

# Western Red Cedar—Often Imitated, Never Duplicated

Presented By:



## DESIGN VERSATILITY OF WESTERN RED CEDAR

Western Red Cedar (WRC) is one of nature's most outstanding building materials. Renowned for its performance and exceptional beauty, it brings warmth, character, and longevity to homes and non-residential projects worldwide. In addition, Western Red Cedar's natural durability and physical properties make it ideal for exterior applications such as siding, trim, decking, and interior applications such as paneling, windows, doors, ceiling treatments, and feature walls.<sup>2</sup> It is compatible with numerous architectural styles, from modern to traditional, and is endlessly versatile. This course will explore the design versatility of

Western Red Cedar, exterior and interior applications, and the value that Western Red Cedar brings to a project. Many materials such as vinyl and composites try to replicate the look of Cedar, but it is difficult to achieve the wood grain, color, and feel of real Cedar. We will compare Western Red Cedar to these alternative building materials and demonstrate how it is often imitated but never duplicated in numerous project applications.

### Finishes<sup>3</sup>

Western Red Cedar can be finished in various ways, providing a unique look for each project. Several different complementary finishes can even be used on a single project. An exterior wood finish for Western Red

## LEARNING OBJECTIVES

1. Explore the design versatility of Western Red Cedar, including finishes, profiles, and applications.
2. Discover the value Western Red Cedar can bring to a project, from return on investment via curb appeal to expansive outdoor living spaces.
3. Compare Western Red Cedar to alternative siding and decking materials and understand why the color and grain of Cedar are often imitated but never duplicated.
4. Examine a case study where Western Red Cedar was used for its versatility, value, and longevity.

## CONTINUING EDUCATION

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Solid-colored stains are opaque finishes with fewer volume solids than paint; they are available in a broad spectrum of hues that obscure the wood's true color but allow some of the Cedar's natural characteristics and texture to remain.

Cedar depends upon the desired appearance and the degree of protection required.

Exterior finishes perform best when the coating is applied to all surfaces (face, back, edges and ends).<sup>4</sup>

Cedar naturally gains a silver-gray patina over time, which is desirable for some clients and has the bonus of minimizing maintenance. Another popular trend is bleaching, which produces this weathered look faster than waiting for nature to take its course and results in a truly uniform gray appearance.

Alternatively, protective coatings can be applied that preserve the wood's natural color and appearance while ensuring maximum performance. Transparent and semi-transparent stains and penetrating oil-based stains can be applied to provide wood protection. Transparent stains do not alter the appearance of the Cedar. They only slightly modify the color (tone) of the wood but provide added protection from mildew and decay.<sup>5</sup>

Solvent-borne, oil-based, semi-transparent stains penetrate the wood surface and do not form a surface film like paints. These finishes are the best choice for Western Red Cedar, which is fully exposed to the weather when a natural look is desired. Although these stains can be used on smooth and textured Western Red Cedar, they will perform much better and last longer when applied to a textured surface. In addition, these stains contain pigments that provide color—including cedar tones—and significantly increase the durability of the

finish by protecting the cedar surface from the damaging effects of the sun's ultraviolet rays. Service life on siding applications with semi-transparent stains may vary from three to six years depending on the cedar surface texture, quantity of stain applied, and the intensity of the sunlight on the wood surface.<sup>6</sup>

While many homeowners prefer to showcase Western Red Cedar's beautiful texture and color with a natural finish, some prefer to use an opaque coating such as paint or solid-colored stains. Paint provides the most protection against weathering and wetting by water while providing color and concealment of some of the wood's characteristics. Although paint can reduce wood's absorption of water, paint itself is not a preservative.<sup>7</sup> A stain-blocking primer must be used.

Solid-colored stains are opaque finishes with fewer volume solids than paint. Like paints, solid-color stains protect Western Red Cedar against ultraviolet light degradation and moisture. They are available in a broad spectrum of hues that obscure the wood's true color but allow some of the Cedar's natural characteristics and texture to remain. These finishes are non-penetrating and, like paints, form a film.

Western Red Cedar has naturally occurring extractives, but without a proper base coat, those same extractives may discolor opaque finishes such as latex paints and solid-color stains, so a stain-blocking primer must be used.<sup>8</sup>

Some building owners may desire a distressed, rustic, reclaimed, vintage, antiqued or aged look. This look can be achieved by roughing up the wood with a hammer, crowbar, or nails or dragging a coarse wire brush or steel wool in the direction of the grain to leave striations. Authentic reclaimed and distressed Western Red Cedar is available for purchase in some markets.

