
RHEINZINK®
HISTORICALLY PROVEN, FUTURE FACING
Architectural Zinc for Walls and Roofing

PROGRAM REGISTRATION

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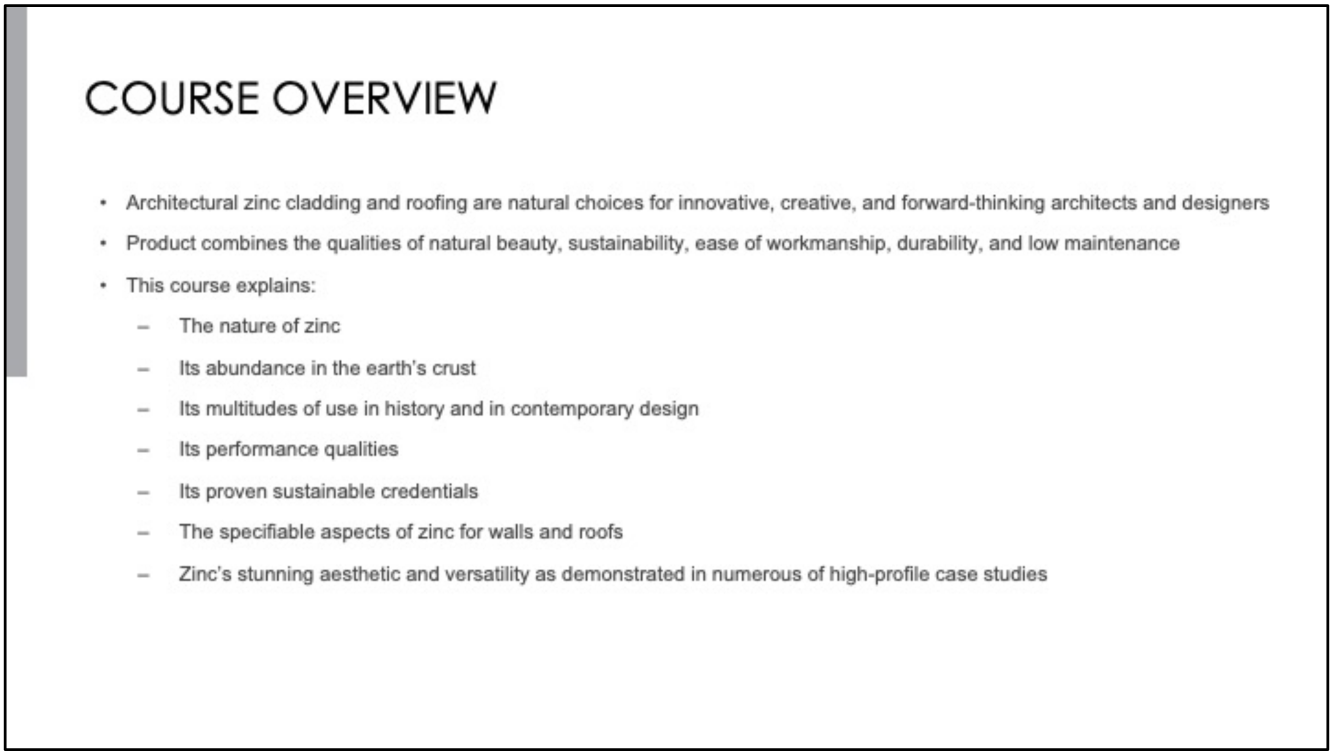

Architectural zinc cladding and roofing are natural choices for innovative, creative, and forward-thinking architects and designers. Rarely does an architectural product combine the qualities of natural beauty, sustainability, ease of workmanship, durability, and low maintenance. This course explains the nature of zinc, its abundance in the earth's crust, and its multitudes of use in history and in contemporary design. The course defines the material's performance qualities and its proven sustainable credentials, as well as showing various seam treatments available. The course illustrates the specifiable aspects of zinc for walls and roofs. Finally, the material's stunning aesthetic and versatility is demonstrated in ~~a~~ numerous of high-profile case studies.

