Photo: JohnClemmer.net

High-pressure laminate (HPL) panels can be used as part of a ventilated rainscreen system on a wide range of building types to provide great design freedom and excellent performance.

High-Pressure Laminates in Rainscreen Facade

A highly durable solution with design freedom and flexibility

Sponsored by Trespa North America Ltd. | *By Peter Arsenault, FAIA, NCARB, LEED AP*

High-pressure laminate (HPL) is a proven and popular building product that has been used for both exterior and interior applications for decades. HPL panels have been tested for durability in the laboratory and on many buildings around the world, and they have been shown to perform exceptionally well. Equally appealing, the wide variety of product offerings gives architects great design flexibility and freedom to create exciting, award-worthy facades. When HPL panels are combined with a rainscreen attachment system, the resulting facade can contribute to high-performing, and sustainable buildings. In the field, installation is very straightforward using conventional tools and fastening materials. These traits have been evidenced in all types of buildings, including education, multifamily, mixed-use, transportation terminals, health care, and retail. All of these aspects of using HPL for rainscreen facades are investigated and discussed in more detail in this course.

HPL FACADES OVERVIEW

Design decisions related to commercial building facades are usually based on a variety of factors. A common starting point is to blend the desired building form with the intentional locations of both opaque and glazed areas. From there, a series of other

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Learning Objectives

After reading this article, you should be able to:

1. Identify and recognize characteristics and beneficial environmental properties of high-pressure laminate (HPL) in rainscreen facades.
2. Investigate the characteristics and properties of HPL for use on rainscreen facades for a range of building types.
3. Assess the long-term functional contributions of HPL facades related to green and sustainable building design.
4. Determine ways to incorporate the principles presented in this course into specific building facades as shown in case studies.

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design decisions are made, particularly with the opaque areas related to color, texture, pattern, geometrical delineation, etc. The necessary technical decisions also need to be made to assure that the facade achieves all of the desired characteristics for code compliance and owner requirements, including water and air resistance, thermal performance, durability, low maintenance, and sustainability. Considering all of these multivariate demands, a rainscreen solution using HPL cladding has become a system of choice, described as follows.

Rainscreens

Rainscreen facades are defined as a system where the outermost cladding is separated from the underlying water-resistant barrier (WRB) by incorporating a specifically designed airspace in between. In this manner, the outermost cladding acts as the visible weathering surface. The WRB is then able to act as the protective water barrier (and air barrier too, in many cases), keeping the building free from water and/or air infiltration. A properly designed rainscreen system thus creates a ventilated space behind the cladding to allow for free drainage or removal of unwanted water from weather. In most cases, the airspace creates a naturally occurring convective airflow between the cladding and the WRB that is enhanced in taller buildings from stack pressure. This natural airflow allows for drying of the assembly, including the dissipation of any moisture that may develop from condensation. Thus, the ventilated airspace allows for drying of the total wall assembly and protects the underlying wall construction from potential water and/or humidity damage.

Ventilated rainscreens also have the benefit of using the cladding to protect walls from solar heat gain. The ventilated space allows airflow to disperse any temperature buildup on the cladding and in doing so helps to keep wall temperatures lower. Since the largest energy use in commercial buildings is typically for air-conditioning, a ventilated exterior wall can help provide a welcome reduction in the need for cooling. Accordingly, it can thus help directly reduce the use, cost, and environmental impact of air-conditioning in buildings.

Ventilated rainscreens can allow compliance with energy codes and best practices for sustainability that call for continuous insulation to be placed on the exterior of the structural components of a wall. By placing the insulation outside of the structure, it provides a means to overcome thermal bridging, which is a significant condition when insulation is only placed between wall studs or other structural members. The reduction of thermal bridging reduces energy fluctuations in buildings, making occupants more comfortable, and saves on energy costs. In ventilated rainscreen walls, the continuous insulation becomes part of the base for the WRB to be applied and provides a smooth, continuous surface for that installation.

Image courtesy of Trespa North America Ltd.

A ventilated rainscreen facade incorporates an outer cladding material held out from the wall assembly with an aluminum support system. It also allows for continuous insulation and a water-resistant barrier (WRB) to be properly installed.