**Important Note:** Each of these finishes can be factory applied for optimal results, but if siding will be finished on-site, follow best practices and specify that product is applied to all six sides of each board. All cedar products used in exterior applications require a degree of maintenance to keep them looking their best. Even if the choice is made not to apply a finish to Western Red Cedar, contaminants such as dirt and mildew should be regularly removed to maintain its beautiful, natural appearance.<sup>9</sup>

### Profiles

Western Red Cedar bevel siding is the most widely used cedar siding type. It is produced by resawing lumber at an angle to produce two pieces thicker on one edge than the other. The manufacturing process results in pieces with one face saw textured. The other face is smooth or saw textured depending on the grade and customer preference. Bevel siding is installed horizontally and gives an attractive shadow line that varies with the thickness of the siding selected.<sup>10</sup> Clear Rustic

## GLOSSARY

**Patina**—A surface appearance of something grown beautiful, especially with age or use<sup>1</sup>

**Transparent Stains**—Stains that do not alter the appearance of the Cedar; they only slightly modify the color (tone) of the wood but provide added protection from mildew and decay

**Semi-Transparent Stains**—Solvent-borne, oil-based stains that penetrate the wood surface and do not form a surface film like paints

**Solid-Colored Stains**—Non-penetrating opaque finishes with fewer volume solids than paint; they obscure the wood's true color but allow some of the Cedar's natural characteristics and texture to remain

**Bevel Siding**—The most widely-used cedar siding type that is produced by re-sawing lumber at an angle to produce two pieces thicker on one edge than the other; one face is saw textured while the other face is smooth or saw textured depending on the grade and customer preference

**Bleaching**—Weathering products designed to provide the weathered look of

cedar sooner and more evenly than natural exposure to sunlight; they are lightly tinted with either gray or brown pigments, which mute the natural coloration and accelerate the weathering process

**Board and Batten**—A vertical design created using wide clear or knotty cedar boards spaced apart with narrower boards (battens) covering gaps between the boards

**Pressure Treating**—A process that forces wood preservatives or fire-retardants into the wood; the preservatives protect the wood from attack by wood-ingesting insects like termites and wood rot caused by fungal decay

**Acetylation**—A process that subjects a non-durable softwood to a vinegar-like solution, which turns it into a hardwood by preventing the cells in the wood from being able to absorb water

**Tongue & Groove**—Western Red Cedar siding furnished kiln-dried, manufactured in clear grades, and available with one rough or smooth face; in standard patterns, these are usually reversible



The different joints and surface textures in tongue and groove siding combine to provide a range of shadow line effects that enhance the product's versatility; the image on the left shows a flush joint tongue and groove, while the image on the right is a fineline tongue and groove.



or Tex grade bevel siding is recommended for use as sidewall covering where the distinctive charm of a rustic saw textured appearance is desired. This grade allows limited characteristics that do not detract from serviceability.<sup>11</sup>

Western Red Cedar tongue and groove is widely used for its good looks and versatility. It can be installed horizontally or vertically with each method giving a distinctly different look. The joints between adjoining pieces are usually V-shaped, but flush joint, fine line, and radius edge details are also available. In addition, the different joints and surface textures in tongue and groove siding combine to provide a range of shadow line effects that enhance the product's versatility.<sup>12</sup>

Lap sidings, such as channel siding, can also be installed vertically or horizontally. For example, in channel siding, the profile of each board partially overlaps that of the next board, creating a channel that gives shadow line effects, provides excellent weather protection, and allows for dimensional movement.<sup>13</sup>

Board and batten is a vertical design created using wide clear or knotty cedar boards spaced apart with narrower boards (battens) covering the gaps between the boards. There are no set board or batten widths—various combinations are used to create different looks suitable for large- or small-scale applications. Board on board is a slightly different version of board and batten.

Panels of cedar shingles can be used as an accent, such as in gables, or they can be installed as the primary siding. These 8-foot, single-course panels make it easier than ever

to install real cedar shingle siding. Several styles are available, including staggered butt and fancy cuts such as diamond-point and fish scale.

#### Textures

Western Red Cedar products are available with a smooth (planed) or a textured surface. As a rule, textured surfaces provide the best mechanical adhesion finishes to the wood; for smooth-surfaced Western Red Cedar, a two-

coat paint system is preferred.<sup>14</sup> Western Red Cedar boards may be specified in one of three surface finishes: rough, surfaced one side and two edges (S1S2E), or surfaced four sides (S4S). Other texture options include resawn and rougher headed.