LEARNING OBJECTIVES

Upon completion of this course, the student will be able to:

- Examine the use of zinc for walls and roofs from historic European buildings to contemporary North American designs
- Discuss the specifiable aspects of architectural zinc for a wide range of design goals
- Identify architectural zinc's performance and aesthetic qualities, its natural and accelerated patina process, and how zinc differs from other metals
- Define architectural zinc's proven sustainable qualities
- Discuss several case studies that show how architectural zinc walls and roofing enhance a variety of project applications

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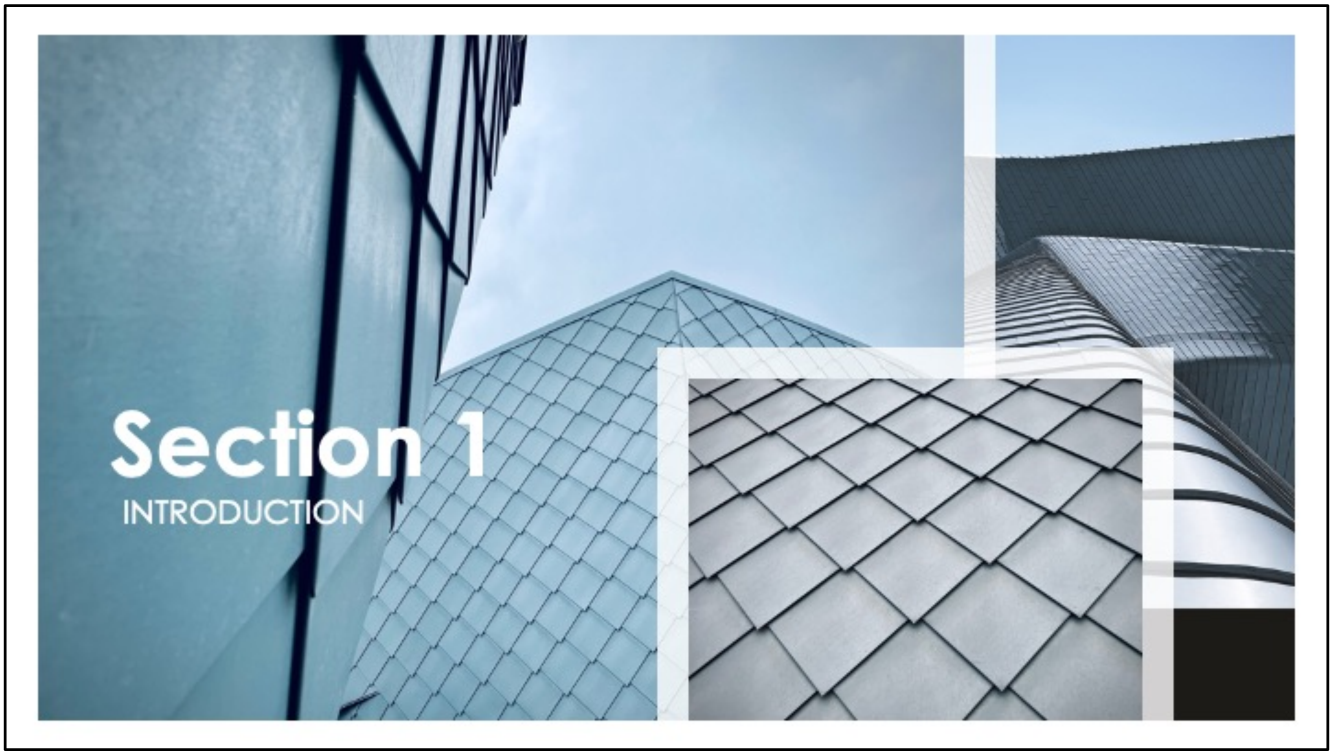
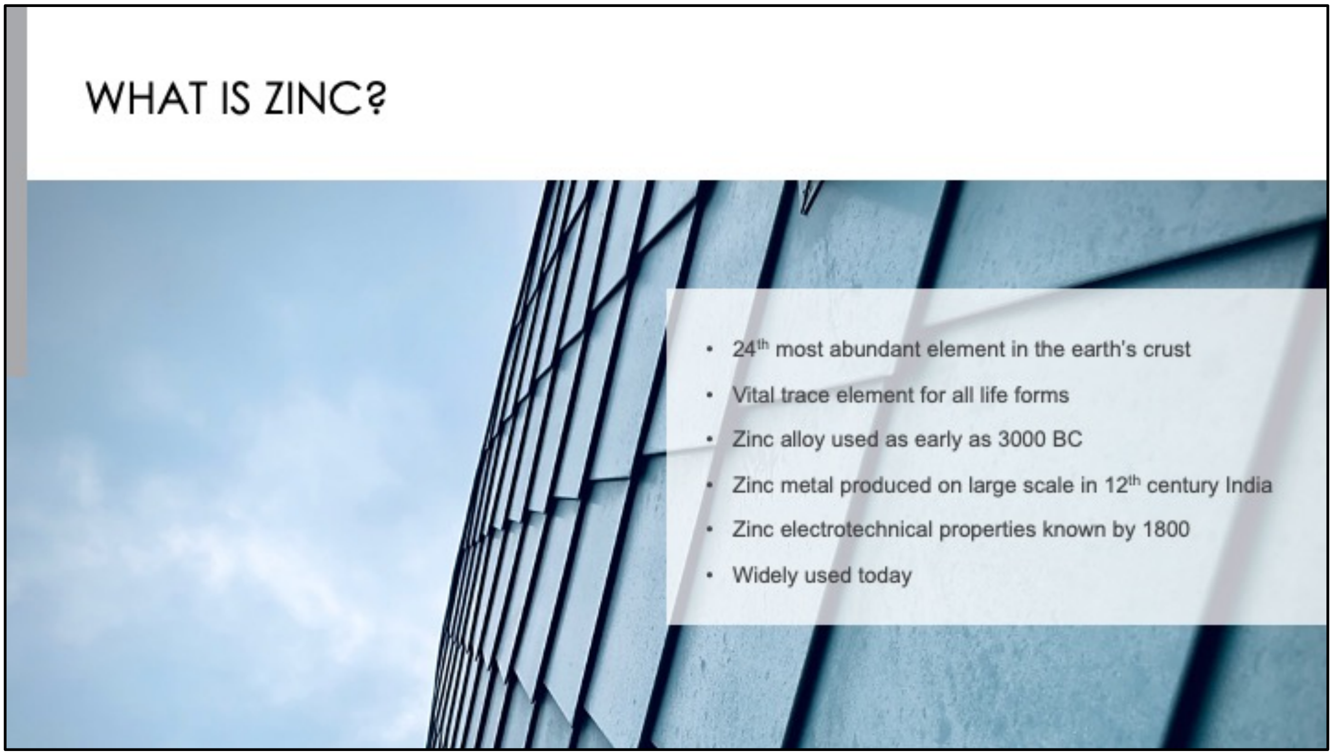