HPL Cladding

Once the decision is made to use a rainscreen facade system on new construction or a renovation project, attention focuses on the type of visible cladding to be used. While there are many materials to select from, HPL panels have been used on many buildings with great success. Together, the coordinated HPL panels and support systems meet all of the basic criteria for a well-functioning rainscreen facade system.

The basic makeup of HPL as a material has been developed and refined over decades of production and use. It is manufactured by layering specifically engineered materials and fusing them together using heat and pressure. Common to all of them is a core of multiple layers of kraft paper that is impregnated with phenolic resins and fire-retardant chemicals and manufactured to various standard sizes. On top of this core, a decorative layer of impregnated kraft paper with pigmented polyurethane acrylic resin or a melamine layer is applied, either of which provides the finished look of the panel. A decorative layer can be applied to the back side of a panel or a comparable non-decorative layer can be provided. Either way, both sides of the material are balanced by the selection of surface layers over the core. Then, both sides receive a transparent polyurethane acrylic resin covering to protect the surface and provide other characteristics of longevity.

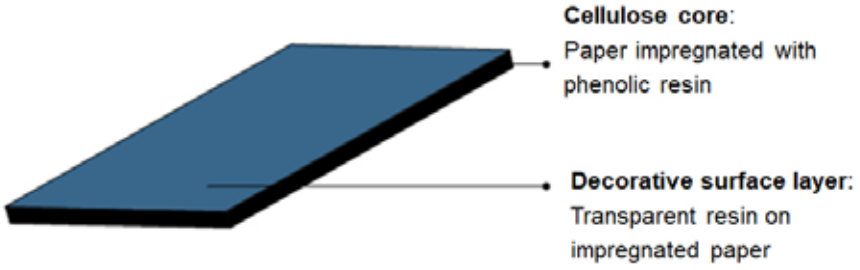
Once the panel layers are determined and assembled, they are laminated together using heat and pressure. The pressure is high, on the order of 10,000 psi (hence the term "high-pressure laminate"), with a moderate temperature of approximately 302 degrees Fahrenheit/150 degrees Celsius. Once pressed, the result is a dense, durable, homogenous product that can be manufactured in various sizes and shipped out for delivery.

The overall success of HPL as a building product is found in both the ease in which design options can be created and the superior performance that it provides. We will focus on these characteristics next.

DESIGN CHARACTERISTICS OF HPL PANELS

Architects looking for a cladding material that provides ultimate design freedom for facades can find it in HPL panels used on a rainscreen system. This can be true if the design intent is to make a dramatic statement,

Image courtesy of Trespa North America Ltd.



HPL is made up of a core of multiple layers of resin-impregnated kraft paper, plus outer surface layers that are decorative or colored.

blend the building in with its surroundings, or just about any approach in between. The nature of this HPL homogenous product means that it is very economical both to purchase and install, thus removing budget limitations on building design that can come with other materials.

Based on these fundamental characteristics, manufacturers of HPL facade cladding panels offer a very wide and broad palette of materials that architects can select from, mix, match, or otherwise work with. The common design choices are summarized as follows.

- **Wide color range:** HPL panel color is determined primarily by the selection of the decorative layer on the panels. Hence, manufacturers can readily offer a full range of choices in a broad color spectrum that allows for creative expression and even inspirational design. Since there are so many standard colors available, it can be quite economical to use multiple colors on a facade design and create quite sophisticated looks as a result. For large projects, it is even possible and justifiable to work with a manufacturer to create specific project colors for more expressive and individualized facades.
- **Single- or double-sided color:** Since multiple layers are used to create the finished product, it is possible to choose HPL panels that have a finish color on only one side or both sides. Further, if both sides are selected, the colors could be different on each side, as may be appropriate to the needs of a project.
- **Multiple finish styles:** HPL panels are available in a variety of standard finish styles. In addition to uniform colors that are characteristically solid and consistent, there are other popular facade options too. Some finishes simulate the look and sleek characteristics of raw or finished popular metals used on facades but with much less weight and expense. Similarly, panels with the appearance of wood grain or stone offer a natural look with different stained wood grain or stone texture options. Metallic finishes bring some unique capabilities by reflecting light in predictable but intriguing patterns that offer a very unique look.
- **Variety of textures:** The manufacturing process allows for a choice of surface sheens, including a range from subtle matte finishes to various degrees of gloss. It is also possible for the surface to mimic the texture of rock finishes or emulate stained wood surface textures.

