relationship with Pacific Woodtech Corporation ([www.pacificwoodtech.com](http://www.pacificwoodtech.com)), a private-label supplier of I-joist and **Rim Board** products. Through this agreement, Pacific Woodtech now produces Eco Joist and Eco Rim products. This relationship dates back to Mr. Steve Conboy's (Eco Building's founder, biography on page 45) time working with Trus Joist. Pacific Woodtech's vice president of sales and marketing, Mike St. John, and Mr. Conboy have been working on a private-label brand of engineered wood under an Eco brand to support wholesale lumber facilities with a brand of engineered lumber offering fire, mold, and termite protection.

Eco Building's private-label EWPs—a portfolio of which can be found on its website ([www.ecob.net](http://www.ecob.net))—are supported by the Company's relationship with Vector Structural Engineering, LLC ([www.vectorse.com](http://www.vectorse.com)). The engineering firm has licensed engineers in all 50 states and Washington, D.C., and is supporting the national rollout of Eco Building's products. Vector provides structural engineering services for clients in the telecommunications, bridge, signs/displays, housing, and commercial markets.

## Company Management

Eco Building's leadership intimately understands the wood and construction industries. The Company's president, chief executive officer (CEO), and director, Mr. Steve Conboy, has over 35 combined years of experience in the framing business and lumber industry. Table 6 summarizes Eco Building's key management, followed by detailed biographies.

Table 6  
Eco Building Products, Inc.  
MANAGEMENT

Steve Conboy	President, Chief Executive Officer, and Director
Mark Vuozzo	Chief Technical Officer and Director
Jim Coble	Lumber Trader
Richard Thomas	President of E Build & Truss
Eveline Tritsch	Controller

*Source: Eco Building Products, Inc.*

### *Steve Conboy, President, Chief Executive Officer, and Director*

With a career that spans over three decades, Mr. Conboy has extensive experience in the lumber industry particularly within the disciplines of framing and EWPs and the construction of innovative building designs. Mr. Conboy began his career as a carpenter, journeyman, and framing specialist in New York. Following 17 years as a framing specialist within the Carpenter's Union, he joined Trus Joist McMillan as a technical representative during California's housing explosion. In this capacity, he gained extensive knowledge and training in carpentry, construction using massive wood products, and the mechanical trades necessary for the proper installation and penetration of engineered I-joists. As manager, he spearheaded the company's conversion process from Open-Web joists to I-joists. Following, he was a manager at Crown Pacific, where his experience was reinforced with engineering and technological training in the expansion and support of large-scale wood products. His transition from the field and practical aspects of lumber construction to the engineering of building technology provided him with extensive, in-depth knowledge and expertise in the use of EWPs in construction and building design.

In 2001, Mr. Conboy founded Las Vegas-based Framers Choice Inc. (FCI) which captured the I-joist market in the western U.S. Drawing from his framing background and engineered wood experience, he created the Wide and Deep floor system, which was a marriage of ease of construction, cost effectiveness, and skilled engineering resulting in a reinforced, durable product. Fueled by realizing his vision beyond floor joists and beams, Mr. Conboy expanded his knowledge into the development and use of innovative EWPs. Discerning the encroaching seismic shift in the lumber and building industries and corresponding consumer needs, Mr. Conboy conceptualized EcoBlu Products (now Eco Building Products, Inc.) in 2005. Integral to the company's mission is revolutionary movement toward using EWPs that are cost effective, environmentally safe, and enable ease and integrity of construction. In 2010, he launched EcoBlu Products, under which he oversees a network of affiliates and partnerships programs throughout the U.S. Additionally, Eco Home™ maintains a charter to introduce advanced U.S. building technologies, best practices, and methodologies to emerging economies. Mr. Conboy is also instrumental in the development, production, and use of the trademark Eco Red Shield™ protected lumber.

Mr. Conboy has earned a reputation as a one of the premier engineer and wood specialists in the construction and design of high-rise buildings. Intrinsic to his business and engineering acumen is Mr. Conboy's pay-it forward philosophy, which is propagated through his myriad philanthropic projects across the globe. He lives with his wife and three children in San Diego, California.



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*Mark Vuozzo, Chief Technical Officer and Director*

Mr. Vuozzo began his career working several years in the semiconductor industry supporting Automated Test Equipment (ATE). Subsequently, he joined LTX Corp. (now LTX-Credence Corporation [LTXC-NASDAQ]), an ATE company, as field service engineer. Mr. Vuozzo worked with LTX for several years, including as an international field engineer based out of Woking, England. He left LTX to start MV Technical Sales, LLC (MVTs), which grew into an international company with revenues in excess of \$25 million annually. MVTs has several offices worldwide and employs over 150 individuals. In 1999, MVTs acquired the rights to LTX's product lines and became the only authorized reseller in the ATE industry. In 2006, Mr. Vuozzo sold his interest in MVTs to Babcock & Brown, a former global investment and advisory firm in Australia. He was introduced to Mr. Conboy, who was seeking funding and expertise to assist him with the growth of his company, Southern California Bluwood, in November 2006. After several months of working together, the two joined to reestablish FCI into what is now known as Eco Building Products, Inc.

*Jim Coble, Lumber Trader*

Mr. Coble has nearly 30 years of experience in the lumber industry and is versed in all aspects of the high-production execution environment of the lumber industry. He has purchased and sold over \$100 million dollars in wood-related products. From 1982 to 1984, Mr. Coble was employed by Home Lumber in Las Vegas, where his duties included warehouse work and loading and unloading rail cars and trucks. From 1984 to 1990, he was employed by James Lumber of Las Vegas, preparing packages for distribution to various job sites, and in 1985 became a sawyer. In 1986, Mr. Coble was promoted to assistant dispatcher, where his responsibilities included managing personnel and distributing materials throughout Las Vegas and surrounding areas. In 1987, Mr. Coble became the general manager's sales coordinator. After the closure of James Lumber in 1990, he served as a salesman for Sandlin Lumber, where his duties initially included purchasing, sales, and collections. Over the next five years, he refined his sales and purchasing skills, until he was given the responsibilities of managing Sandlin Lumber's distribution and labor force. Mr. Coble became vice president at Sandlin Lumber. In 2009, Sandlin Lumber was sold to AC Houston Lumber Co., where Mr. Coble worked until November 2010. Mr. Coble was also a Framing Contractors Association (FCA)/Associated General Contractors Board of Directors member for two years. He initiated the first full-service Forest Stewardship Counsel (FSC) facility in Las Vegas.

*Richard Thomas, President of E Build & Truss*

Mr. Thomas' career began in the lumber industry, spending over five years working in southern Nevada and California. Subsequently, he joined Gary G. Day Construction Co. in Las Vegas as a forklift driver and left as vice president nearly 30 years later. Mr. Thomas then founded Frame Right Construction in January 2010 in Vista, California. After a year and a half with Frame Right, he was offered a position with Eco Building to oversee the operations of E Build & Truss. He has served as a four-time president of the FCA of Las Vegas. During Mr. Thomas' tenure as president, he partnered with the Associated General Contractors, Southern Nevada Home Builders Association, and the Nevada Subcontractors Association to work on several legislative bills. He has also testified to the Nevada Senate and Assembly on several occasions concerning construction defect legislation and litigation issues. Mr. Thomas serves on the Board of Directors for the Las Vegas Chapter of the Associated General Contractors, and as a member of the National Home Builders Association. During his career, Mr. Thomas has worked as a carpenter, a foreman, a general foreman, an estimator, a project manager, and vice president of a \$30 million framing company on over 10,000 apartments units, over 6,000 condominium and townhouse units, over 20,000 single family residences, and countless commercial, church, school, and charity projects.