#### Grades

##### Clear

Clear grades provide a premium quality appearance and are ideal for prestigious, upmarket applications. They are usually graded for smooth face exposure but are manufactured in both S4S and S1S2E form. The clear grades are visually clean and free from defects. There are only a few, if any, characteristics, including an occasional knot or minor imperfections. Clear grades, from highest to lowest grade, include Clear V.G. Heart, Clear Heart, A Clear, B Clear, C Clear and D Clear.

##### Knotty

Knotty siding has warmth and casual charm and is ideal for homes, cottages, clubhouses, and applications where a rustic appearance is desired. Knotty grades allow more inclusions,



Knotty grades allow more inclusions, meaning there will be knots and other characteristics; they are an excellent and durable choice with a more casual, rustic appearance than clear Cedar grades.

meaning there will be knots and other characteristics. Appearance-wise, knotty grades of Cedar are an excellent and durable choice—they just have a more casual, rustic appearance than clear Cedar grades. All knotty products are well-suited for factory priming or finishing. Knotty grades include Select Knotty, which has knots and other natural features that are sound and tight, and Architect Knotty, which contains no open characteristics or through defects and is intended to be entirely usable with the resawn face exposed.<sup>15</sup>

### EXTERIOR APPLICATIONS

Western Red Cedar is ideal for exterior applications due to its insect resistance, moisture resistance, and overall durability. It can be used for siding, trim, decking, and landscape features such as pergolas and pavilions. As discussed, siding options include bevel, tongue and groove, lap siding, board and batten and board on board.

Real Cedar trim on the exterior of residential, commercial, or industrial buildings perfectly complements any architectural style and is compatible with all contemporary cladding materials. The ideal wood for exterior trim is Western Red Cedar. Its dimensional stability, longevity, ability to accept a wide range of finishes, resistance to decay, and natural good looks make it the only sensible choice for corner boards, fascia, skirting, and window and door trim.



This article continues on  
<http://go.hw.net/AR09212>.

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### SPONSOR INFORMATION



The Western Red Cedar Lumber Association represents quality “Real Cedar” producers, distributors and retailers throughout North America. Founded in 1954 and known as “the voice of the cedar industry,” WRCLA offers extensive resources to assist with selection, specification and quality standards. For more information, visit [RealCedar.com](http://RealCedar.com).

### QUIZ

- Which surface treatment produces a weathered look faster than natural aging and results in a truly uniform gray appearance?
  - Transparent stain
  - Semi-transparent stain
  - Bleaching
  - Penetrating oil-based stain
- Which of the following finishes only slightly modify the color (tone) of the wood but provide added protection from mildew and decay?
  - Transparent stain
  - Semi-transparent stain
  - Penetrating oil-based stain
  - Solid-colored stain
- \_\_\_\_\_ is the most widely used cedar siding type; it is produced by resawing lumber at an angle to produce two pieces thicker on one edge than the other.
  - Bevel
  - Tongue and groove
  - Lap
  - Board and batten
- \_\_\_\_% of Americans agree their outdoor living space is more valuable than ever before, with 78% making exterior upgrades during COVID-19.
  - 80
  - 85
  - 90
  - 95
- While Western Red Cedar is naturally decay and insect resistant, other wood species must be treated to achieve similar durability; which of the following is a process that forces wood preservatives or fire-retardants into the wood to extend and preserve timber life?
  - Cedar-tone
  - Acetylation
  - Pressure treating
  - Penetrating oil-based stain
- According to the course, which of the following is a disadvantage of pressure-treated wood?
  - Galvanized or stainless steel fasteners must be used
  - Wood is prone to shrinkage and warping
  - Wood cannot be painted or stained until completely dry
  - All of the above
- Species such as Southern Yellow Pine can be treated via \_\_\_\_\_, a color infusion process available for pressure-treated wood that makes it look like Cedar and does not fade like a stain.
  - Cedar-tone
  - Acetylation
  - Distressing
  - Penetrating oil-based stain
- \_\_\_\_\_ is a process that subjects a non-durable softwood to a vinegar-like solution, which turns it into a hardwood by preventing the cells in the wood from being able to absorb water.
  - Pressure treating
  - Cedar-tone
  - Acetylation
  - Distressing
  - Penetrating oil-based stain
- Cedar is naturally resistant to rot, decay, and insects with an expected service life of \_\_\_\_\_ or more years, making it ideal for outdoor applications.
  - 10
  - 15
  - 20
  - 25
- At The Lakehouse in Toronto, Reeves initially hoped to specify a metal roof but faced opposition from the project team because they felt \_\_\_\_\_ would work better with the style of the home, which ultimately proved to be the ideal solution.
  - Modified bitumen
  - Asphalt shingles
  - Cedar shingles
  - None of the above