Images courtesy of Trespa North America Ltd.

The range of design characteristics of HPL panels allows for complete design freedom when creating building facades.

- **Multiple panel sizes:** Sometimes the design of a facade can be limited by the size of the cladding products available. HPL panels are available in a range of sizes, with at least one manufacturer offering four different standard sizes that are intended to work with common facade dimensioning. This allows for the efficient integration of the HPL panels into architectural designs with greater control over seams, geometric patterns, and final designs. Further, since the material can be easily cut in a fabrication shop or on-site with common carpentry tools, custom sizes and shapes are easy to achieve. In those cases, the most efficient and economical size can be selected to cut multiple custom shapes so as to minimize waste.
- **Different panel thicknesses:** Like any sheet material, the strength and rigidity of HPL increases as the thickness of the panel increases. In some facade designs, the size and span of the panel between supports is large, suggesting that a thicker panel is needed to remain rigid. In other cases where the panel span is shorter, the thickness may be able to be reduced to take full advantage of the possible weight and cost savings.
- **Perforations:** Not all facades need all of the cladding to be solid. Rather, some perforation may be desired for design aesthetics, enhanced airflow, or other reasons. Perforated HPL panels can be used in this case with the perforations following a standard pattern or in some cases as a custom design. The size of the perforation can range from very small to quite large.
- **Unique panel shapes:** There is no reason that HPL panels need to be limited to rectangular shapes. Rather, their ease of workability and the variety of size, thickness, and other features means that unique geometric or other shapes can be designed, fabricated, and installed to create dynamic, custom, and unique building facades.
- **Multiple uses:** The general opaque wall areas are usually the focus of facade design, but the versatility of HPL panels means that they are not restricted to just facade surfaces but can also be used in ancillary or visually supporting locations. Such applications can include soffits, canopies, and sunscreens as well as balcony enclosure panels. However, please note that they are not suitable for floor or roof surfaces.
- **Renovation projects:** All of the design attributes of HPL panels can clearly benefit new construction, but they are also ideal for renovation projects. In this case, the light weight and thin material can allow direct application over existing facades, thus avoiding unnecessary selective demolition costs. Recladding existing buildings can also transform them from looking outdated and worn into a new, vibrant, and more current design.

With all of these different design capabilities, it is easy to see why architects can enjoy great design freedom when using HPL cladding panels to create notable and appealing building facades.

PERFORMANCE CHARACTERISTICS OF HPL PANELS

It is always good to find and use a cladding product that looks great and provides for a lot of design freedom, but in addition, it needs to perform as intended. In this regard, HPL panels bring a substantial collection of beneficial properties. It is important to recognize that all the performance characteristics discussed below can be verified by manufacturers or independent third parties

Images courtesy of Trespa North America Ltd.

HPL surfaces are remarkably color stable and UV resistant, as shown by comparing new panel pieces against those that have been on this building in the Netherlands for 24 years.

based on specific laboratory testing for each. There are also plenty of building projects that have been in place for decades that exhibit each of these characteristics and can be verified as well.