*Eveline Tritsch, Controller*

Ms. Tritsch started her career over 20 years ago in the U.S. Air Force in human relations and accounting at Travis Air Force Base in California. She obtained a degree in accounting shortly thereafter. Ms. Tritsch also worked in real estate as an independent broker for roughly five years. Her experience includes supervising the Securities Lending division at M&I Bank, assistant controller for the private affairs of Mr. Pierre Omidyar, the founder of eBay Inc. (EBAY-NASDAQ). Once Mr. Omidyar moved his family and operations to Hawaii, Ms. Tritsch served as the controller for a helicopter tour company in Boulder City, Nevada, for approximately two years. She subsequently became controller for Eco Building to keep the company in compliance with U.S. Securities and Exchange Commission (SEC) regulations.

## Competition

Eco Building believes that its coatings and coated wood products can address a considerable part of the growing market for coated and treated wood as well as serve as a qualified primer for all exterior wood surfaces requiring paint. The Company's technology satisfies a wide range of building codes and other global standards promulgated by organizations such as the International Code Council, the American Society for Testing and Materials (ASTM), the American Wood Protection Association (AWPA), and the U.S. Department of Housing and Urban Development (for above-ground structural and sheathing wood components).

The market in which Eco Building participates is mature and includes established biocide and chemical manufacturers, which possess functionally equivalent technologies to that of the Company and may have greater financial resources or business experience. Therefore, Eco Building may face competition for customers and contracts based upon, among other things, price, delivery, service, performance, product innovation, product recognition, and quality.

The Company believes that its integrated construction value package approach represents a competitive advantage. In contrast, several chemical companies that offer competitive technologies to Eco Building, such as Arch Chemicals, Inc.'s FrameGuard® and Osmose, Inc.'s Nature Wood, provide products to independent wood treaters and lumberyards rather than as an integrated construction package with value pricing for builders. The companies profiled below are not intended to be an exhaustive collection of potential competitors; rather, they are believed to be indicative of the type of competition that Eco Building may encounter as it continues to seek greater market share.

### **Arch Chemicals, Inc. (now a part of Lonza Group Ltd.) ([www.lonza.com](http://www.lonza.com))**

With the acquisition by Lonza Group Ltd. (LONN-SIX) of Arch Chemicals (along with its subsidiaries) in 2011, the new entity, Lonza Microbial Control, is anticipated to be among the world's largest microbial control businesses. Prior to the acquisition, Arch provided chemistry-based solutions to selectively destroy and control the growth of harmful microbes, with a specific focus on water treatment, hair and skin care products, wood treatment, preservation and protection applications (paints and building products), and health and hygiene applications.

The company's treatment portfolio includes four businesses: (1) water products, such as sanitizers and related treatment chemicals to destroy microbes in recreational pool and spa water, drinking water, and water used in commercial and industrial applications; (2) wood protection using preservatives to protect wood from fungal decay, insect damage, and fire damage; (3) industrial biocides and health and hygiene products, where biocides are incorporated into industrial, commercial, and consumer products worldwide to protect against harmful microbes (supplies biocides for use in paints and other building products to deter the growth of mold and mildew); and (4) personal care products, where the company's biotechnologically active ingredients, botanicals, preservatives, and other cosmetic ingredients provide health benefits in hair and skin care products.

The Lonza Group Ltd, a leading supplier to the global life sciences, healthcare, and pharmaceutical industries with headquartered in Basel, Switzerland, completed its acquisition of Arch Chemicals, Inc. on October 17, 2011. In July 2011, the Lonza Group Ltd entered into a definitive merger agreement to acquire 100% of Arch at a purchase price of \$47.20 per share. Arch has significant positions in two business segments: treatment products (which is its core focus) and performance products. Arch reported roughly \$1 billion in annual sales in 2010.



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**BluWood USA, Inc. (closely held)**

[www.bluwood.com](http://www.bluwood.com)

BluWood USA, Inc. of Lakewood, New York, markets a family of wood-frame building components, called BLUWOOD®, that have a proprietary factory-applied, two-part coating technology. The first part of this technology is an Infusion-Film that forms a water-repellent, semi-vapor, permeable film interlocking with the wood fibers to provide controlled topical and subsurface moisture absorption. The Infusion-Film is also specially formulated to resist mold growth on the cured surface of the film. The second part of this technology is the Perfect Barrier DOT Wood Preservative, a fungicide and insecticide that provides protection from rot fungi and wood ingesting insects, including termites. BLUWOOD® seeks to protect the above-ground wood framing components from the damaging effects of rot fungi, wood-ingesting insects, and mold fungus growth, as well as limiting uncontrolled moisture absorption. The company's products have a distinctive blue color that provides visible assurance that the entire surface of processed wood components is coated with company's two-part wood protection technology. This industry-specific, factory-applied coating process is performed by a North American network of BluWood USA-affiliated application companies and original equipment manufacturers (OEMs).

**Flameproof Companies (closely held)**

[www.fireproofing-retardant-lumber-wood.com](http://www.fireproofing-retardant-lumber-wood.com)

Since 1971, the Flameproof Companies has manufactured fire-retardant and preservative-treated lumber and plywood. The company, which started as a small treatment facility in Chicago, has divisions in Milwaukee, Wisconsin; Fort Worth, Texas; and southern Ohio. In addition to manufacturing treated wood products, the company distributes Versaroc, Homasote, I-joist, and metal studs, among other products. Flameproof Companies offers a full line of D-BLAZE fire retardant lumber and plywood as well as manufactures Exterior Fire Treated lumber and plywood.

**Great Southern Wood Preserving, Inc. (closely held)**

[www.yellawood.com](http://www.yellawood.com)

Great Southern Wood Preserving of Abbeville, Alabama, markets YellaWood® brand wood products. These wood products are pressure treated and are expected to be long lasting and durable without an unpleasant odor. Outdoor exposure testing and commercial use worldwide has established the effectiveness of the preservative technology against termites and fungal decay. YellaWood® brand products are available in Southern Yellow pine and South American pine species and are available for above ground, above ground general use, ground contact, and fresh water immersion applications. YellaWood® brand products are also available with built-in water repellents for extra protection from the elements.

**Hoover Treated Wood Products, Inc. (closely held)**

[www.frtw.com](http://www.frtw.com)

Hoover Treated Wood Products of Thomson, Georgia, supplies a portfolio of pressure-impregnated kiln-dried lumber and plywood products for fire retardant and preservative applications. Hoover has five company-owned treating facilities servicing a 100-member stocking distributor network, which covers the U.S. and Canada. The company has been in business since 1955. Its Pyro-Guard® and Exterior Fire-X® lumber and plywood are produced for interior and weather-exposed applications, respectively, and have a flame spread rating of 25 or less, even after 30 minutes of test time. As well, each is recognized for applications where noncombustible materials are required in buildings. Examples are nonbearing partitions, nonbearing exterior walls, roof assemblies, platforms, canopies, exterior architectural trim and veneers, exterior balconies, exterior-bearing walls in joisted-masonry and heavy timber construction, and increasingly for decks in wildfire prone areas. Hoover is also prominent in the preservative-treated wood market with Dura-Guard®, CCA, and COP-8 products. In particular, Dura-Guard® can be used in all building construction applications, including above-ground, in-ground, and fresh water, and meets U.S. Environmental Protection Agency (EPA) regulations. The company also markets Plywall®, believed to be among the only pre-engineered, ASTM-tested, preservative-treated wood noise barrier systems on the market.

