

Engineered Wood Products (EWP) Basics

Strong, Safe and Green



Notes:

Each choice in construction has an impact on the character of the finished product, whether your client wants an environmentally friendly home, a home that wears well over time, or is concerned about price and resale value. Each building starts with a base and a frame. In this course we are focusing on one option for frame design. Engineered wood products (EWP) are a strong, safe and green alternative to steel and dimension lumber for framing residential and light commercial projects.

AIA/CES Program Registration

McGraw-Hill is a Registered Provider with the American Institute of Architects Continuing Education System. Credit earned on completion of this program will be reported to CES records for AIA members. Certificates of Completion for non-AIA members are available on request.

This program is registered with the AIA/CES for continuing professional education. As such, it does not include any content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing or dealing in any material or product.



Notes:

Copyright Notice

This presentation is protected by U.S. and International copyright laws. Reproduction and distribution of the presentation without written permission of the sponsor is prohibited.

Notes:

Reuse of any materials in this online learning unit is prohibited without written permission of the g Forest Products Company.

Learning Objectives

At the end of this course you will be able to:

- Describe Engineered Wood Products (EWP) and their primary uses.
- Discuss the environmental advantages which come from using EWP.
- Leverage these benefits to make your project more environmentally sound.
- Identify and utilize the economies inherent in EWP.
- Describe the environmental, health and safety issues that can be associated with other framing products and how those can be reduced by using EWP.
- Identify what tools are available from EWP producers and associations to increase your project's efficiency and reduce the overall cost and how to find them.

Notes:

Upon completion of this course you will be able to describe engineered wood products (EWP) and their primary uses. You will be able to explain what the environmental advantages of EWP are and be able to leverage those benefits to improve the environmental footprint of your project. You will be able to identify and utilize the economies inherent in EWP, including such aspects as waste reduction and longevity. You will also be able describe the environmental, health and safety issues associated with framing products and how those can be reduced by using EWP. Finally, you will know which tools are available from EWP producers and associations to simplify your project

and reduce overall cost as well as how to find them.

Familiarize yourself with EWP



Notes:

What is an Engineered Wood Product? Basically, an EWP is produced by cutting trees into smaller pieces, which can then be sorted, defected, realigned and glued back together to form larger structural members with specific properties “engineered” into them, such as enhanced bending strength and stiffness. In EWP, the smaller pieces generally take the shape of veneers, strands or wafers. During the production process, the naturally occurring defects are removed, dispersed and minimized so that the resulting end product is stronger, straighter and more stable than the original wood that it came from.

EWP consists of I-Joists and Structural Composite Lumber (SCL). SCL includes laminated veneer lumber (LVL), parallel strand lumber (PSL), laminated strand lumber (LSL), oriented strand lumber (OSL) and oriented strand board (OSB). The last three are differentiated by the size of the strand or wafer used in the product. We will focus primarily on LVL and OSB in this course. So...the “Engineered” in engineered wood products relates to the determination of the desired product characteristics and the manufacturing process required to get those characteristics in the final product. It does not mean that there must be an engineer involved in the specification and design of the product.

Familiarize yourself with EWP

The adhesives used in this process vary depending on the desired end product.

- Bond durability
- Heat durability
- Cure rate
- Strength
- Consistency
- Cost
- Water resistance
- Environmental impact



Notes:

A variety of adhesives can be used in the bonding process. It all depends on the EWP product and the desired outcome. An adhesive can control for bond durability, heat durability, cure rate, strength, consistency, cost, water resistance and environmental impact. The producers and suppliers can help you specify the product which most precisely meets your needs.

Familiarize yourself with EWP

Efficient use of materials

- Under-utilized timber
- Smaller tree sizes
- Waste material



Notes:

EWP comes from a wide variety of timber sources. Smaller diameter trees can be used for EWP as compared to sizes required for larger traditional framing lumber like 2x12's or large solid sawn beams. Fast-growing species or other trees unsuitable for traditional lumber can be easily incorporated into EWP. Additionally, waste material (solid lumber that is too small for traditional purposes), which would otherwise be burned or dumped in a landfill, can also be used to fabricate EWP.