- **Weather resistance:** The dense makeup of HPL panels combined with the clear, protective outer layers means that weather does not have much impact on the material. It readily sheds water, is not bothered by wind, and even long periods of bright sun exposure do not impact the panels.
- **Harsh climate tolerance:** Project locations with particularly harsh conditions, such as saltwater spray, intense heat, or severe weather events, are suitable locations for HPL cladding panels. Panels are designed to withstand exterior elements.
- **Inherent panel strength:** The laminated makeup of the HPL and the combination of resins used, all contribute to the overall strength and rigidity of the panels. Even in lesser thicknesses, the density and integrity of the material is high. This means that it can tolerate high winds and other imposed loading in addition to carrying its own weight. The thickness can be increased as needed to suit local conditions with increased strength. Relatedly, it should be noted that the strength and integrity of the panel is not compromised when the material is cut. Rather, simply shaping the cut edges, much the same way as shaping cut hardwood, maintains the integrity of the product without fear of moisture seeping into the product from the cut edges. The phenolic resins in the layers resist this.
- **UV resistance:** HPL panels with clear, protective layers have consistently demonstrated excellent resistance to ultraviolet (UV) rays from sunlight. This is a particular advantage since many other materials do not tolerate UV light as well and can degrade over time.
- **Color stability:** Accelerated and real-time testing of HPL panels and samples has shown that the colors remain remarkably stable over time. In many cases, minimal fading or other changes to the panel have occurred. Manufacturers understandably relish in taking new pieces of a product, placing them next to a facade that has been in place for years, and straining to see any difference between the old and new. This is not only a benefit for the original facades, but it also makes additions or renovations easier since the new panels will likely not be visually discernable from the original, older panels.
- **Longevity:** With the inherent resistance capabilities and color-retention qualities of HPL panels, it should be no surprise that they provide excellent long-term performance. Longer service life means operational savings for the building owner as well as some assurance that the building will continue to look good over time.
- **Resistance to acid rain:** The same things that make the surface highly resistant to weather and other conditions can also make it quite resistant to acid rain. The dense material and impenetrable surfaces provide a nonreactive surface that deflects away acid rain that might otherwise show up on a different facade material.
- **Low maintenance:** All of these preceding performance characteristics also mean that HPL panels are indeed easy to clean. The dense, resistant surface means that dirt, grime, graffiti, and other surface issues are all easily cleaned. The owner gets the benefit of this low maintenance characteristic, which is typically anticipated to last over the entire life of the building.

A big part of the success behind the performance of HPL panels on building facades has to do with the way they are manufactured. At least one manufacturer uses an electron beam curing process to assure the overall integrity and long-lasting nature of the decorative layer. For the proper protection and use as an exterior cladding product, the outermost layer can also be formulated specifically as an environmental barrier coating. It is always recommended to compare products between manufacturers and verify the unique processes used that directly impact performance results.

HPL CLADDING SUPPORT AND INSTALLATION

The design of a rainscreen is the first step in a successful building facade that is necessarily followed by a professional installation. Understanding the support and installation process informs the design and influences the overall performance of a project.

Support Systems

While the HPL panels are the visible pieces that receive a lot of design attention, the underlying support systems are the components that make the whole system work. Selecting and designing the proper

Photos courtesy of Trespa North America Ltd.

HPL panel installation is very straightforward using conventional carpentry tools and techniques.

support configuration helps assure that the cladding is held properly in place, creates the appropriately sized drainage space, and minimizes interruption of continuous insulation and WRBs. It is also the system that allows HPL panels to be installed vertically, horizontally, or at an angle to suit different project designs.

The support system for HPL panels most commonly consists of specially fabricated aluminum channels or angles. The channels are typically installed vertically although other variations are possible. The preferred approach is for the channels to be secured by using separate clips or supports that penetrate minimally through the continuous insulation into suitable building structural members. Other approaches are possible, but it is important that the selected system is compatible with the cladding so that the cladding and support systems work together.

Panel Installation

There are two fundamental choices for securing the HPL panels to the support system. One is to use exposed fasteners through the face of the panels. Commonly, these fasteners can be painted to match the color of the HPL and blend in quite well, particularly when viewed from a bit of distance as most facades are. The fasteners must be spaced properly according to the manufacturer's recommendations for the product. Every panel needs fixed points and sliding points, including some with oversized holes to accommodate movement. Information on how to position/place these points is provided in technical information from manufacturers.

The second way that HPL panels can be secured in place is to use a concealed fastener system. This creates a cleaner look, particularly when viewed up close, say along a sidewalk or other areas where people will frequent. Concealed systems rely on the addition of horizontal aluminum channels that are designed to receive corresponding inverted channels or clips that are secured onto the back of the HPL panels. These systems commonly include some means of adjustment to level the panels and a means to permanently secure the hanging panels in place.