Once the decision is made to build a deck, the choice of decking material is just as important as good design and quality construction. A deck built with Western Red Cedar extends living space to the outdoors, integrating the home and landscape and allows for the use of damp or uneven terrain.<sup>16</sup>

Western Red Cedar timbers are suitable for a broad range of functional and decorative applications. They can be used in engineered structures but are also the ideal product for use in landscape design and construction. In general, applications can be classified into two broad end-use groups: first, for those structures such as large buildings in which both the strength and the appearance of exposed wood members are of equal importance; second, in landscape, park, and garden structures where appearance is paramount.<sup>17</sup>

### INTERIOR APPLICATIONS<sup>®</sup>

Whether it is a commercial, institutional, or residential project, incorporating interior applications of Western Red Cedar can add instant warmth to the overall aesthetic of any design. Western Red Cedar is often specified for interior paneling, windows and doors, ceiling treatments, and feature walls because of its rich color range and pattern. The natural beauty of Western Red Cedar not only makes a statement on its own, but it also contrasts seamlessly with man-made industrial materials and clean minimal forms.



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In homes, architects are creating show-stopping ceilings and feature walls with Western Red Cedar paneling. In commercial spaces, such as indoor shopping malls, architects are using paneling on storefronts because the warm and inviting look, feel, and smell of Cedar has the power to draw in more customers than cold synthetic materials. For institutional projects, including hospitals and schools, architects capitalize on the warmth and beauty of Western Red Cedar paneling to create environments that inspire, heal, and calm patients and visitors alike.<sup>19</sup>

### CURB APPEAL

We may not spend much time outside a home or building, but the exterior sets the stage for its style and character. Siding, windows, doors, and rooflines create the style, and the quality of materials can make all the difference in how the building is perceived. The beauty of Western Red Cedar, particularly when used for siding applications, can instantly boost curb appeal and value. It harmoniously blends architecture with nature and can be used on many different building types. Western Red Cedar can also be used for decorative exterior accents such as shutters, soffits, trim, and Cedar shingle gables.

This curb appeal is essential for increasing a building's value, and studies have shown that specific projects bring a more significant return on investment (ROI) than others. Replacing siding is one such project that

increases curb appeal, and therefore ROI. Zonda Home's *34th Annual Cost vs. Value Report*, released March 2021, reveals 22 of the most lucrative remodeling projects across the nation in 150 U.S. markets. Exterior improvement projects are continuing a multi-year trend of providing the greatest return on investment for homeowners. Most notably, 11 of the 12 leading investments were exterior home improvements, except for a minor kitchen remodel, which means that curb appeal is top of mind for homeowners when considering their property's beauty and future value. In fact, the leading returns were primarily siding and windows.<sup>20</sup>

"The trend of exterior replacements outperforming larger discretionary remodeling projects has been accelerated, no doubt, by a year in which COVID has made people reluctant to have contractors inside their homes but wanting to improve outdoor spaces," said Clayton DeKorne, Editor-in-Chief of REMODELING and JLC magazines. "Exterior facade facelifts improve the curb appeal and make a great first impression as buyers approach the home. That translates to real dollars at the closing table, which is why we see such tangible returns on those investments."<sup>21</sup>

### OUTDOOR LIVING SPACES

Specifying Western Red Cedar for decking, pergolas, and entire outdoor rooms is another sure-fire way to add value to a property.



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Outdoor rooms, including decking, pergolas, benches, planters, and other landscape features, present a prime opportunity for designers to specify Western Red Cedar for its durability and beautiful aesthetics.