Familiarize yourself with EWP

The production process

- Dispersion of materials to minimize imperfections in the source wood
- Adhesive application
- Heat and pressure



Notes:

The production process involves the random orientation and dispersion of growth characteristics such as knots, knotholes, wane and other imperfections. This process allows for better utilization of the raw material and results in a product which is stronger than the sum of its components. The appropriate adhesive, based on the type of product and the desired performance characteristics, is applied. Depending on the end product, this can be a coating on all of the material (e.g. PSL, LSL, OSB and OSB), or just between the layers of wood (e.g. LVL). The materials are then fixed together using high pressure and heat.

Familiarize yourself with EWP

- The end products can be designed for generalized or specific uses
 - Laminated Wood Products
 - Oriented Strand Board (OSB)
 - Framing System components



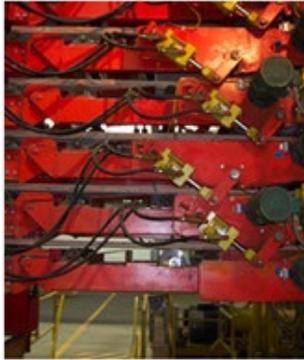
Notes:

As discussed earlier, there are several different types of EWP. The two primary groups are laminated wood products and oriented strand products. These are available in sizes, and shapes similar to standard dimension lumber as well as larger sizes and are often further processed for more specific uses such as construction framing components and systems. Let's investigate these uses further.

Familiarize yourself with EWP

Laminated wood products

- Made by gluing together multiple layers of wood veneer
- Products include Laminated Veneer Lumber (LVL) or plywood.



Notes:

Laminated wood products can be used for many purposes from construction framing to woodworking and, depending on the veneers used, can provide a beautiful surface finish.

In LVL, the strength axis of the veneer is usually oriented parallel to the long dimension. This gives LVL Superior edgewise bending and stiffness properties. In contrast, plywood veneers are laid-up with the strength axis parallel and perpendicular to the long dimension. This enhances the strength and stiffness along the flat plane of the product.

Familiarize yourself with EWP

Oriented Strand Board (OSB)

- Wide mats of cross-oriented layers of thin wood strands
- Superior strength and performance



Notes:

Oriented strand board is manufactured in wide mats from cross-oriented layers of thin wood strands which are compressed and bonded together with wax and resin adhesives. OSB makes a good use of raw material and exhibits predictable strength and stiffness properties.

Familiarize yourself with EWP

- Framing system components
 - Further engineered products
 - Superior properties



Notes:

Framing system components are further engineered wood products that can use more than one type of wood product such as OSB and Laminated lumber or OSB and sawn lumber.

Engineered framing systems are designed to have superior properties such as increased strength and stiffness while reducing the amount of resources used in the manufacturing process as well as the construction process, providing both safety and environmental advantages. The focus of the rest of this course is on the framing systems.

Now that you have an initial understanding of EWP lets look more closely at the different components that make up a typical EWP framing system.

Familiarize yourself with EWP

EWP Framing Products

- Three typical EWP products
 - I-Joists
 - Structural composite lumber
 - Rim Boards



Notes:

Engineered wood products provide a number of advantages including increased strength, stiffness, consistency and uniformity, and the efficient use of natural, renewable and sustainable raw materials. In these systems there are typically three wood framing components: I-joists, structural composite lumber, and rim boards. These components are used in all aspects of framing a construction project including the floor, roof and walls.

Familiarize yourself with EWP

I-joists

- Long spans
- Many sizes available
- Allowable span dependent on:
 - Design loads
 - On center spacing
 - Deflection criteria
 - Size and shape of the I-joist



Notes:

I-joists are designed to carry typical residential and light commercial design loads over long spans. The load capacity of each I-joist is dependent on the length of the span, joist spacing, size, shape and dimensions of the I-joists. By carefully following the design and installation recommendations, the strengths of this component will be properly utilized, ensuring a safer construction environment and a sturdy and safe structure. While I-joists from different producers are similar, the specific product characteristics, recommendations, and specifications may vary due to their proprietary nature. Therefore, construction and design professionals are advised to consult the applicable

manufacturer information when choosing the product for their project.