Regardless of the method of attachment, HPL panels are generally quite accepted by tradesmen because they bring several installation advantages. First, if the design calls for it, the availability of large-size panels reduces installation time and allows for quicker, more economical installations. Second, HPL can be fabricated in a controlled manufacturing site with computer numerical control (CNC) machined accuracy as well as field cut. It is machined and installed using the same conventional carpentry tools as used for hardwood. That means there is very little if any learning curve since experienced

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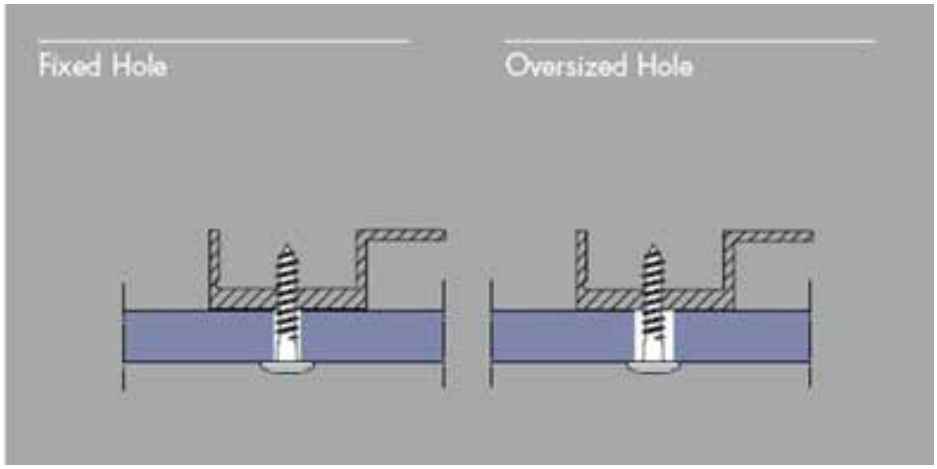
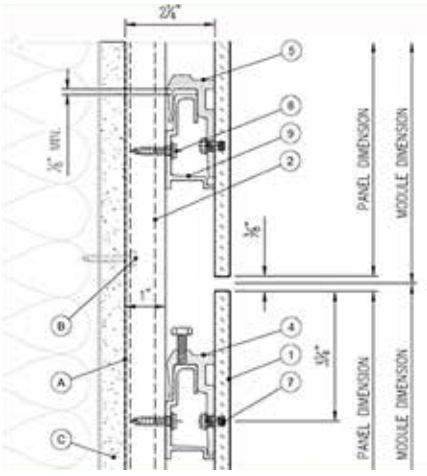




HPL panels can be installed on aluminum support systems using either an exposed fastener method or concealed fastener system.

carpenters can readily discern how to work with and install the products. Third, the comparative thinness of the product means that renovation projects can benefit from installation over existing materials, thus avoiding the time and cost of demolition and waste disposal.

Of course, just like any manufactured product, HPL panels should always be installed per the manufacturer's recommendations for the specific application in which they are being used. In this way, any warranties can be preserved and the best performance can be assured.

GREEN BUILDING CONTRIBUTIONS OF HPL FACADES

When HPL panels are incorporated into facades, there are a number of contributions that they may be able to make related to green and sustainable building design. Some of these are straightforward to document using LEED v4 criteria due to their inherent properties and characteristics. These include the following.

Materials and Resources

When looking at a life-cycle assessment (LCA) for HPL panels, several traits help produce very favorable results. First, they are primarily made from wood-based products. Wood is a natural, renewable resource that is increasingly praised for taking CO_2 out of the atmosphere, thus helping to reduce greenhouse gases and counteract global climate change. Second, some HPL manufactures can supply materials that carry certifications from recognized sustainable forestry organizations, such as Programme for the Endorsement of Forest Certification (PEFC) or Forest Stewardship Council (FSC). These certifications help to assure that the product used in the panels has been grown and harvested in a manner that meets the stringent sustainability requirements of those certifications. Third, as a long-lasting, durable product that resists UV rays, weather, and needs little maintenance, it will not likely need to be replaced during the life of the building. This creates a very sustainable facade, thus contributing to positive LCAs.