### Decking

Zonda also reports that a wood deck addition can bring substantial ROI as well. Although the cost of lumber rose significantly in 2020 and 2021, the project still brings a 65.8% return on investment, the 8th highest out of 22 projects noted. This is may be due in part to the global pandemic, which made homeowners aware of the importance of outdoor living spaces and expanded the market exponentially. 90% of Americans agree their outdoor living space is more valuable than ever before, with 78% making exterior upgrades during COVID-19. According to a January 2021 survey conducted by the International Casual Furnishings Association, “people are doing more relaxing, grilling, gardening, exercising, dining, playing with pets and children, and entertaining outside.” Millennials are more likely to upgrade their outdoor spaces than Baby Boomers (43% vs. 28%), with 32% of Millennials wanting to renovate their outdoor spaces to add value to their homes, compared to just 20% of Boomers.<sup>22</sup> As we have discussed, Western Red Cedar is the optimal decking material for a natural look that will never go out of style.

### Pergolas

The New Home Trends Institute tracks a wide range of topics through interviews with

homeowners, and they note that “Privacy is an increasing priority. With the pandemic driving residents outside to exercise, meditate, rest or recuperate, it is a bigger issue than in the past. The more private the spaces, the more desirable they are for homebuyers. This is being addressed by builders in high-density areas with private side yards, careful window placement, and covered patios. The study also showed that while homeowners like the nostalgia and social distance opportunities that front porches provide, they prefer a larger, private backyard space when space planning.<sup>23</sup> Western Red Cedar pergolas, fencing, and other outdoor structures can provide a semblance of privacy. “A pergola is a relatively quick and affordable solution and can often be built or installed in a weekend. Best of all, they provide adequate shade for dining, lounging, and other outdoor fun and relaxation.”<sup>24</sup>

### Outdoor rooms

Belgard Outdoor Living, a national manufacturer of hardscaping products, says that “Looking ahead into 2021, we see some new outdoor living trends emerging. Much of this movement has been influenced by the rapid cultural shifts in lifestyle caused by the pandemic. As more homeowners

begin to think of their outdoor living spaces as an extension of their interior spaces (and not just a place to barbecue or watch the kids play), interior design trends continue to have a major impact on look and functionality.”<sup>25</sup> Among these trends are large-scale outdoor living projects with multiple rooms that coordinate with the main home. In addition, people are using their outdoor spaces for more than just entertaining and hanging out—they have become productive spaces for work and remote learning.<sup>26</sup> The Home Improvement Research Institute (HIRI) recently released their *Consumer Project Planning Survey*, which confirms that “outdoor areas have been the focus on much remodeling activity with strong growth in landscaping, decks, and outdoor living rooms.”<sup>27</sup>

Outdoor rooms, including decking, pergolas, benches, planters, and other landscape features, present a prime opportunity for designers to specify Western Red Cedar for its durability and beautiful aesthetics.

### WESTERN RED CEDAR—THE TRUE ALTERNATIVE

Despite all of the changes in building design and material technology over the past 50 years, Western Red Cedar has remained a constant standout. The species is a more durable, versatile, and sustainable alternative to most building materials. In fact, it is probably the most-imitated natural building product on the market. Western Red Cedar—infinitely imitated but never duplicated. Let’s explore alternative building products used for siding and decking and see how Western Red Cedar often outperforms these materials.



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## CEDAR VS. OTHER WOOD SPECIES

All wood species used in construction applications have similar attributes that make it a desirable building material, including sustainability, durability, and beauty. However, Western Red Cedar sits apart from the crowd. Western Red Cedar is increasingly being used in commercial and residential buildings and is prized for its low density, thermal insulation, acoustical properties, dimensional stability, longevity, ability to accept a wide range of finishes, resistance to decay, and natural good looks. This makes it a sensible choice for siding, paneling, corner boards, fascia, skirting, soffit, window and door trim, and decking.

Durability is probably what sets it apart the most from other wood species. Western Red Cedar is *naturally* resistant to rot, decay, and insect attacks, which means anything built with it will last longer and require less maintenance.

Western Red Cedar, scientific name *Thuja plicata* is the only *Thuja* species native to Western North America. The species has a distinct “cedar” scent caused by the oils and acids produced by the wood, known scientifically as “polyphenols.” These “phenols” also are responsible for Cedar’s natural resistance to moisture, decay, and insect infestation. The natural resistance provided by the oils and acids makes these species more popular in outdoor applications. Properly finished, Cedar will last for decades, even in harsh environments.<sup>28</sup>

While Western Red Cedar is naturally decay and insect resistant, other wood species must be treated to achieve similar durability. Treatments may include pressure-treating, cedar-tone, and acetylation.