Familiarize yourself with EWP

I-joist components

- Flanges
- Web



Notes:

I-joists are made up of two main components: two flanges and a web. The top and bottom flanges are typically made of either sawn lumber or laminated veneer lumber. The vertical piece connecting the two flanges is called the web and generally utilizes oriented strand board. These pieces are assembled into the shape of a capital "I". OSB web material is the main shear resisting component and the flanges are the main bending resistant components. The component materials and the shape of the I-Joist provide load carrying capabilities that generally exceed those of typical framing lumber and result in a lower overall consumption of materials in the manufacturing and construction processes.

Familiarize yourself with EWP

I-joists are designed to fill a variety of construction needs

- Depth
- Flange size
- Length



Notes:

To meet a variety of construction needs I-joists are produced in many different sizes including depth, size and grade of flange, and length. Generally you can find depths from 9 1/2"–16" for residential applications and 18"–24" (or deeper) for a variety of commercial and more demanding residential applications. Flange width, thickness and grade vary depending on the manufacturer and the end product. Many mills supply I-joist up to 60' or 66' long. Distributors cut them down to typical lengths of 16'–36' depending on builder and/or project needs.

Familiarize yourself with EWP

Laminated Veneer Lumber (LVL)

Advantages over standard lumber:

- Consistent dimensions
- Increased strength and stiffness
- Uniform, homogeneous material through the material cross section
- Reliably straight
- Less likely to warp, twist, bow, or shrink



Notes:

LVL is manufactured using thin wood veneers that are individually graded and laid up to form billets. It is similar to plywood except that the grain of the individual veneers is oriented in the same direction along the length of the billet, giving exceptional strength and stiffness in the edgewise direction.

LVL has several advantages over standard milled lumber. It has predictable and consistent dimensions with increased strength and stiffness. This is in part due to the fact that it is a uniform and homogeneous material throughout the material cross section. It is reliably straight and maintains its shape over time

since it is less likely to warp, twist, bow, or shrink.

Familiarize yourself with EWP

LVL applications

- Primarily used in framing
 - Floor and roof beam headers
 - Stair Stringers
 - Wall studs and girts
 - I-joist flanges



Notes:

LVL is used for a variety of purposes; however it's primarily used in structural framing applications. In framing it has several different uses including floor and roof beams/headers, stair stringers, wall studs and girts. And, as we have already seen, it is often used for the flanges of I-joists.

Familiarize yourself with EWP

- Produced to meet a wide variety of needs
- Most commonly produced in:
 - Depths from 3.5"–24"
 - Thickness 1.5"–7"
 - Lengths up to 66'



Notes:

Because LVL is an engineered wood product it can be produced in a wide variety of sizes depending on the required need. However they typically are limited by the production line capabilities and generally have depths ranging from 3-1/2" to 24". Thickness of 1-3/4" is common, but 1-1/2", 3-1/2", 5-1/4", and 7" are available. The length is quite flexible but is usually limited to 60' or 66' due to transportation considerations.



Sustainable Use of Forestry Resources

Notes:

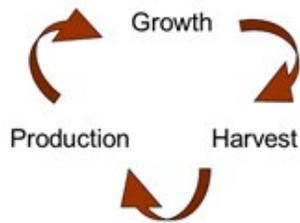
Wood is sustainable. Today, the norm in wood products manufacturing arena is to essentially use the entire tree, from the bark to the first growth ring. The bark is often used as hog fuel to generate electricity; small by-products, even down to the sawdust, are often captured and used in the production of materials such as particle board. The trend is clearly to waste nothing.

EWP takes it a step further by using optimal shapes, sizes, grades and different types of material to create structural framing members and minimize waste in the production and construction process. In addition to these advantages many

forest product companies are strengthening their sustainability practices to minimize their impact on forests and other natural resources while meeting the demands of the construction industry.

Sustainable use of forestry resources

- EWP conserves our timber resources



Notes:

The lumber industry relies on the continued availability of forest resources. To ensure continued supply they continually plant new trees as they harvest. In the US there are 47% more trees planted each year than are harvested and lost to natural causes. At each step of production EWP helps to preserve old-growth forest resources. Since they use less wood as well as types that are faster growing, manufacturers are able to increase production as demand requires without disturbing more ecologically sensitive areas. The harvest methods are getting less invasive. EWP, by virtue of the ability to use wood that would not work in other applications and because of its inherent strengths requires less wood to achieve the same results.