**International Barrier Technology, Inc. (IBTGF-OTC.BB; IBH-TSX.V)**

[www.intlbarrier.com](http://www.intlbarrier.com)

International Barrier Technology (“Barrier”) develops, manufactures, and markets proprietary fire-resistant building materials using a patented formulation of Pyrotite®, a highly hydrated magnesium oxychloride cement. The company’s fire-resistant wood panels use proprietary, non-toxic, noncombustible features as a coating with the capability to release water in the heat of fire. It serves to effectively cool the heat of fire and slow its spread. Barrier’s panels are designed to exceed model building code requirements in every targeted fire test and application, and combine properties that increase panel strength and minimize environmental and human impact. Barrier’s family of products provides a choice of material for both residential and commercial building construction. The company has an exclusive supply agreement with LP Building Products (profiled below) that is branded as LP® FlameBlock® Fire-Rated OSB Sheathing, and with Mule-Hide Products Co., which is branded as MuleHide FR Deck Panel. Pyrotite® is potentially applicable to EWP, paint, plastics, and expanded polystyrene. The company first acquired rights to the Pyrotite® technology in 1986 and currently owns and operates a manufacturing plant in Watkins, Minnesota. Barrier has over 15 years of sales history.

**Louisiana-Pacific Corporation (LPX-NYSE)**

[www.lpcorp.com](http://www.lpcorp.com)

Louisiana-Pacific (“LP”) is a manufacturer of wood building materials, including OSB, structural framing products, and exterior siding for use in residential, industrial, and light commercial construction. With manufacturing facilities in the U.S., Canada, Chile, and Brazil, LP products are sold through building materials distributors, dealers, and retail home centers. The company’s LP® FlameBlock® Fire-Rated OSB Sheathing is anticipated to offer structural strength and burn-through fire resistance. Created by applying Barrier’s Pyrotite® coating to LP® OSB panels, LP® FlameBlock® Sheathing is an ICC certified (ESR-1365), structural fire-rated sheathing with a Class A flame spread rating. It provides extended burn-through resistance, delivering a 20-minute thermal barrier (ASTM E119). LP was founded in 1973 and has headquarters in Nashville, Tennessee.

**Osmose Holdings, Inc. (closely held)**

[www.osmose.com](http://www.osmose.com)

Osmose of Buffalo, New York, is a researcher/developer of new products and services for wood preservation as well as utility and railroad asset management. The company has a network of suppliers and customers throughout the U.S. and in more than 70 countries. Since 1934, the company has developed and diversified into specialized areas of wood preservation. Its technologies include a FirePRO® fire retardant treated wood and MicroPro®, which was the first treated wood to be **Environmentally Preferable Purchasing (EPP) certified** by Scientific Certification Systems, an independent certification and verification company. As well, Osmose offers a complete line of pressure-treated lumber products. The company’s MicroPro® technology pressure treats wood for decks, fences, landscaping, and general construction. This pressure-treated wood is treated with micronized copper preservatives, which help protect against termite damage and fungal decay.

The NatureWood® lumber preservative is a waterborne, alkaline copper quaternary (ACQ) preservative system developed to provide long-term protection of wood exposed in exterior applications. It is based on the established effectiveness of copper combined with an organic quaternary compound and is applied to wood by pressure treatment. NatureWood® wood products are available for above ground, ground contact, and fresh water contact applications for projects such as decks, fences, and landscaping. The company also markets Advance Guard® Borate Pressure Treated Wood Products, which can provide long lasting, built-in protection against termites, including Formosan termites, fungal decay, and many other wood-destroying organisms. An additional benefit is that walls built with borate pressure-treated wood have shown to limit the populations of cockroaches and ants that may live in the wall systems. The company’s FirePRO® brand of fire retardant treated wood is lumber and plywood pressure impregnated with FirePRO® Interior Type A High Temperature (HT) fire retardant chemicals. While FirePRO® chemistry contains no phosphates, independent testing performed in accordance with industry standards has shown this technology to exhibit favorable fire performance properties without compromising other critical engineering properties such as strength, durability, corrosivity, and **hygroscopicity**.



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**TimberSIL® Products (closely held)**

[www.timbersilwood.com](http://www.timbersilwood.com)

TimberSIL® of Greenville, South Carolina, combines wood and glass to improve upon wood properties. TimberSIL® Glass Wood is applicable to siding, roofing, structural framing, decking, tongue and groove flooring, windows, and shingles, among other uses. As well, TimberSIL®, which is non-toxic and non-corrosive to fasteners, is believed to be a stronger wood product than composite products, due to the glass component, which serves to increase strength by paralleling the wood grain. TimberSIL® products are also thought to maintain shape better as the glass is resistant to warping. TimberSIL® products are Class A fire retardants as a result of glass's natural resistance to fire, which the company employs to overcome the combustible properties of wood. This product offering is also designed to protect wood fibers from rot, decay, and other common wood problems.

**Universal Forest Products, Inc. (UFPI-NASDAQ)**

[www.ufpi.com](http://www.ufpi.com)

Universal Forest Products is a holding company that provides capital, management, and administrative resources to subsidiaries that design, manufacture, and market wood and wood-alternative products for do-it-yourself (DIY)/retail home centers and other retailers, structural lumber products for the manufactured housing industry, EWP's for the site-built construction market, and specialty wood packaging and components for various industries. The company's consumer products subsidiary offers a large portfolio of outdoor living products, including wood composite decking, decorative balusters, post caps, and plastic lattice to retailers nationwide. Universal's subsidiaries also provide framing services for the site-built market and forming products for concrete construction. The 54-year-old company is headquartered in Grand Rapids, Michigan, with approximately 7,500 employees who work in roughly 80 facilities across North America.

## Historical Financial Results

Tables 7, 8, and 9 summarize Eco Building's recent historical financial results—its condensed consolidated Statements of Operations, Balance Sheets, and Statements of Cash Flows.

Table 7  
Eco Building Products, Inc.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS (Unaudited)

	3-month ended December 31 2011	3-month ended December 31 2010	6-month ended December 31 2011	6-month ended December 31 2010
<b>TOTAL REVENUE</b>	\$ 996,845	\$ 368,482	\$ 1,687,524	\$ 725,599
<b>COST OF SALES</b>	907,371	309,707	1,530,975	636,624
<b>GROSS PROFIT</b>	89,474	58,775	156,549	88,975
<b>OPERATING EXPENSES</b>				
Research and development	37,585	35,193	56,206	44,964
Marketing	44,079	9,455	74,032	11,435
Goodwill/Donation	13,730	—	13,730	—
Compensation and related expenses	649,145	197,787	1,255,599	351,372
Rent - facilities	96,037	91,434	174,992	233,890
Professional fees	226,784	164,758	519,974	311,482
Consulting	32,461	21,910	111,017	51,611
Other general and administrative expenses	619,840	885,277	953,636	970,905
<b>Total operating expenses</b>	1,719,661	1,405,814	3,159,186	1,975,659
<b>LOSS FROM OPERATIONS</b>	(1,630,187)	(1,347,039)	(3,002,637)	(1,886,684)
<b>OTHER INCOME (EXPENSE)</b>				
Interest income	16,834	—	20,199	—
Interest expense	(38,810)	(174,043)	(258,974)	(914,368)
Gain (loss) on settlement of lease	—	160	—	12,706
Gain (loss) on settlement of debt	—	(44,516)	(75,000)	(421,600)
Loss on modification of debt	(75,000)	(44,516)	(75,000)	(421,600)
Change in fair value of derivative liability	—	(638,231)	—	155,463
<b>Total other income (expense)</b>	(96,976)	(856,630)	(313,775)	(1,167,799)
<b>LOSS BEFORE PROVISION FOR INCOME</b>				
<b>TAXES</b>	(1,727,162)	(2,203,669)	(3,316,411)	(3,054,483)
<b>NET LOSS</b>	\$ (1,727,162)	\$ (2,203,669)	\$ (3,316,411)	\$ (3,054,483)
<b>NET LOSS PER COMMON SHARE - BASIC</b>	(0.01)	(0.03)	(0.02)	(0.04)
<b>WEIGHTED AVERAGE NUMBER OF COMMON SHARES OUTSTANDING</b>	178,432,839	85,938,406	179,068,887	81,113,370

Source: Eco Building Products, Inc.