### Pressure Treating

Wood species such as Southern Yellow Pine are pressure treated to be used in exposed exterior wood for above-ground or ground contact uses, fence pickets, deck boards, and posts. “Pressure treatment is a process that forces wood preservatives or fire-retardants into the wood. These processes are considered the best and most effective method to extend and preserve timber life. Preservatives protect the wood from attack by wood-ingesting insects like termites and wood rot caused by fungal decay. Fire-retardant treatments help the wood quickly

char when exposed to flame, reducing the smoke and flame in a fire. Pressure-treating wood provides penetration and retention of preservatives for uniform protection of wood products, ensuring the treatment formulation meets the appropriate wood standards and building code requirements.”<sup>29</sup>

The pressure-treating process begins with lumber loaded into a large steel cylinder, called a vacuum pressure vessel. An industrial vacuum pump removes air from the wood, and then the cylinder is filled with preservative solution. Vacuum pressure forces the preservatives into the wood cells, protecting them from insects and fungal decay. 30 Lumber that has been pressure treated can last for 20 years or more.

Before 2003, pressure-treated lumber was often treated with chromated copper arsenate (CCA), a preservative containing some amount of arsenic. However, the EPA and the wood industry decided to move away from CCA-treated wood to other wood preservatives, including Alkaline Copper Quaternary (ACQ) and Propiconazole.<sup>31</sup> Galvanized or stainless steel fasteners must be used with pressure-treated wood because the large amount of copper will corrode standard fasteners. Pressure-treated lumber is also prone to shrinking and warping as it dries. In addition, the chemicals within the pressure-treated wood are released when it is cut and can cause health issues, so proper PPE must be worn. Finally, pressure-treated wood can only be burned professionally to limit the number of toxins released into the air.<sup>32</sup>

This process is time-consuming, expensive, and can introduce chemicals into a project that would otherwise not be if Western Red Cedar is specified. In addition, pressure-treated wood cannot be painted or stained until it is completely dry, taking weeks to months.<sup>33</sup>

### Cedar-Tone

Species such as Southern Yellow Pine can be treated via cedar-tone, a color infusion process available for pressure-treated wood that makes it look like Cedar and does not fade like a stain. Homeowners often choose it because pressure-treated products do not easily take stains. Cedar-tone lumber is treated with built-in water repellent, which helps to reduce

checking, splitting, cupping, twisting and warping, which are natural tendencies of wood when exposed to the elements. “It is treated for a minimum of ground contact protection (.15 lbs of preservative per cubic foot of wood), which is more than twice as much as regular lumber treated for above ground use (.06).” Cedar-tone-treated products are approved for aluminum contact, while pressure-treated products are not because of their corrosiveness.<sup>34</sup>

### Acetylation

Water causes wood to rot, warp, splinter, swell, shrink, and decay due to insect infestation. Fortunately, Cedar has natural properties that protect it from rot and insect infestation better than other types of wood. Just like composites are trying to mimic the performance, properties, and look of Western Red Cedar, some lumber manufacturers are trying to make other wood species as durable as Cedar by processes such as acetylation, which “[subjects] a non-durable softwood to a vinegar-like solution (acetic anhydride), which turns it into a hardwood by preventing the cells in the wood from being able to absorb water.”

Rather than pressure-treating wood with toxic chemicals to prevent rot and insect attack, this non-toxic acetic anhydride is used to create dimensionally stable lumber, holds coatings well, and is very durable. However, because the acetylation process is challenging on a large scale, it has only been commercially viable and available since 2007.<sup>35</sup> The final product is delivered rough and can be milled into products ranging from decking to exterior trim.<sup>36</sup> Unlike most pressure-treated wood, acetylated lumber does not contain any copper or biocides that can leach into the environment over time.

Radiata Pine harvested in New Zealand is the wood species typically used for acetylated wood. However, the only acetylation plant is in Arnhem, Netherlands, which means the lumber must be shipped around the globe, significantly increasing transportation costs and its carbon footprint, and generally introducing many additional steps in the manufacturing process that are not necessary when sustainable, North American-grown Western Red Cedar is specified.



Unique treatments not typically achieved using standard factory finishing treatments include sand blasting, wire brushing, blasting with walnut shells, hammering or beating the wood with other tools, and charring the wood with a blow torch to achieve the Shou-Sugi-Ban look, as seen here on the entryway.