Sustainable use of forestry resources

- Best Management Practices
- Innovation
 - Research into sustainable tree growth
 - Develop new products requiring fewer inputs while providing superior output
 - Sustainable certification



Notes:

To improve forest management practices the industry has focused on three key areas: growth, harvest and production. In each case they are making a continuous effort to identify and implement best management practices to improve performance. Examples of these practices include using production waste to produce clean energy, designing and implementing environmental management systems, and vertical integration of production.

In addition to applying existing knowledge to corporate practices, many in the industry are also trying to push the limits of current practices and come up with new methods and technologies. To that end there is research into new methods of sustainable tree growth, development of new products, such as EWP, that require fewer inputs and still provide an equivalent if not superior performance versus traditional products, and new third party certification organizations to help ensure accountability.

Sustainable use of forestry resources

- Long-term growth requires reliable supply
 - Managing the resource
 - Sustainable harvest
 - Replanting for the future



Notes:

Sustainable use of forestry resources

- Environmentally sound practices
 - Best harvesting practices
 - Minimize waste at harvest site
 - Reduce damage to the ecosystem
 - Superior forestry growth practices



Notes:

Many of the industry's employees and clients live and work in areas that share in the use of forest environmental services (clean water, fresh air, and a stable climate) with industry production facilities (timberlands and mills). To ensure that these services continue to benefit the community the industry takes several steps to reduce and/or mitigate its impact on the local environment. These steps typically include the introduction of best harvesting practices, where the company removes the trees that are ready for harvest and leaves the rest while making as little impact on the forest as possible. The results are reduced waste at the harvest site and a strong and vibrant ecosystem.

Sustainable use of forestry resources

- Environmentally sound practices (cont.)
 - Low VOC/Formaldehyde products



Notes:

In the past the adhesives used contained volatile organic compounds (VOCs) and formaldehyde which posed a health risk to producers, construction workers and occupants. By using alternate adhesives, ones that are low in VOCs and formaldehyde, the company reduces the introduction of these chemicals into both the water supply and our indoor air supply and helps to provide healthy environments where we live and work.

Sustainable use of forestry resources

- **Environmentally sound practices (cont.)**
 - Stream enhancement programs that restore fish habitat



Notes:

In instances where water routes are used for log transportation it is done with minimal impact to aquatic species, keeping in mind the natural movement of species and maintaining buffer zones to reduce water run off and erosion.

Sustainable use of forestry resources

- Public education is key to supporting sustainable practices
 - Stakeholder inquiries
 - Public information outreach
 - Consumer information



Notes:

This business sector cannot prevent the environmental impacts without help from the community. A strong outreach effort to make sure that the public is aware of what is being done, how it impacts them, and what they can do to support and strengthen the efforts is key to the industry's success. To involve the community the industry conducts stakeholder inquiries, where representatives of all interested parties are present and can give their opinions. They also use the internet and other media forms to let people know about their sustainable programs and what the public can do to help. Finally they are also making the effort to simplify information going out so that all consumers can easily understand the product, how it benefits the environment, and how their choices impact their lives.

Sustainable use of forestry resources

Sustainable Forestry Carbon Cycle



Adapted from California Forest Products Commission materials for the book, *Tackle Climate Change – Use Wood*

Notes:

Sustainable use of forestry resources

- Forest products role in reducing greenhouse gases

Cradle-to-Gate Comparison: Global Warming, Total Energy, Fossil Energy

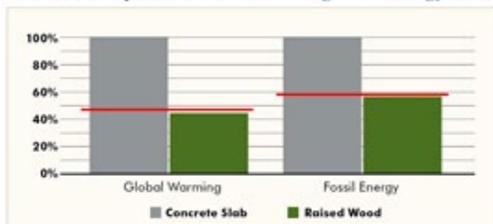


Table adapted from the APA informational brochure, *Reducing the Carbon Footprint of Floor Systems*

Notes:

Forest product companies are aware of growing international concern over climate change. While they can not solve the problem on their own the industry understands that forests are a powerful tool in removing and sequestering carbon.

In a recent study comparing the lifecycle analyses of different construction approaches, it was shown that raised wood flooring systems emitted less than half of the greenhouse gasses when compared to concrete slab construction and used almost half of the non-renewable fossil energy to produce.