Relatedly, the light weight and standard sizing mean more efficiency and less energy used in transporting the HPL panels from the manufacturer to the job site. At the end of their service life, HPL panels can be reclaimed and reused. Some manufacturers actively seek to reclaim and reuse HPL that is removed from buildings, thus encouraging this practice.

Photos: JohnClemmer.net

CASE STUDY #1

Project: Center for Civil and Human Rights
Location: Atlanta
Architect: Phil Freelon, HOK
Fabricator/Installer: Miller Clapperton
System: Visible (exposed) fixing with screws on an aluminum subframe

The Project: Located in Atlanta, the Center for Civil and Human Rights is a mere 2 miles from the Martin Luther King Jr. National Historic Site and directly adjacent to the Coca Cola Museum. As a museum that tells the continuing story of the American Civil Rights Movement, it warranted a unique, intriguing design. Architect Phil Freelon headed the culture-rooted project, along with HOK, creating what is now a leading attraction in Atlanta.

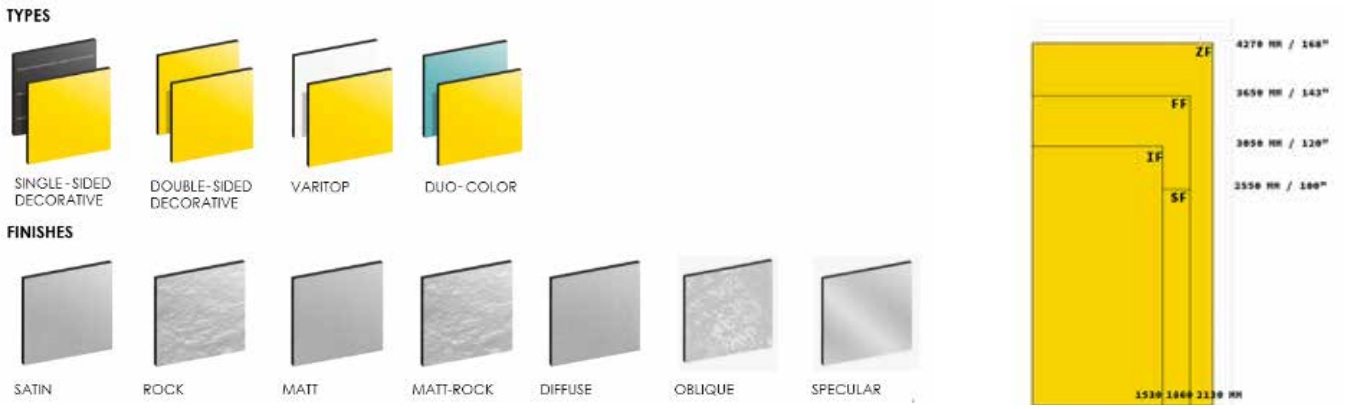
The Challenge: Trials and tribulations began back in 2008 during fundraising attempts for the new building. The economic recession put a damper on expected financial support, forcing the architects to rethink their original design. Initially the plan, which included a design modeled after interlocking arms, had to be redesigned and scaled back to nearly half the size.

The Design Solution: The exterior walls mimic a set of interlocking hands while the various neutral-colored HPL panels resemble human flesh tones. The vision behind the shape and color choices was to represent many people of different races coming together in support of a common cause: civil and human rights. The curved design concept continues inside the 43,000-square-foot Center with large, curved rooms, mood lighting, and an intentional color scheme to match each exhibit individually. Visitors cannot help but feel emotion during their visit, from extreme sorrow to uplifting inspiration. The building is designed to provoke specific feelings that parallel with the exhibit's content. The curved rooms surround visitors with civil and human rights history, and the accompanying sound bites are chilling to listen to while walking through each room. The front facade of the building features floor-to-ceiling windows, providing extraordinary light. A tour through the Center is an emotionally evocative experience.