Table 8  
Eco Building Products, Inc.  
CONDENSED CONSOLIDATED BALANCE SHEETS (Unaudited)

	<b>December 31 2011</b>	<b>June 30 2011</b>
<b>ASSETS</b>		
<b>CURRENT ASSETS</b>		
Cash	\$ 72,799	\$ 81,648
Accounts receivable, net of allowance for doubtful accounts of \$0 at December 31, 2011, and June 30, 2011	868,821	369,840
Inventories	2,260,161	1,542,378
Prepaid loan facility fee - related party, current portion	1,008,383	
Prepaid expenses	50,243	85,967
Deposits	—	
Other current assets	10,619	
<b>Total current assets</b>	4,271,026	2,079,833
<b>PROPERTY AND EQUIPMENT, net</b>	912,436	743,523
<b>OTHER ASSETS</b>		
Accounts receivable - long-term portion	—	81,648
Other assets	25,000	—
Deposit - Long Term	12,797	
Prepaid loan facility fee - related party	1,583,052	—
Equipment deposits - related party	218,784	188,447
<b>Total other assets</b>	1,839,633	270,095
<b>TOTAL ASSETS</b>	\$ 7,023,095	\$ 3,093,451
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
<b>CURRENT LIABILITIES</b>		
Accounts payable	\$ 419,840	\$ 440,471
Payroll and taxes payable	1,108,484	728,751
Advances from related party	—	63,163
Other payables and accrued expenses	60,546	58,484
Deferred revenue	—	20,500
Current maturities of Notes payable	5,918	—
Line of credit payable - related party	1,666,667	1,029,111
Loans payable - related party	31,275	174,217
Loans payable - other	44,500	44,500
<b>Total current liabilities</b>	3,337,231	2,559,197
<b>LONG-TERM LIABILITIES</b>		
Line of credit payable - related party	3,333,333	—
Notes payable, less current maturities	20,351	—
<b>Total long-term liabilities</b>	3,353,684	—
<b>TOTAL LIABILITIES</b>	6,690,915	2,559,197

Source: Eco Building Products, Inc.

Table 8 (cont.)  
 Eco Building Products, Inc.  
 CONDENSED CONSOLIDATED BALANCE SHEETS (Unaudited)

	<b>December 30 2011</b>	<b>June 30 2011</b>
<b>STOCKHOLDERS' EQUITY</b>		
Common Stock, \$0.001 par value, 500,000,000 shares authorized, 179,786,100 shares issued and outstanding at December 31, 2011, and September 30, 2011	179,786	178,286
Additional paid-in capital	13,734,973	10,622,135
Accumulated deficit	(13,582,578)	(10,266,167)
<b>Total stockholders' equity</b>	332,181	534,254
<b>TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY</b>	<u>\$ 7,023,095</u>	<u>\$ 3,093,451</u>

*Source: Eco Building Products, Inc.*



Table 9  
**Eco Building Products, Inc.**  
**CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS (Unaudited)**

	<b>Six Months Ended December 31,</b>	
	<b>2011</b>	<b>2010</b>
<b>Cash flows from operating activities</b>		
Net Loss	\$ (3,316,411)	\$ (3,054,483)
Adjustments to reconcile net income to net cash used by operating activities:		
Loss on modification of debt by issuance of Common Stock	75,000	421,600
(Gain) loss on settlement of debt	—	(12,706)
Interest on amortization of debt discount		887,282
Amortization of loan fees	982,934	118,969
Interest on repricing of Warrant		140,981
Change in fair value of derivative liability		(155,463)
Common Stock issuance for services		98,927
Common Stock issuance for payment of rent and lease settlement		80,000
Depreciation expense	75,463	36,396
Bad debt expense		13,000
Changes in operating assets and liabilities:		
(Increase) in accounts receivable	(417,333)	(56,057)
(Increase) in other receivable		(5,224)
(Increase) in inventory	(717,783)	(444,084)
(Increase) in prepaid expenses & other current assets	25,105	(9,497)
Decrease (Increase) in deposits		45,155
Increase in accounts payable	(20,631)	105,511
Increase in rent payable		—
Increase in other payable and accrued expenses	337,178	214,443
Increase in deferred rent expense		
Increase in accrued interest added to principle	24,118	173,573
<b>Net cash used by operating activities</b>	<b>(2,952,360)</b>	<b>(1,401,677)</b>
<b>Cash flows from investing activities</b>		
Purchase of property and equipment	(244,376)	(6,234)
Purchase of software licenses	(25,000)	
Payments for equipment deposits - related party	(43,134)	
Payments for prepaid trademark costs		(1,110)
<b>Net cash provided (used) by investing activities</b>	<b>(312,510)</b>	<b>(7,344)</b>
<b>Cash flows from financing activities</b>		
Proceeds from related party line of credit advances	5,000,000	
Proceeds from debt issuance		770,500
Proceeds from related party advances and Notes	26,270	884,974
Repayments of debt issuances	—	(336,922)
Repayments of related party advances and Notes	(1,770,246)	(283,924)
<b>Net cash provided by financing activities</b>	<b>3,256,024</b>	<b>1,034,628</b>
<b>Net change in cash and cash equivalent</b>	<b>(8,849)</b>	<b>(374,393)</b>
<b>Cash and cash equivalent at the beginning of year</b>	<b>81,648</b>	<b>385,534</b>
<b>Cash and cash equivalent at the end of year</b>	<b>\$ 72,799</b>	<b>\$ 11,141</b>

Source: Eco Building Products, Inc.

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Table 9 (cont.)  
 Eco Building Products, Inc.  
 CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS (Unaudited)

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**Supplemental disclosures of cash flow Information:**

Cash Paid for Interest	<u>\$ 46,000</u>	<u>\$ —</u>
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**Supplemental disclosure of non-cash investing and financing activities:**

Forgiven Note Payable in connection with the transfer of Common Stock	<u>\$ —</u>	<u>\$ 72,791</u>
Issuance of Warrant in connection with the loan fee of line of credit	<u>\$ 3,025,148</u>	<u>\$ —</u>

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*Source: Eco Building Products, Inc.*

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## Risks

Some of the information presented in this document relates to future events or future business and financial performance. Such statements can only be predictions and the actual events or results may differ from those discussed due to the risks described in Eco Building's statements on Forms 10-K, 10-Q, and 8-K, as well as other forms filed from time to time. The content of this report with respect to Eco Building has been compiled primarily from information available to the public released by the Company through news releases, Annual Reports, and U.S. Securities and Exchange Commission (SEC) filings. Eco Building is solely responsible for the accuracy of this information. Information as to other companies has been prepared from publicly available information and has not been independently verified by the Company. Certain summaries of activities have been condensed to aid the reader in gaining a general understanding. For more complete information about Eco Building, please refer to the Company's website at <http://ecob.net>.

Investors should carefully consider the information about Eco Building described below and in the Company's publicly released filings. Investors should not interpret the order in which these considerations are presented as an indication of relative importance. The risks and uncertainties described below are not the only risks the Company faces. Additional risks and uncertainties not presently known to Eco Building or that the Company currently believes to be immaterial may also adversely affect its business. If any of the following risks and uncertainties develops into actual events, the business, financial condition, and results of operations could be materially and adversely affected, and the trading price of the Company's shares could decline.

### RISKS RELATED TO ECO BUILDING'S BUSINESS

**The Company will require additional funds through the sale of equity instruments or issuing debt, which requires favorable market conditions and interest in its activities by investors. Eco Building may not be able to sell its securities and funding may not be available for continued operations.**

Through December 2010, the Company was deemed to be in the development stage, as defined in Accounting Codification Standard (ACS) topic 915 Development Stage Entities. From inception through December 31, 2010, Eco Building had recorded revenues totaling \$950,098. During the three-month period ended March 31, 2011, management determined that the Company exited the development stage. Thus, Eco Building is no longer required to report its stock issuances from inception, nor include inception-to-date information in its statements of operations and cash flows. Eco Building presently generates minimal operating revenues and its viability is dependent upon its ability to obtain future financing and the success of its future operations. These factors raise substantial doubt about the Company's ability to continue as a going concern.