Sustainable use of forestry resources

- EWP ensures greater carbon sequestration
- Total sequestration depends on
 - Location
 - Species
 - Environment
- Averages 50% by weight



Notes:

Sustainable use of forestry resources

- OSB example
 - Small fragments
 - Fast growing
- According to the US Dept. of Agriculture
 - 103 million tons sequestered
 - Demand is increasing



Notes:

To illustrate how the forestry industry improves carbon sequestration let's look at some of the numbers. Keep in mind that products such as OSB are able to use relatively small fragments of wood that may otherwise have been lost to the waste stream. The fact that this fiber can be drawn from fast growing materials that have not always been used by the industry has a further positive impact on carbon sequestration by doing it faster. The U.S. Department of Agriculture estimated that in 2005 about 103 million metric tons of carbon was accumulated in harvested wood products. As the demand for wood products grow and especially for products such as OSB

these materials will continue to store captured carbon in increasing amounts.

Sustainable use of forestry resources

- Old growth forests
 - Large carbon sinks
 - Sources of Biodiversity
 - Businesses working towards their expansion



Notes:

By changing preferences away from using dimension lumber wherever possible we reduce the demand for older and slower growing trees from old-growth forests. These forests represent one of the best long-term carbon sinks as well as critical natural ecosystems. Continued expansion in the use of EWP helps to ensure that old growth forest will continue to maintain their carbon sequestration traits and their biodiversity. Many companies in the wood products sector have set aside vast areas of land, ensuring that they will be allowed to grow into the future without interference from harvest. These lands will, in time become old growth themselves and act as long-term carbon sinks which represent the level of commitment the companies have to forest stewardship. The land that is re-planted for future harvest serves to both meet industry needs and, potentially, to sequester additional carbon in the long-term.

Sustainable use of forestry resources

- Product certification
 - The Forest Stewardship Council
 - The Sustainable Forestry Initiative



Notes:

How can you be sure that the products you use are sustainably produced? Just as for other types of products, such as organic food, there are third party groups that provide guidelines and review practices to make sure that the product is produced as advertised. In the wood products industry there are several certification organizations domestically and internationally which allow the consumer to know that their wood products were produced in an environmentally sound manner. Two of the more prominent ones in the U.S. are The Forest Stewardship Council and The Sustainable Forestry Initiative. As you will see, both organizations take a big picture approach and require the companies to engage their supply chain as well as local communities in the process. This ensures that the end result protects both the forest resource and all the stakeholders that rely on it.

Sustainable use of forestry resources

- [The Forest Stewardship Council](#) (FSC) requires a company:
 - to maintain a forest's biodiversity, productivity and ecological processes
 - to engage local populations in forest stewardship
 - to make profits without adversely affecting the forest resource, ecosystem or affected communities

Notes:

The FSC, based in Bonn Germany, is the primary international forest product certification program. Their mission is to “promote environmentally appropriate, socially beneficial, and economically viable management of the world's forests.”

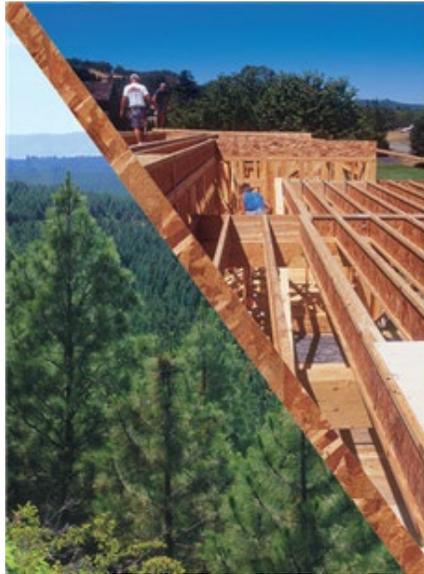
Products that receive their certification must be managed to ensure that the harvest of timber and non-timber products maintains the forest's biodiversity, productivity, and ecological processes. The member companies must also engage local populations in their stewardship efforts, share the benefits of their efforts with local communities and make sure that long term management plans are followed. Finally they must follow economically viable forest management practices, which means that forest operations are structured and managed so as to be sufficiently profitable, without generating financial profit at the expense of the forest resource, the ecosystem, or affected communities. The tension between the need to generate adequate financial returns and the principles of responsible forest operations can be reduced through efforts to market the full range of forest products and services for their best value.