### Distressed, Rustic, Antiqued, Vintage or Aged Treatments

This is an emerging trend where new wood siding and trim are altered using various methods to achieve different design goals. These treatments are designed to achieve different appearances not usually achieved using standard factory finishing treatments. These methods include sand blasting, wire brushing, blasting with walnut shells, hammering or beating the wood with other tools, and charring the wood with a blow torch to achieve the Shou-Sugi-Ban look. Additionally, non-traditional stain products may be employed for special projects.

Most of these are intended to make new wood look old with many trying to replicate the appearance of reclaimed wood or barn wood. While some use other wood species, Western Red Cedar is used by many as it is the most durable and stable of all softwood species. As we like to say, "substrait matters!"

### CEDAR VS. COMPOSITES AND OTHER MAN-MADE PRODUCTS

Many building materials such as composites try to replicate the look of Western Red

Cedar as well, but it is difficult to achieve the wood grain, color, and feel of natural Real Cedar. These alternative products include fiber cement, vinyl, aluminum, OSB siding, and composite decking. Unfortunately, these materials have been overtaking wood as a building material for siding, decking, and landscape elements in recent years. However, as consumers become more educated about the environmental role of building materials and the negative consequences of composites and other alternative materials, they are again realizing the benefits of wood.

### Aesthetics<sup>37</sup>

Companies that produce composite decking and other building materials spend much time in research and development – all in the name of imitating wood's natural beauty. As a result, some brand names come closer than others with manufactured textures and faux grain patterns. But at the end of the day, the deck will look like plastic because try as they may, they cannot outdo nature.

With wood, in particular Western Red Cedar, design options are endless because it comes in various grades and profiles to create

almost any desired look. It is also easy to work with because it is light, cuts easily, lays flat, and stays straight. This allows the creation of interesting visual points of interest, such as herringbone patterns. There is a reason composite decking companies try so hard to look like real wood. Nothing beats the natural beauty of a Real Cedar deck.

With composites, designers can select their color of choice, but there are few refinishing options for these synthetic materials. In addition, the plastic composites do not accept or hold finishes very well and cannot be easily resurfaced. Furthermore, most composites will fade with exposure to sunlight, so they will not even hold their original color.

### Performance<sup>38</sup>

Regarding performance, composite deck manufacturers often offer three tiers of product, with the most expensive claiming to look like Cedar. They are available in hollow boards or solid boards. The hollow boards are more cost-effective, but they are not as sturdy and can hold water, leading to warping. The solid boards, which look a little more like real wood, are sturdier. However, they tend to expand and contract, which can lead to cracking and warping. Another factor to consider is that when composite decking is exposed to sunlight, it becomes very hot for people and pets to walk on.

Cedar is naturally resistant to rot, decay, and insects with an expected service life of 25 or more years, making it ideal for outdoor applications. Cedar siding and decking are a top choice for homes in temperate as well as extreme climates. That is because its natural preservatives stand up to the elements. It is dimensionally stable with a low shrinkage factor, so there is minimal or very little warping, cupping, or twisting, and Cedar is also always cool underfoot.

### Maintenance, Finishing, and Workability<sup>39</sup>

Composite products grow more mold and mildew than wood does and require more chemicals to clean them properly. Furthermore, it is not uncommon for composite manufacturers to discontinue colors and styles, so finding the matching pieces to replace damaged pieces can be quite challenging.

Composites are generally much heavier than wood, making them harder to work with, and they can require a more reinforced substructure. Because they are heavier, they cost more to transport, resulting in a negative impact on the environment. Cedar is a durable wood, but it is also incredibly lightweight, so it's easy to move around the worksite, and it's easy to cut, saw, nail, and glue.

There is no such thing as a maintenance-free building product, but some require less maintenance than others. With Cedar, it's good practice to clean the material once a year with a non-phosphate detergent solution. If mold is present, it should be washed with a mild oxygen bleach solution. If the Western Red Cedar is finished with a semi-transparent stain, the product should be reapplied as directed - usually every two or three years. For the lowest maintenance option, homeowners can let the deck or siding weather naturally, eventually turning into a beautiful silvery patina.

**Sustainability<sup>40</sup>**

Price and appearance are still primary factors when choosing a material, but the environmental impact is on the rise as a consideration. From the cradle to the grave, woods such as Western Red Cedar leave the

smallest carbon footprint compared to other building materials. According to independent studies, wood products use less energy during manufacturing and transportation. As a result, they produce less air and water pollution than man-made products. Cedar also helps reduce global warming by absorbing carbon from the atmosphere. Moreover, cedar decking is naturally biodegradable in a landfill. Western Red Cedar comes from responsibly managed forests, where more trees are planted than harvested. This makes Cedar a renewable source and a much-needed carbon sink for the planet.