Eco Building plans to fund operations by raising capital from the sale of equity instruments or issuing debt. No assurances can be made that current or anticipated future sources of funds will enable the Company to finance future operations. Moreover, Eco Building's ability to access capital will depend, in part, on the status of the capital markets at the time such capital is sought. Should sufficient capital not be available, the implementation of the Company's business plan could be delayed and, accordingly, the implementation of its business strategy would be adversely affected. If Eco Building is unable to raise additional funds in the future, it may have to cease all substantive operations. In such event, it would not be likely that investors would obtain a profitable return or a return at all on their investment.

**Eco Building's business is difficult to evaluate because the Company has a limited operating history and may continue to incur operating losses.**

The development of Eco Building's business requires substantial capital expenditures. The Company has not yet generated sufficient revenue from operations and, accordingly, has incurred net losses since inception. As of December 31, 2011, the Company had cash on hand of \$72,799 and \$5,000,000 of capital available to it under a revolving line of credit with Manhattan Resources Ltd, of which the entire \$5,000,000 was borrowed during October and December 2011. Since the Company borrowed the entire \$5,000,000 line of credit during the three months ended December 31, 2011, no further available credit existed under this agreement during this period.

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Eco Building has completed a significant financing through the sale of its common equity. The Company has reported that this financing of \$5,000,000 was sufficient to satisfy short-term cash requirements. Since inception, Eco Building has predominantly financed cash flow requirements through the issuance of Common Stock for cash. The Company currently has a pending credit facility for an additional \$5,000,000, which may become available upon final approvals by the issuing entity.

Eco Building may continue to incur operating losses over the next 12 months and beyond. The Company's operating history makes predictions of future operating results difficult to ascertain. Its prospects must be considered in light of the risks, expenses, and difficulties frequently encountered by companies in similar stages of development. Such risks include, but are not limited to, an evolving and unpredictable business model and the management of growth.

The Company's independent registered public accounting firm's opinion on its 2011 financial statements includes an explanatory paragraph indicating substantial doubt about the Company's ability to continue as a going concern. To date, the Company has generated: minimal operating revenues, losses from operations, significant cash used in operating activities, and its viability is dependent upon its ability to obtain future financing and the success of its future operations. To address these risks the Company must, among other things, obtain a customer base, implement and successfully execute a business and marketing strategy, continue to develop and upgrade its technology and products, respond to competitive developments, and attract, retain, and motivate qualified personnel. There can be no assurance that Eco Building will be successful in addressing such risks, and the failure to do so can have a material adverse effect on business prospects, financial condition, and results of operations.

**There can be no assurance that Eco Building will achieve future revenue levels and operating efficiencies to support existing operations, generate positive cash flow from operations, or recover investment in property, plant, and equipment.**

There are a number of factors that may affect Eco Building's future results, including, but not limited to, the Company's ability to obtain additional funding for operations; the continued availability of management to develop the business plan; and the successful development and market acceptance of Eco Building's products.

The success of the Company's operations is largely dependent upon its ability to establish and improve operating efficiencies and overall production capacity, generate substantial sales revenues, and generate adequate cash flows. In addition, Eco Building has in the past and may again in the future encounter unanticipated problems, including manufacturing, distribution, and marketing difficulties, some of which may be beyond the Company's financial and technical abilities to resolve. The failure to adequately address such difficulties could have a material adverse effect on Eco Building's prospects. Thus, there can be no assurance that Eco Building's business or products will be successful, that it will be able to achieve or maintain profitable operations, or that it will not encounter unforeseen difficulties that may deplete the Company's capital resources more rapidly than anticipated.

**The Company may have risks related to legal proceedings as Eco Building may be named in claims arising in the ordinary course of business.**

Eco Building was involved in a proceeding in Colorado for Express Employment vs. N8 Concepts, Inc. (the predecessor to Eco Building Products, Inc.). This is related to alleged temporary labor provided that was not paid. N8/Eco Building has no contract with Express Employment and the complaint claims breach of contract damages. The Company settled this action in May 2011 with a payment to the plaintiff for \$30,433. This amount has been accrued in the financial statements at March 31, 2011, in other payables and accrued expenses.

On August 23, 2010, the Company filed a legal action in The Superior Court San Diego, County of San Diego, Case # 37-2010-00058482-CU-MC-NC, against Bluwood USA, Inc., for failure of perform pursuant to the Purchase, Distribution, and Services Agreement in the delivery of chemical product and protection of sales territory. A variety of defendants have been added to the case and a variety of claims apply. The case is presently in the discovery phase. The Company is making numerous claims and the defendants are countering with others centering on a variety of legal claims like breach of contract, fraud, lack of performance, and others. This case has been sent to arbitration and a portion of the case has been

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stayed in court. The Company is seeking relief in the amount of approximately \$20,000,000 and other relief. The arbitration panel has been selected and approved.

**The Company is required to devote management's time to ensuring the effectiveness of its disclosure controls and procedures.**

The Company carried out an evaluation of the effectiveness of the design and operation of its disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) as of March 31, 2011. This evaluation was carried out under the supervision and with the participation of Eco Building's principal executive officer and principal financial officer. Based upon that evaluation, the principal executive officer and principal financial officer concluded that, as of March 31, 2011, the Company's disclosure controls and procedures were effective. Eco Building made the determination that its disclosure controls and procedures were effective and that, due to the small scale of its operations, when operational activities expand, it will be necessary to add additional controls and procedures to ensure effectiveness.

Disclosure controls and procedures are designed to ensure that information required to be disclosed in the Company's reports filed or submitted under the Exchange Act are recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls, and procedures designed to ensure that information required to be disclosed in Eco Building's reports filed under the Exchange Act is accumulated and communicated to management, including the principal executive officer and principal financial officer, to allow timely decisions regarding required disclosure. A control system, no matter how well conceived or operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

**The absence of various corporate governance measures may reduce shareholders' protections from interested director transactions, conflicts of interest, and similar matters.**

Current federal securities regulations, including the Sarbanes-Oxley Act of 2002, have resulted in the adoption of various corporate governance measures designed to promote the integrity of the corporate management and securities markets. Among the corporate governance measures that are generally considered good practice are policies that address Board of Directors' independence, Audit Committee oversight, and the adoption of a Code of Ethics. While Eco Building intends to adopt certain corporate governance measures, the Company presently does not have any independent directors, and Mr. Conboy serves as Eco Building's sole Director.

**The Company's management and larger stockholders exercise significant control over Eco Building and may approve or take actions that may be adverse to investors' interests.**

The Company's named executive officers, directors, and major stockholders beneficially own the majority of its voting power. For the foreseeable future, these stockholders will be able to exercise control over many matters requiring approval by the Board of Directors or Eco Building's stockholders. As a result, they will be able to engage in the following:

- control the composition of the Company's Board of Directors;
- control Eco Building's management and policies;
- determine the outcome of significant corporate transactions, including changes in control that may be beneficial to stockholders; and
- act in each of their own interests, which may conflict with, or be different from, the interests of each other or the interests of the other stockholders.

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**The Company relies on trade secret laws and agreements with its key employees and other third parties to protect its proprietary rights, and these laws or agreements may not be adequate.**

Eco Building has acquired license rights for its treatment of wood, and may acquire or develop other products and processes that it believes may be patentable. The Company's success depends upon its ability to protect its proprietary formulations and license rights. Eco Building relies on a combination of trademark and trade secret laws, nondisclosure, and other contractual agreements with employees and third parties to protect its proprietary formulations and trademarks. The steps the Company takes to protect its proprietary rights may not be adequate to protect misappropriation of such rights, and third parties may independently develop equivalent or superior formulations in spite of Eco Building's efforts. As well, existing trade secret and copyright laws provide only limited protection.