Sustainable use of forestry resources

- [The Sustainable Forestry Initiative \(SFI\)](#) requires a company:
 - to consider local conditions and circumstances
 - to encourage participation by others
 - to use best management practices
 - to invest in research

Notes:

SFI is a domestic certification organization which covers forestry practice across the U.S. and Canada. While not as accepted internationally as FSC, it is making inroads into the global market. Based in Washington D.C. its mission is similar to FSC's. They work to "ensure the environmental, social, and economic sustainable development of the nation's forests, for the benefit of public and private stakeholders." To get their products certified a producer must take into account the local conditions and circumstances as well as the scope and scale of their operations, as outlined in the SFI Standard. They must also take their commitment to responsible stewardship beyond the bounds of their own lands and operations by encouraging others to adopt the principles and objectives of the SFI Standard. Finally, program participants are required to work with their suppliers to make sure they are meeting program goals for best management practices. They are also required to invest in research to enhance the practice of sustainable forestry, add to scientific knowledge, improve forestry practices, and increase the overall productivity of forests.



Economies of WWP

Notes:

As we have seen there are many advantages to WWP, including performance and environmental sustainability. WWP can also provide significant savings for the whole project. Let's take a look at how WWP can make your projects less expensive.

Economies of WWP

WWP framing systems

- Fewer pieces vs. dimension lumber
 - Saves time
 - Saves labor
 - Saves material



Economies of EWP

EWP Time and Labor savings

- Some steps are completely skipped with EWP
 - Crowning of joists
 - Culling for strength reducing growth characteristics
 - Blocking and bridging



Notes:

When you are dealing with an EWP framing system there are fewer pieces needed to do the job and the guidelines for assembly are predetermined. With dimension lumber the construction crew is required to take more steps on site to complete the framing process. Time and labor savings can be realized for several reasons when using EWP. The on-center spacing might be increased, resulting in fewer pieces compared to dimension lumber. Multiple span applications can be installed quickly with one long I-joist as compared to multiple pieces of lumber. No pre-spotting for crowning of joists or culling for defects is necessary with EWP. All of the pieces are used and no mid-span blocking is required.

Economies of EWP

EWP Time and Labor savings (cont.)

- Ready for installation
- Available in lengths up to 66 feet



Notes:

Economies of EWP

EWP Materials Savings

- Design dictates hardware
- Stronger and safer than dimension lumber
- Reduced transport costs



Notes:

Specific connectors are produced by the hardware manufacturers to match the series and size of I-joist and/or LVL members for your project. Following the manufacturer's construction guidelines your finished assembly assures strength and support for safe and durable building systems. The quantity of material needed for a project also varies depending on the framing material used. Dimension lumber generally requires more material to provide the same level of performance as EWP. When you reduce the amount of material you use you also reduce the corresponding transportation and labor costs.

Economies of EWP

Ease of Handling

- Step by step instructions are available
 - Design guides
 - Literature
 - Software
- Several different sources
 - Manufacturer
 - Associations
 - Distributor

Notes:

Step-by-step instructions are available from the design phase up through installation. There is an array of tools available to guide you through the project. Helpful and informative Design Guides and literature, as well as software is available to help you lay out the framing and supports to maximize the safety and strength of the building, while minimizing the environmental foot print because less overall material is used.

The answers to your questions are at your finger tips; EWP come with a wealth of support to ensure that you maximize the advantages offered. Design and installation literature is offered by all manufacturers. Association websites are also available for general information to get you started. Consult with your local distributors about the products they carry and what they suggest for your particular project. Joist and beam sizing software is available to determine which products are needed to make your design a reality. Finally make sure the contractors follow the installation recommendations to ensure the safety standards and environmental benefits are achieved.

Economies of EWP

EWP long-term savings

- Maintains shape over time and avoids
 - Squeaky floors
 - Skewed door frames



Notes:

Standard wooden framing systems tend to change shape due to changes in moisture content resulting in shrinkage, warping, bowing etc. The EWP production process takes these issues out of the equation. EWP is produced at a low and consistent moisture content and therefore better maintains its shape for the life of the product. This means that a structure built with EWP will avoid having squeaky floors, skewed door frames, etc. This also means that the structure will require fewer repairs over its lifetime. An EWP home will consume less materials in the long run and further reduce its environmental foot print compared to standard framing systems.