The Facade Solution: The curved walls of the Center required the architects to brainstorm for engineering solutions that would accommodate the shape. HPL rainscreen facade panels proved to be the solution they needed. In particular, the selected metallic panels feature a directional colored surface, which allow special effects to be created by installing these panels with random orientation. Also, the panels were available in a very large 7-foot x 14-foot maximum sheet size, which helped keep project costs in check. Altogether, the panels' design flexibility, large sizes, and vast selection of colors made them an ideal exterior cladding choice for this stunning project.

The Results: After years of planning, the Center for Civil and Human Rights opened on June 23, 2014. The three-story building is a work of art and tells the legacy of civil rights around the world. The product flexibility of the HPL panels helped the architect's team overcome budget obstacles by using only two panel colors but rotating the panels 90 or 180 degrees to offer the illusion of a multitude of colors when exposed to the reflection of sunlight.

Image courtesy of Trespa North America Ltd.



When specifying HPL panels, it is important to identify the types, finishes, colors, and sizes required from manufacturers' offerings.

Energy Optimization

Some detailed studies have been done on the use of rainscreen facade systems related to energy use in buildings. In particular, a September 2019 study of HPL cladding in a rainscreen system was carried out by the energy services firm of Efcore in Barcelona, Spain. It analyzed actual buildings and simulated conditions, and concluded the following:

- A ventilated facade using the HPL system tested demonstrated continuous thermal protection of the full facade assembly in both summer and winter, including extra solar protection in the summertime.
- A ventilated facade assembly as properly constructed eliminates the loss of energy caused by thermal bridges in both summer and winter.
- Ventilated facades eliminate the risk of condensation and humidity in the wall assembly and interior, which it cites as better for human health.
- Ventilated facades improve energy savings.
- The HPL cladding panels help prevent overheating due to solar insolation.
- The ventilated airspace can lower the external surface temperature of the facade by up to 59 degrees Fahrenheit/15 degrees Celsius.
- The heating effect of dark-colored facades can be minimized by the use of ventilated facades that absorb and evacuate the heat.

Based on these findings, ventilated rainscreen facades using HPL panels have been shown to be an effective approach to help control and optimize energy usage in buildings.

Overall, HPL ventilated rainscreens can be properly designed to contribute in numerous ways toward LEED certification or other green building standards.

SPECIFYING HPL FACADE SYSTEMS

When specifying HPL facades, there are clearly numerous choices and options from which to choose. Coordination with manufacturers during the design phases of a project will help gain insight for project-specific cost drivers, installation nuances, and the latest options. Some relevant items to address in a standard three-part specification format are highlighted as follows.

Part 1: General

The scope of the specified work can include all preparation, substrate review, product choices, and final installation. In terms of specifying performance, the appropriate ASTM and European (EN) testing standards should be referenced both for the substrate (the exterior wall assembly, including the WRB and continuous insulation) and the HPL products.

Submittals for HPL panels and support systems should include the usual manufacturer's data and information for all products used, plus samples with color and texture data to confirm the correct appearance is being achieved.

Quality assurance is clearly an important part of any field-installed system, and the same is true here. Installers should have qualifications. Evidence of such qualifications can be requested as a submittal, but it is important that the people actually in the field are the ones with the qualifications and experience needed.

On-site protection of products should be carried out according to the manufacturer's instructions and recommendations, particularly if any standard limited warranty is needed.

Part 2: Products

All the different cladding and support products used in the building should be called out and specified. If multiple products are used, they should be identified by type in the specifications, and the locations of each type needs to be clearly called out in either the drawings or specifications. The details of the specified products can include the following:

- The specific type, size, and shape of the HPL panels should be identified for each product used. The maximum yield from the panel manufacturer's standard sizes result in cost-effectiveness and green design.
- The specific performance criteria for each product including thickness, dimensional stability, surface characteristics, and any other needed criteria can be specified.
- The specific color, pattern, and texture of each product needs to be called out. Manufacturer's literature should be consulted for this as with any finished product.
- Other requirements including the details of cleaning and stain removal for the product can be called out.

In addition, all trim, accessories, fasteners, and related items need to be identified in the specifications based on compatibility with the support system and wall assembly, ideally as part of a complete, coordinated system.