Eco Building may be subject to or may initiate interference proceedings in the U.S. Patent and Trademark Office, which can demand significant financial and management resources. Although the Company believes that its products and formulations do not infringe upon the proprietary rights of others, it is possible that third parties will assert infringement claims against Eco Building in the future. Litigation, which could result in substantial costs and could divert the Company's efforts, may be necessary to enforce Eco Building's intellectual property rights or to defend the Company against claimed infringement of the rights of others. The failure to obtain necessary licenses or other rights or litigation arising out of infringement claims could have a material adverse effect on Eco Building's operations. However, the Company can give no assurance that confidentiality agreements will be enforced or that competitors will not independently develop similar formulas or processes.

**If Eco Building cannot successfully compete with existing wood producing companies, which may have greater resources, the Company's business will not survive.**

The wood production industry is highly competitive. Many manufacturers, distributors, and marketers of wood products have substantially greater management, financial, research and development, marketing, and manufacturing resources than Eco Building. The Company faces competition in all of its markets from large, national companies and smaller, regional companies, as well as from individuals. Many of Eco Building competitors are larger and have greater financial resources. The Company, from time to time, will experience price pressure in certain of its markets as a result of competitors' promotional pricing practices. Competition is based on product quality, functionality, price, brand loyalty, effective promotional activities, and the ability to identify and satisfy emerging preferences.

**Attempts to grow the business could have an adverse effect on operations.**

Because of Eco Building's small size, the Company desires to grow in order to achieve certain economies of scale. To the extent that rapid growth does occur, it could place a significant strain on Eco Building's financial, technical, operational, and administrative resources. Planned growth will result in increased responsibility for both existing and new management personnel. Effective growth management will depend upon Eco Building's ability to integrate new personnel; improve its operational, management, and financial systems and controls; train, motivate, and manage employees; and increase its sources of inventory and product manufacturing. If the Company is unable to manage growth effectively, its business, results of operations, and financial condition may be materially and adversely affected. In addition, it is possible that no growth will occur or that growth will not produce profits. Eco Building's success will, in part, be dependent upon its ability to manage growth effectively. As well, continued growth depends on retaining current key employees, and Eco Building may not be able to do so. For example, the loss of the services of Mr. Steve Conboy, president and CEO (biography on page 45), or other members of Eco Building's senior leadership may significantly delay or prevent the achievement of product development and other business objectives, and it is possible that the Company would not be able to replace them adequately.



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**The chemical coating for wood that Eco Building has developed may expose the Company to potential liability from personal injury or property damage claims by end users of its products.**

There is no assurance that Eco Building's product liability insurance will be adequate to protect it against the risk that in the future a product liability claim or product recall could materially and adversely affect its business. Inability to obtain and maintain sufficient insurance coverage at an acceptable cost or otherwise to protect against potential product liability claims could prevent or inhibit the commercialization of the Company's products. Moreover, even if Eco Building maintains adequate insurance, any successful claim could materially and adversely affect its reputation and prospects, and divert management's time and attention. If Eco Building is sued for any injury allegedly caused by its future products, the Company's liability could exceed its total assets and its ability to pay the liability.

**RISKS RELATED TO ECO BUILDING'S COMMON STOCK**

**The Company's Common Stock is classified as penny stock, and it continues to be illiquid, so investors may not be able to sell as much stock as they want at prevailing market prices.**

Eco Building's Common Stock is currently classified as a penny stock. Penny stocks typically include equity securities with a price of less than \$4.00 that trade on the Over-the-Counter market. As a result, an investor may find it more difficult to dispose of or obtain accurate quotations as to the price of the securities that are classified as penny stocks. The penny stock rules adopted by the Commission under the Exchange Act subject the sale of the shares of penny stock issuers to regulations that impose sales practice requirements on broker-dealers, causing many broker-dealers to not trade penny stocks or to only offer the stocks to sophisticated investors that meet specified net worth or net income criteria identified by the Commission. These regulations contribute to the lack of liquidity of penny stocks. As well, the Financial Industry Regulatory Authority (FINRA) has sales practice requirements that may limit stockholders' ability to buy and sell Eco Building's Stock. Prior to recommending speculative, low-priced securities to their non-institutional customers, broker-dealers must make reasonable efforts to obtain information about the customer's financial status, tax status, investment objectives, and other information.

**Eco Building has not and does not anticipate paying dividends in the foreseeable future.**

The Company has not paid any cash dividends to date with respect to its Common Stock. Eco Building does not anticipate paying dividends on its Common Stock in the foreseeable future since the Company will use all of its earnings, if any, to finance the development of its operations.

**Eco Building may engage in transactions involving the use of leverage, which may expose it to significant risks.**

The Company anticipates that it may incur substantial borrowings for the purpose of purchasing inventory and equipment, and for financing its expansion and growth. Any amounts borrowed will depend, among other things, on the condition of financial markets. The purchase of equipment and inventory, and the expansion of Eco Building's business on a leveraged basis, generally can be expected to be profitable only if they generate, at a minimum, sufficient cash revenues to pay interest on, and to amortize, the related debt, to cover operating expenses, and to recover the equity investment. The use of leverage, under certain circumstances, may provide a higher return to shareholders but will cause the risk of loss to shareholders to be greater than if Eco Building did not borrow, because fixed payment obligations must be met on certain specified dates regardless of the amount of revenues derived by the Company's operations. If debt service payments are not made when due, Eco Building may sustain the loss of its equity investment in the assets securing the debt as a result of foreclosure by the secured lender. Interest payable on the Company's borrowings, if any, may vary with the movement of the interest rates charged by banks to their prime commercial customers. Any increase in borrowing costs due to a rise in the prime or base rates may reduce the amount of Eco Building's net income and available cash.

## Recent Events and Milestones

**04/27/2012**—Eco Building Products, Inc. was awarded an order to supply lumber protected with Eco Red Shield™ to build a 7,100 square foot custom home in Alpine, Utah.

**04/26/2012**—Announced that the Company was awarded an additional production release to supply lumber and trusses coated with Eco Red Shield™ for six more homes in the next phase of houses at Brookfield Homes “Green Door” project in Ontario, California.

**04/19/2012**—Announced that Eco Building committed to run a full-page advertisement campaign in the Spring/Summer 2012 edition *American Life: Green Living* magazine, which is nationally distributed and sponsored by *USA TODAY*.

**04/09/2012**—Announced that the Company received a commitment for the use of Eco Red Shield™ lumber to remediate a 340-unit condominium complex called Quail Ridge in Oceanside, California, including replacing handrails, stairways, structural beams, and fascia with termite, wood rot, and mold issues.

**04/03/2012**—Announced that Eco Building shipped WoodSurfaceFilm™ Concentrate to the National Industrial Lumber Company (NILCO), a wholesale industrial lumber company that has 10 locations across four states. NILCO is using Eco Blue Shield™ technology to offer its customers wood protection from mold, wood-rot decay, and wood ingesting insects.

**03/26/2012**—Announced that Eco Red Shield™ coatings achieved GREENGUARD Children & Schools Certification (overviewed on page 22).

**03/16/2012**—Announced that the Company was awarded an additional production release representing over \$350,000 in additional contract orders to supply Eco Red Shield™ lumber, labor, and trusses for a Heritage Building and Development project in the Otay Mesa community in Chula Vista, California.

**03/01/2012**—Announced that Eco Building signed a binding agreement to supply Eco Red Shield™ lumber, trusses, hardware, and supervision to build a Men’s Residence at Rivers Edge Ranch in Lucerne Valley, California.

**02/28/2012**—Announced that the Company secured an additional release for lumber, labor, trusses, and engineered wood products (EWPs) coated with Eco Red Shield™ on its current contract to build 37 triplexes representing 111 units for Cornerstone Communities “Veranza II” project located in “The Summit at Eastlake” in Chula Vista. Eco Building received the second release of the contract to build nine units for over \$132,000 in gross revenues.