Economies of EWP

Case Study

- 12,000 ft² light commercial project
- Long spans
- Saved ~\$10/ft²
- Short lead-time



The Three Village Green project in Plymouth, Mass.

For the full case study click [here](#).

Note: this is not required for the course.

Case study provided by APA

Notes:



Additional EWP Applications

Notes:

While EWP is frequently used for building framing there are many other applications for this material. Let's look at a couple of others.

Additional EWP Applications

Stair Stringers and EWP

- Maintain characteristics over time
- Uniform performance
- Superior strength



Notes:

As with the framing components EWP stair stringers have and maintain superior characteristics over traditional materials. This means that they provide straight, consistent material, superior in strength, free of knot holes, wane, and other growth characteristics that lead to the culling of traditional dimension lumber stair stringers. As with other EWP these characteristics last for the life of the product, minimizing squeaking well into the future.

Additional EWP Applications

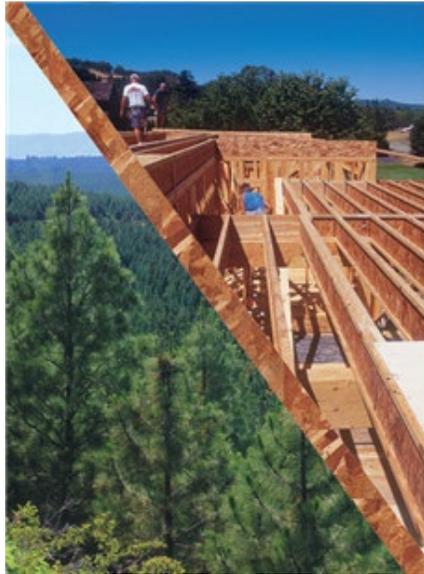
Tall Walls and EWP

- Longer production lengths
- Superior stiffness
- Greater design flexibility



Notes:

As we have already learned, LVL can be made in long lengths, making it ideal for building tall walls. LVL provides superior strength, stiffness and uniformity over traditional options while maintaining the environmental friendly characteristics of EWP. Using LVL in this application can reduce the overall material used and improve both the project expenses and the Environmental foot print. This material allows the designer additional flexibility to design the type of space that your clients want.



EWP Availability and Variability

Notes:

EWP is widely available around the country with producers in every corner of the U.S. and is available in the sizes you need for your project.

EWP Availability and Variability

- Size, Series and Grades
 - Sized to meet your needs
 - Fabricated to meet specific design properties



Notes:

One of the great advantages to EWP is the wide variety of sizes. Most I-joists and LVL products are manufactured in lengths up to 60' or 66' and can be delivered to you sized as needed. Since the materials are fabricated to specific design properties, they are categorized into different series and grades which vary in performance levels and production costs. This ensures that you can order the appropriate products for your project.

EWP Availability and Variability

Purchase Locations

- Available throughout the U.S.
- Multiple producers and distributors

To find more information on a specific producer click [here](#).



Notes:

EWP is produced throughout North America. These manufacturers operate with the support of industry associations and local distributors. To get a feel for the full spectrum of products available, refer to the link provided. In addition, you can contact your local distributor and learn more about the products they carry.



Specification Information and Process

Notes:

As a product with specific characteristics and defined uses, EWP framing materials also have a wealth of information and tools to help you select the right product and quantities for your project. Let's investigate the tools you have available to take advantage of the benefits of EWP.

Specification Information and Process

Working with EWP

- Variety of tools available
 - print material
 - software
- Reduces cost
- Ensures worksite safety



Notes:

Bringing together many of the issues we have discussed you can see that when you work with EWP you have a wealth of information at your fingertips. Remember that most of what you will need is available online from manufacturers and through your local distributors. Using these materials will help you by simplifying both design and construction and assure that you have a positive experience. Furthermore by understanding how to use the framing system the contractors will be able to improve worksite safety while ensuring the structural integrity of the final product.