Part 3: Execution

As with any site-installed product, the installation requires multiple steps that need to be clearly articulated in the specification to achieve the best results.

Examination and preparation: The importance of this step should always be stressed. In addition to the architect, the installer should review and examine the wall substrate for conditions that may affect the installation or overall performance of the wall. Any issues will need to be corrected if they are found to be out of compliance with stated requirements.

Installation: The aluminum support system and HPL panels are commonly secured in place according to the manufacturer's instructions and installation manuals. These should be consulted to assure that the facade system is installed to meet the code and conditions for a successful project.

Protection: Once installed, the rainscreen system should be able to withstand normal weather and human activity but should be protected from any remaining construction work that could adversely affect it.

Cleaning: Upon completion, the facade should be cleaned of any construction or miscellaneous dirt, debris, etc. as the manufacturer may suggest.

When specified and installed correctly, the facade system will provide the desired look and long-term performance characteristics that are intended.

CONCLUSION

HPL cladding panels have been shown to be an appealing solution for designing ventilated rainscreen building facades and related design components. The varied and extensive range of design characteristics provide architects with broad design freedom and many opportunities for creativity. The tested and demonstrated performance characteristics help assure that the material will function as intended over the life of the building. The process of supporting and installing the system is straightforward and economical. The materials and systems support sustainability goals and can be specified to meet project requirements on a wide range of building types. Architects who become familiar with and incorporate this proven system can reap all of the benefits that HPL facades offer.

Take the quiz at ce.architecturalrecord.com

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Photos courtesy of Trespa North America Ltd.

CASE STUDY #2

Project: James J. Whalen Center for Music
Location: Ithaca College, Ithaca, New York
Architect: King + King Architects
Fabricator/Installer: Gitzen Co.
System: Visible (exposed) fixing with screws on an aluminum subframe

The Project: Since the original construction of Ford Hall in 1962, Ithaca College has expanded its programs and grown to nearly 7,000 full-time students. The James J. Whalen Center for Music, named for the College's sixth president in 1999, has served as the main building for Ithaca College's School of Music since 1965. The 69,000-square-foot building houses the original Ford Hall, a 246-seat recital hall, a recording studio, rehearsal rooms, and more than 30 faculty studios. The Whalen Center is centrally located on the main campus.

The Challenge: To accommodate the growing student population, the College determined that the time had come for renovation and expansion of the Whalen Center. It also became clear that the building had fallen into severe disrepair. The exterior concrete panels were failing and beginning to crumble over the entrance, creating a dangerous scenario for visitors attending concerts at the School of Music. The College made the tough decision to close the main entrance to the public to prevent any injuries to pedestrians. With more than 300 yearly concerts and events already booked, time and safety were the most critical factor in decisions regarding the necessary renovations.

The Design Solution: The College tasked the architectural firm of King + King to design a solution that could be completed during the summer season when the campus was not quite as active. Even then, however, there would still be student safety to consider since the College hosts numerous band camps. Both the architects and the College wanted to update the hall's look without losing the distinguished feel of the building.

The Facade Solution: An exterior cladding product with a great deal of design flexibility was needed to reclad the massive building while keeping the process streamlined. As such, an HPL facade with an English cherry appearance was chosen. Marrying the wood aesthetic with exposed fasteners harmonized the building's original Modernist design with Ithaca's prestigious heritage. Also, the option to use large panel sizes offered the simplistic aesthetic the College wanted for this building. The scale of the larger panels with the increased size of the building simply made sense.

As a high-quality exterior material with a reputation for easy handling, HPL panels helped ensure that the recladding of the building's facade was completed before the 2014 fall semester began. The HPL panels offered long-lasting durability and low maintenance, allowing the College to avoid its current problem of deteriorating external materials in the future. The low maintenance would also keep the renovation looking new despite the heavy foot traffic around and throughout the campus' central building.

The Results: Dustin Ehrlich of King + King commented on the project, saying, "As a designer, I appreciated the various panel sizes available, which allowed us the flexibility to create an efficient solution that was compatible with the building's existing structure. Considering the height of the installation though, it was the lack of maintenance required for the HPL panels that became the deciding factor for Ithaca College."