Introduction

Zinc as a construction material has a history reaching to antiquity. Modern architectural zinc is specified today for roofing, wall cladding, roof drainage, and architectural details. Zinc surfaces have an elegant, timeless appearance and are available in a variety of panel styles, sizes, shapes, colors, and coatings, complemented by numerous installation techniques and systems. This proven, natural construction material is extremely long-lasting and requires minimal maintenance. Throughout its long lifetime, its dynamic aesthetic evolves as the zinc material's patina is influenced by the project location's unique climate, protects this ecologically friendly material for many generations.



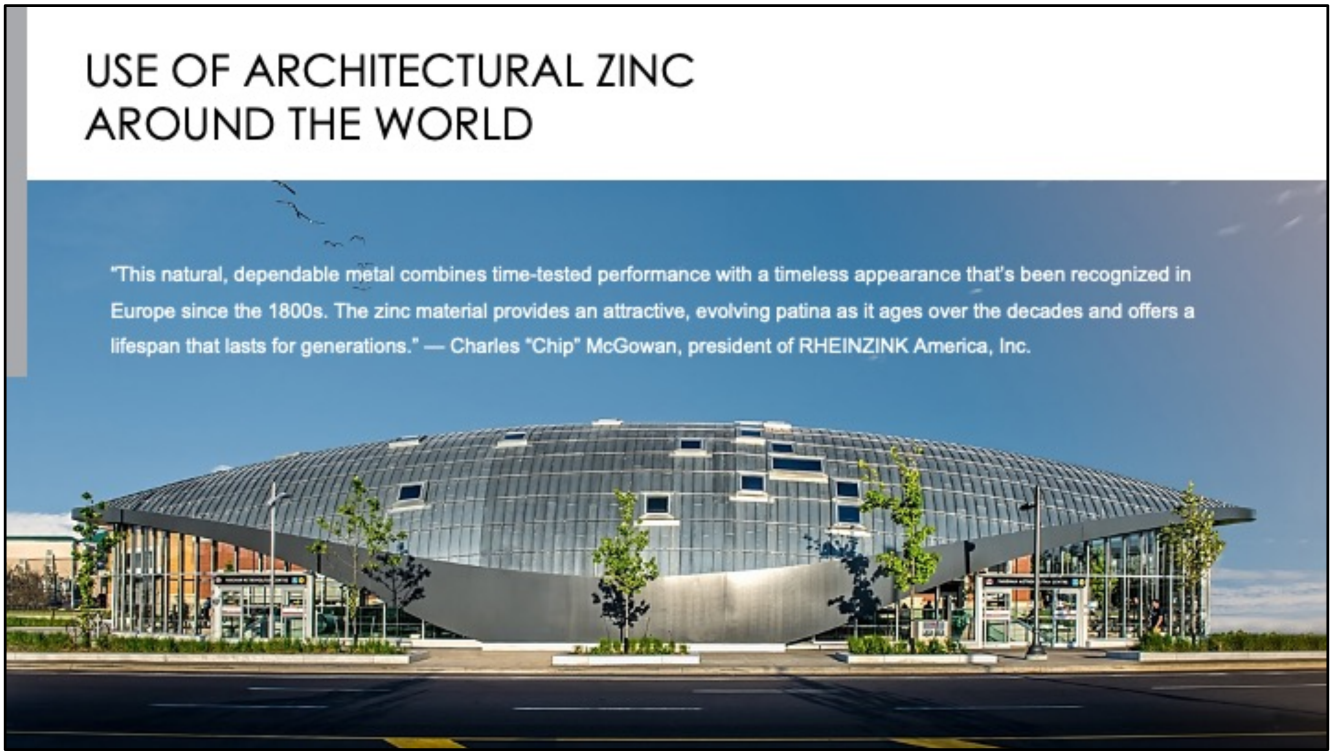
Zinc is a mineral that is the 24th most abundant element in the earth's crust[1]. The largest working reserves are in the United States, Asia, and Australia. Zinc is a vital trace element for all life forms, making it particularly environmentally sensitive. Zinc has a long history in human endeavors. The manufacture of brass, which is an alloy of copper and zinc, was used as early as the third millennium BC in the Middle East. Zinc metal was produced on a large scale in 12th century India. Its electrochemical properties were uncovered by 1800. It is widely used today.

[1]https://en.wikipedia.org/wiki/Zinc

In design and construction, zinc is known to be a dense, cost-effective material that is easy to form, cut, and fabricate. Pure zinc is somewhat brittle and works best as a building material when alloyed with small amounts of titanium and copper. Supporting environmental and human wellness, the metal alloy used by leading architectural zinc manufacturers does not contain lead, iron, cadmium, selenium, manganese or magnesium. Furthermore, chromium-6 has been removed from coatings that are applied to architectural zinc by leading manufacturers.