**02/23/2012**—Announced that Eco Building was awarded an additional production release to supply Eco Red Shield™ lumber, labor, and trusses for Heritage Building and Development projects in Otay Mesa, representing over \$304,000 in gross revenues.

**02/22/2012**—Announced that the Company shipped a tote of WoodSurfaceFilm™ Concentrate to Northern Crossarm Company, a wood treatment company.

**02/07/2011**—Released a letter to its shareholders, which is available on the Company’s website at [http://ecob.net/\\_cms/userfiles/0207120918ECOB%20%20LetterToShareholdersFinal.pdf](http://ecob.net/_cms/userfiles/0207120918ECOB%20%20LetterToShareholdersFinal.pdf).

**01/31/2012**—Announced that Eco Building initiated the delivery of Eco Red Shield™ lumber to homeowners building a custom home in Litchfield County, Connecticut.



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**12/01/2011**—Announced that it received an order from TWR Framing to supply lumber, floor, and roof trusses for Requeza Ridge, a nine-home community located in Encinitas, California, that is being developed by Fieldstone Homes. These homes range from 1,747 to 2,199 square feet. Fieldstone Homes is committed to building greener homes, which incorporates Eco Red Shield™ protection against mold, wood rot, and termites, and has a value-added fire inhibitor.

**11/23/2011**—Announced that it received an order from the Northern Arizona Volunteer Medical Team to build a school structure in Port au Prince, Haiti. The company is planning to ship building components for this order coupled with the current order from "Healing the Children" to construct a medical clinic also destined for Port au Prince, Haiti.

**11/10/2011**—Announced that it delivered the first five homes of dimensional lumber coated with Eco Blue Shield™ protection to a subdivision involved in the Hurricane Katrina rebuilding located in the 9<sup>th</sup> Ward district of New Orleans, Louisiana.

**11/04/2011**—The *Orange County Register* reported that red frames were adding colorful protection to new homes in Dana Point, California. Six houses being built in city's Cove neighborhood contain lumber treated with Eco Building's coating designed to inhibit fire, mold, wood rot, and termites.

**11/02/2011**—Announced that the Company signed a five-year lease to set up a large coating facility in Salem, Oregon.

**10/25/2011**—Announced that orders from custom home builders had increased in the Southern California market.

**10/18/2011**—Announced that the Company was awarded another production release on its contract to supply lumber and trusses coated with Eco Red Shield™ for the next phase of houses at the Brookfield Homes project in Ontario, California. E Build & Truss, Inc., a wholly owned subsidiary of Eco Building, was awarded the framing contract for the entire 88-home community.

**10/13/2011**—Announced that the Company secured an order for coating service only from Pro Build in Plant City, Florida.

**10/05/2011**—Announced that the Company secured an order for lumber, labor, trusses, and EWPs coated with Eco Red Shield™ to build 37 triplexes, representing 111 units for Cornerstone Communities' "Veranza II" project located in Chula Vista, California.

**09/27/2011**—Announced that the Company received an order for Eco Red Shield™ concentrates for immediate shipment to Hana Corporation of South Korea.

**09/26/2011**—Announced that Eco Building's long-standing relationship with Vector Structural Engineering is ready to support nationwide positioning of the Company's products with structural engineering support.

**09/07/2011**—Announced that it received an order to supply coated lumber and EWPs for a 10,000-square foot custom home project totaling over \$134,000 in gross sales.

**08/22/2011**—Announced that the Company executed a Memorandum of Understanding (MOU) with Dr. Dorothy M. Leveque to represent Eco Building's products in Ghana, Tanzania, and South Africa. Under the agreement, Dr. Dorothy M. Leveque, a member of the Board of Directors, president, and chief executive officer (CEO) of Pathways/Africa (a nonprofit organization), is expected to provide a satellite office location to establish relationships in Africa and provide local housing at competitive pricing. In addition, Dr. Leveque is expected to assist with local intelligence gathering for suitable building designs and local requirements. All proceeds earned under the terms of this relationship will be donated to Pathways/Africa.

**08/10/2011**—Announced that the Company secured an order for lumber, trusses, and EWPs coated with Eco Red Shield™ to build a four-story multifamily project in San Diego, California. This project was to begin shipping during fall 2011 and represents an estimated total sale of over \$650,000.

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**08/08/2011**—Announced a partnership with GC Green Inc., a contracting and consulting company focused on green building and green training and outreach. GC Green is expected to host seminars in the new humanitarian coffee shop located on the first floor of the Eco Building's headquarters.

**08/08/2011**—Announced that the Company commenced unloading containers with Eco Red Shield™ lumber in its ECO NO-BOIS ("Eco Wood") wholesale lumber distribution facility in Port Au Prince, Haiti. The entire lumber package was purchased by local Haitian building supply companies.

**08/03/2011**—Announced that it received four additional orders to supply lumber, truss, and EWP packages to several custom home projects totaling over \$160,000 in gross revenues.

**07/26/2011**—Received a Letter of Intent (LOI) offered by Fieldstone Partners California, LLC to build a newly designed neighborhood, The Cove, in Dana Point, California. As part of the LOI, Eco Building may redesign the existing plans to incorporate Smart Components®, which are prefabricated and engineered wall components designed to withstand seismic movement in wood-framed buildings. Additionally, the Company may exclusively supply all wood framing and trusses with Eco Red Shield™ protection.

**07/20/2011**—Announced that it entered into agreements with Trussed, Inc. to produce patented Smart Components® exclusively with Eco Red Shield™ protection in Southern California.

**07/06/2011**—Announced that the Company received an order to supply all framing wood components coated with Eco Red Shield™ protection to build a custom, 15,000 square foot home and **outbuilding** in Litchfield County, Connecticut. The home employs many eco-friendly elements. As well, Eco Building announced that it established a coating facility with Interstate + Lakeland Lumber Corp., a lumber company based in the tri-state New York metropolitan area, to support sales and inventory in Connecticut.

**06/30/2011**—Announced that it was awarded a contract to supply Eco Red Shield™ coated lumber and trusses for 88 homes being built in Ontario, California.

**06/28/2011**—Announced that it formed a wholly owned subsidiary company, E Build & Truss, Inc., in Oceanside, California. E Build & Truss has full production capabilities, allowing the Company to offer turnkey products and services to Southern California builders.

**06/21/2011**—Announced that the Company finalized a non-binding MOU with Structural Technologies, LLC, a wood coatings applicator in Doswell, Virginia.

**06/16/2011**—Announced that the Eco Red Shield™ coatings performed well in a laboratory test that was compliant with the American Society for Testing and Materials' (ASTM) D3359 standards. Eco Building's standard application mixture indicated better than 95% adhesion ability with one coat of exterior paint applied over the coated surface.

**06/15/2011**—Announced that the Company was awarded nine additional home contracts to supply all framing lumber components and trusses with Eco Red Shield™ lumber for the Santa Rita production homes being built by Heritage in the planned community of Otay Ranch in Chula Vista, California.

**06/13/2011**—Announced that it secured an order for lumber coated with Eco Red Shield™ to build a four-story multi-use hotel. This project was scheduled to begin shipping during 2011, representing nearly one million board feet of Eco Red Shield™ protected lumber.

**06/10/2011**—Announced that the Company shipped its first truckload of panels coated with Eco Red Shield™ protection to Dash Lumber and Supply in New Orleans, Louisiana.

## Glossary

**AC433**—In June 2011, the ICC published acceptance criteria for Liquid Borate Fungal Decay and Termite-Resistant Treatment Applied to Wood Members (AC433), creating a space for novel coating technologies, such as Eco Red Shield™, in building codes. As of March 9, 2012, the Company has submitted a full engineering evaluation package to the ICC for AC433 and is awaiting final approval.