Specification Information and Process

Preparation checklist

- Basic design
- Research the available products
- Talk with the contractor
- Choose the right product



Notes:

Let's review the preparation process. Once you have your basic design in hand and having conducted your initial research with the associations (listed at the end of this course), you can start talking with your distributor to determine which product is right for your project.

Specification Information and Process

Specification checklist

- Find out what assistance is available
- Determine required product properties
- Talk with your contractor
- Download MasterSpec sheets
- Get joist and beam sizing software



Notes:

The next step is specification. Once you have chosen a supplier and a manufacturer, find out what support materials are available. Make sure they provide the additional properties that are required for your project. EWP systems can be designed for fire resistance, for increased safety, or for sound resistance to increase personal comfort. Take the time to see what is right for your project and ask questions.

One important tool is the MasterSpec sheet. Another tool which is available from many producers is a joist and beam sizing software package, which can be useful in making sure you have the right joists and beams for your project. Don't forget to ask questions. Your suppliers and producers are available to help you. Make sure you take full advantage of this resource.

Specification Information and Process

Purchase

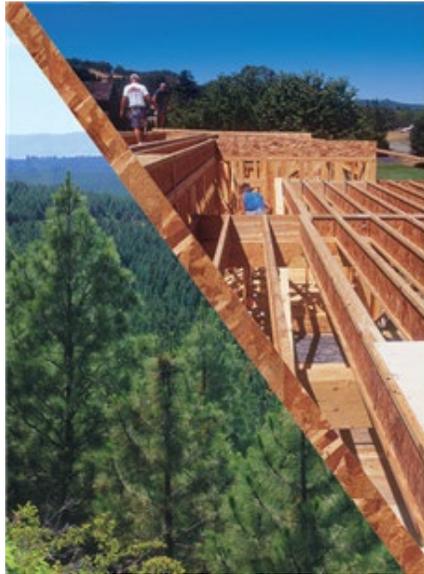
- Get the product to your specifications
 - Reducing labor and Transport costs
 - Improved environmental impact
 - Better worksite safety



Notes:

Once you have specified what you need for the project your contractor can get to work by ordering the materials cut to your desired length. Having the materials delivered ready for use will reduce labor costs by minimizing on-site alterations. It will also reduce transportation costs by making sure you get only what you need.

In addition to cost savings you also reduce your environmental impact by minimizing both the amount of material consumed and energy used in processing and transportation. In addition you improve the worksite health and safety because of construction process simplification.



Access to Industry Sources

Notes:

As we just discussed, there is a wealth of information available on the web to help you in every phase of your project. Far more than is practical to list here. The next few slides will identify the best places to start your research.

Access to Industry Sources

APA-The Engineered Wood Association

- Quality assurance
- Technical support
- Provide industry and product information



Click [here](#) to go to their website

Notes:

The APA's mission is to work in partnership with members to develop and maintain markets by promoting APA trademarked products, through quality assurance of those trademarked products, and by providing technical and educational support to all industry members.

Their activities include creating and maintaining information covering EWP production, uses, case studies, sources, as well as managing industry quality assurance through a certification process and providing a unified voice for the EWP industry.

Access to Industry Sources

The Wood I-Joist Manufacturers Association (WIJMA)

- Provides
 - Technical assistance
 - Promotes the use of EWP in the construction industry



Click [here](#) to go to their website

Notes:

The Wood I-joist Manufacturers Association (WIJMA) provides technical assistance and information to the residential and commercial construction industries. This includes AutoCAD drawings, fire safety information and other resources to streamline your design process.

WIJMA engages in activities that enhance and increase the use of prefabricated wood I-joists and structural composite lumber in the construction industry.

Access to Industry Sources

American Society for Testing and Materials (ASTM).

- Voluntary standards
- Created standards for all basic EWP



Standards Worldwide - Home
Click [here](#) to go to their website

Notes:

Thank You for Your Time

- Thank you for your time
- This concludes the American Institute of Architects Continuing Education System Program
- Please take the test to receive your AIA credits
- For more information, visit us at www.roseburg.com



Notes:

Thank you for your time and concern about improving the energy efficiency and sustainability of U.S. energy sources. If you have questions, please contact fForest Products Company for more information. You will now take a 10 question quiz to earn your credits.