Contrarily, processing composites produces greenhouse gasses, and composite materials do not decompose quickly in landfills.

In short, many composite products go to great lengths to mimic the rich color and wood grain of Cedar, but few come close. Why not just use the real thing? Here are just a few examples of how product manufacturers market their "cedar-like" materials:

**Vinyl shingle siding manufacturer**

"An architecturally-accurate replication of decorative scallop, octagon, and half-cove cedar shingle designs, they are engineered from a durable polymer formula that combines the dimension and texture of

genuine cedar shingles with long-lasting performance and maintenance-free upkeep."<sup>41</sup>

**Fiber cement siding manufacturer**

"Faux cedar siding not only has a texture and appearance that very closely resembles real wood, but it also comes in the same shapes, sizes, and styles as real wood. These faux cedar shingles have the same wood texture, as well as the irregular shapes and sizes that you get from using traditional shakes. This enables you to get the rustic appearance you want, without the upkeep."<sup>42</sup>

**Metal siding manufacturer**

"TruCedar's steel core provides unmatched impact resistance that doesn't crack, melt, or wick water like other siding materials and perfectly mimics the look of real wood siding in a range of curated color options. Two paint colors (high- and low-key tones) are used to create a natural-looking wood grain pattern. Lightly formed embossing is applied to all profiles to support a natural, traditional look. Lightly formed embossing is applied to all profiles to support a natural, traditional look. Shake profiles apply a straight grain embossing to replicate natural cedar shake."



From the cradle to the grave, woods such as Western Red Cedar leave the smallest carbon footprint compared to other building materials.



The exterior walls are clad with with engineered, knotty 3/4" x 8" beveled Western Red Cedar siding from British Columbia.



The pre-stained siding was installed with a 1" overlap and a bleaching product was used to achieve a natural silver-gray patina more quickly.

## CASE STUDY

**The Lakehouse, Toronto, Canada**

In 2019 designer Lynda Reeves, Principal Designer of the Lynda Reeves Design Studio and founder and publisher of House & Home magazine, bought a lake house for its proximity to Toronto, view of the lake, and great bones. The 11-bedroom historic house, called Homewood, is approximately 100 years old and was built by an executive of the Robert Simpson Company, a famous Canadian department store. It's a summer house that had been in the same family for three generations and was outfitted with original furniture from Simpson's. Unfortunately, the one-season cottage was only used in the summers because it wasn't heated, nor did it have air conditioning.<sup>44</sup> Insulating and installing an HVAC system was the first project on Reeves' to-do list.

Reeves' initially hoped to specify a metal roof but faced opposition from the project team because they felt cedar shakes would work better with the style of the home, which ultimately proved to be the ideal solution. Much of the original interior wall and ceiling paneling is tongue and groove cedar. By the end of September 2020, new roofing, new windows and doors, insulation, and HVAC had been installed, and the exterior was ready for siding.

The wall assembly is comprised of full-cavity R-14 mineral wood insulation, 2" comfort board, plywood sheathing, and a vapor barrier. This is all finished with engineered, knotty ¾" x 8" beveled Western Red Cedar siding from British Columbia. The siding was pre-stained, so it was ready to put up when it arrived on-site and was installed with a 1" overlap. A bleaching product was used to achieve a natural silver-gray patina more quickly. Nails are pre-stained the same color as the cedar siding and will also weather over time to blend nicely with the siding.<sup>45</sup>

Reeves specified Western Red Cedar from British Columbia because it is a renewable resource that weathers gracefully, comes pre-finished, and has the natural look that she desired for The Lakehouse. She says, "I just love the rugged nature of it and the way the knots have been pushed back, so it feels kind of gray. I think it's fabulous. Look how it goes with the roof. It's very successful.

## CONCLUSION

As you have discovered, Western Red Cedar is an extremely versatile wood species with many different interior and exterior applications that can be finished to meet the aesthetics of any architectural style. From interior paneling to exterior cladding, decking, and shingles, Western Red Cedar adds value to projects. It exceeds expectations, rising above alternative materials that are often trying to imitate the durability, rich color, and unique grain of Real Cedar. ■

## ABOUT THE WRITER

Paige Lozier is an experienced writer of digital and print publications, primarily within the design and construction industries. She received a Bachelor's degree in Interior Design and a Master's degree in Historic Preservation from the University of Georgia.

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