**Aflatoxin**—Carcinogenic toxins produced by the fungus *Aspergillus flavus*, normally found in moldy stored agricultural crops and suspected of causing liver cancer in humans and other animals.

**Aldehydes**—Any of a class of highly reactive chemical compounds used in making resins and dyes and organic acids.

**ASTM D3806**—Standard test method for the evaluation of fire-retardant paints. ASTM International is a global standards organization that develops and publishes voluntary technical and testing standards for a wide range of materials, products, systems, and services.

**ASTM E119**—(Standard Test Methods for Fire Tests of Building Construction and Materials) Established by ASTM International, a global standards organization, the ASTM E119 code relates to test methods that are intended to evaluate the duration for which certain types of building elements contain a fire, retain structural integrity, or exhibit both properties during a predetermined test exposure.

**ASTM E84-08**—Standard test method for surface burning characteristics of building materials, developed by ASTM International.

**Board Feet**—A unit of volume for timber equal to 144 cubic inches.

**Borates**—Wood-preserving agents.

**Chromated Copper Arsenate (CCA)**—A wood preservative used for timber treatment since the mid-1930s. It is a mix of copper, chromium, and arsenic formulated as oxides or salts. It preserves the wood from decay fungi and wood attacking insects, including termites and marine borers. It is no longer used for most residential purposes.

**Delamination**—To split a layered or laminated material into its separate layers.

**Dimensional Lumber**—Refers to the wood used in constructing the wall, floor, and roof framing of a house.

**Disodium Octaborate Tetrahydrate (DOT)**—An alkaline salt used as an insecticide and fungicide, normally sold in liquid or powder form and commonly used as termite control. DOT is odorless, non-carcinogenic, and non-toxic to humans and pets. This chemical is also a flame-retardant.

**Douglas Fir**—A tall, slender conifer with soft foliage and, in mature trees, deeply fissured bark. It is widely planted as a timber tree.

**Drywood Termites**—The most common types of termites in the U.S., drywood termites live within the wood they consume and oftentimes infest walls and furniture, causing damage to the wooden structures.

**Ductility**—A mechanical property that describes the extent to which solid materials can be plastically deformed without fracture.

**Engineered Wood Products (EWPs)**—Products manufactured by binding wood strands, particles, fibers, or veneers with adhesives to form composite materials. EWPs have improved structural characteristics and use wood more efficiently. Also called composite wood.

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**Engineering Loss**—The loss of a material's structural integrity and reduction of its load-carrying capacity, possibly leading to the collapse of the structure.

**Environmentally Preferable Purchasing (EPP) Certified**—A U.S. Environmental Protection Agency (EPA) program that helps the federal government “buy green” in an effort to stimulate market demand for green products and services.

**Enzyme-linked Immunosorbent Assay (ELISA)**—A sensitive immunoassay that uses an enzyme linked to an antibody or antigen as a marker for the detection of a specific protein, especially an antigen or antibody.

**Flame Spread**—A measure of the relative flame spread and smoke development from a material being tested. The flame spread rating is a single number comparing the flame spread of a material with red oak, arbitrarily given the number 100 and asbestos cement board with a flame spread of 0. Building codes require a maximum flame spread of 25 for insulation installed in exposed locations.

**Formaldehyde**—A colorless poisonous gas made by the oxidation of methanol.

**Framing-grade**—Lumber used for a building’s frame (the structural members of a building, such as studs, joists, and rafters) is grade-stamped based on the wood’s natural and drying characteristics and manufacturing imperfections.

**Hygroscopicity**—(hygroscopic) Absorbing moisture (as from the air).

**I-Joists**—An “I-shaped” engineered wood structural member designed for use in residential floor construction. The product is prefabricated using sawn or structural composite lumber flanges and wood structural panel webs, bonded together with exterior adhesives.

**International Building Code<sup>®</sup>**—A model building code developed by the International Code Council (ICC). It has been adopted throughout most of the U.S.

**ISO 17025**—Issued by the International Organization for Standardization (ISO), this is the main standard used by testing and calibration laboratories.

**Juvenile**—Lumber that is young. Juvenile lumber is often grown quickly as part of forest management to accommodate increased demand for wood. Young lumber does not possess many of the beneficial characteristics of “old growth” wood.

**Laminated Veneer Lumber (LVL)**—An engineered wood product (EWP) that uses multiple layers of thin wood assembled with adhesives.

**LEED Certifications**—A globally recognized standard developed by the U.S. Green Building Council to measure building sustainability. The LEED green building rating system is designed to promote design and construction practices that increase profitability while reducing the negative environmental impacts of buildings and improving occupant health and well-being.

**Level 1 Health Rating**—A rating determined by the National Fire Protection Association (NFPA) and displayed on chemical hazard labels. A level 1 rating indicates that a chemical is not toxic or fatal, although it may be irritating to some individuals. The health ratings on the Chemical Hazard Label range from 0 (no unusual hazard) to 4 (may be fatal on short exposure).

**Light-Frame Construction**—Construction generally restricted to the conventional wood stud walls, floor, and ceiling joists, and rafters (versus “heavy construction”). It is primarily residential in nature although it does include small light commercial buildings, such as one- or two-story buildings.

**Millwork**—Woodwork that has been machined at a mill.

**Multifamily**—A building with more than four residential rental units.

**Mycotoxins**—Any toxic substance produced by a fungus.

**Ochratoxin**—A toxin produced by molds that commonly contaminate cereal grains, causing intestinal inflammation and kidney and liver degeneration when ingested by animals.

**Oriented Strand Board (OSB)**—Directionally formed particleboard comprising cross-bonded plies. It can be a substitute for plywood in building.

**Outbuilding**—A building, such as a shed, barn, or garage, on the same property but separate from a more prominent building, such as a house.

**Pressure Treatment**—A process that forces chemical preservatives into wood using vacuum pressure. The preservatives help protect the wood from termites, other insects, and fungal decay.

**Rafters**—A beam forming part of the internal framework of a roof.

**Redundancy**—The use of redundant components in order to mitigate against component failure.

**Rim Board**—A component of a flooring system that serves as a framing member to enclose the floor joists. It runs around the perimeter of the house/structure.

**Shake Table**—A device for shaking structural models or building components with a wide range of simulated ground motions, including reproductions of recorded earthquakes.

**Sheathing**—A layer of boards or other wood or fiber materials applied to the outer studs, joists, and rafters of a building to strengthen the structure and serve as a base for an exterior weatherproof cladding.

**Sheeting**—Material formed into or used as a sheet; a lining of planks or boards.

**Steeping**—Soaking or saturating lumber in chemicals or preservatives.

**Subterranean Termites**—Also known as ground termites. Subterranean termites live in the soil, building elaborate tunnel systems through which they access aboveground food sources. They are one of the most aggressive types of termites, causing most of the damage done to wood in the U.S.

**Tract**—A style of housing development in which multiple identical homes are built on a tract of land which is subdivided into individual small lots. Tract housing developments are typically found in North American suburbs and can encompass large areas of dozens of square miles. Also called cookie-cutter housing.

**Trusses**—A framework, typically consisting of rafters, posts, and struts, supporting a roof, bridge, or other structure.

**UL 723**—Standard test method for surface burning characteristics of building materials, developed by Underwriters Laboratories (UL), a global independent safety company.

**UC1**—These standards comprise part of the American Wood Protection Association's (AWPA) Use Category System, which designates what systems are determined to be effective in protecting wood products under specified exposure conditions. Table 1 (page 18) summarizes the Use Category System.

**UC2**—See UC1.

**UC3A**—See UC1.

**Veneer**—A layer of wood of superior value or excellent grain to be glued to an inferior wood.

**White Paper**—A government or other authoritative report giving information or proposals on an issue.

**Yellow Pine**—North American pines yielding a strong, yellowish wood.

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# Crystal Research a s s o c i a t e s

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