Zinc as a building material reached an historical zenith in Paris beginning in the 1840s when Emperor Napoleon III ordered the complete urban renewal of the decaying city with its narrow streets and lack of drainage. Baron Haussmann, a French official who became known as the founder of modern Paris, was given the task of transforming the city with large scale demolition and construction projects. This created a need for better roofs than tile and slate, and that could be installed faster. Haussmann is credited with the idea of using welded zinc panels. Zinc is lighter that tile and easier to shape, while providing exemplary performance. Today, 80 percent of the roofs in Paris are zinc, and their patina contributes to the city’s sophisticated architectural allure. There is even a movement to have the Parisian zinc roofs designated as a UNESCO World Heritage site.[2]

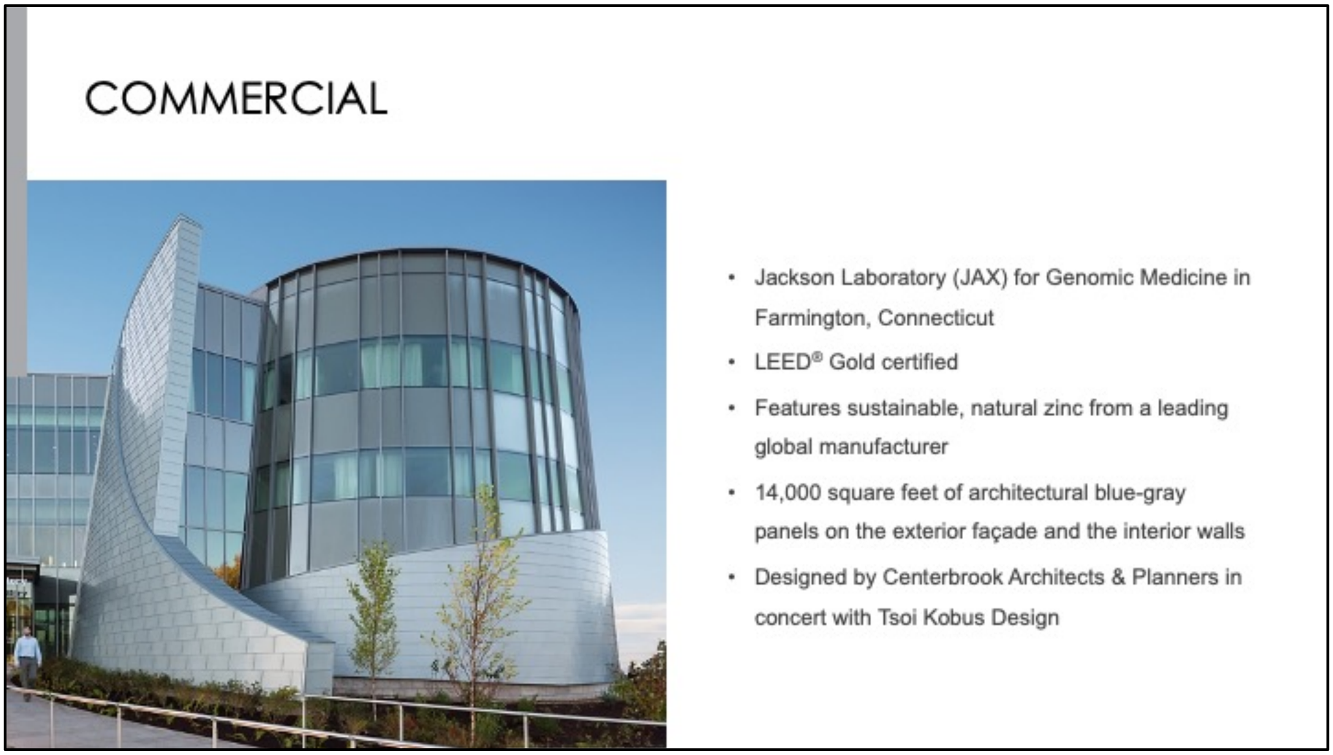
[2]https://www.express.fr/en/news/the-roofs-of-paris-unesco-world-heritage-status/



Today, the use architectural zinc is growing around the world. In North America, titanium zinc was first introduced as an architectural material in 1992.

“This natural, dependable metal combines time-tested performance with a timeless appearance that’s been recognized in Europe since the 1800s. The zinc material provides an attractive, evolving patina as it ages over the decades and offers a lifespan that lasts for generations,” said Charles “Chip” McGowan, president of RHEINZINK America, Inc.

Following are some examples of how architects and designers have specified this versatile material for a wide range of building applications.



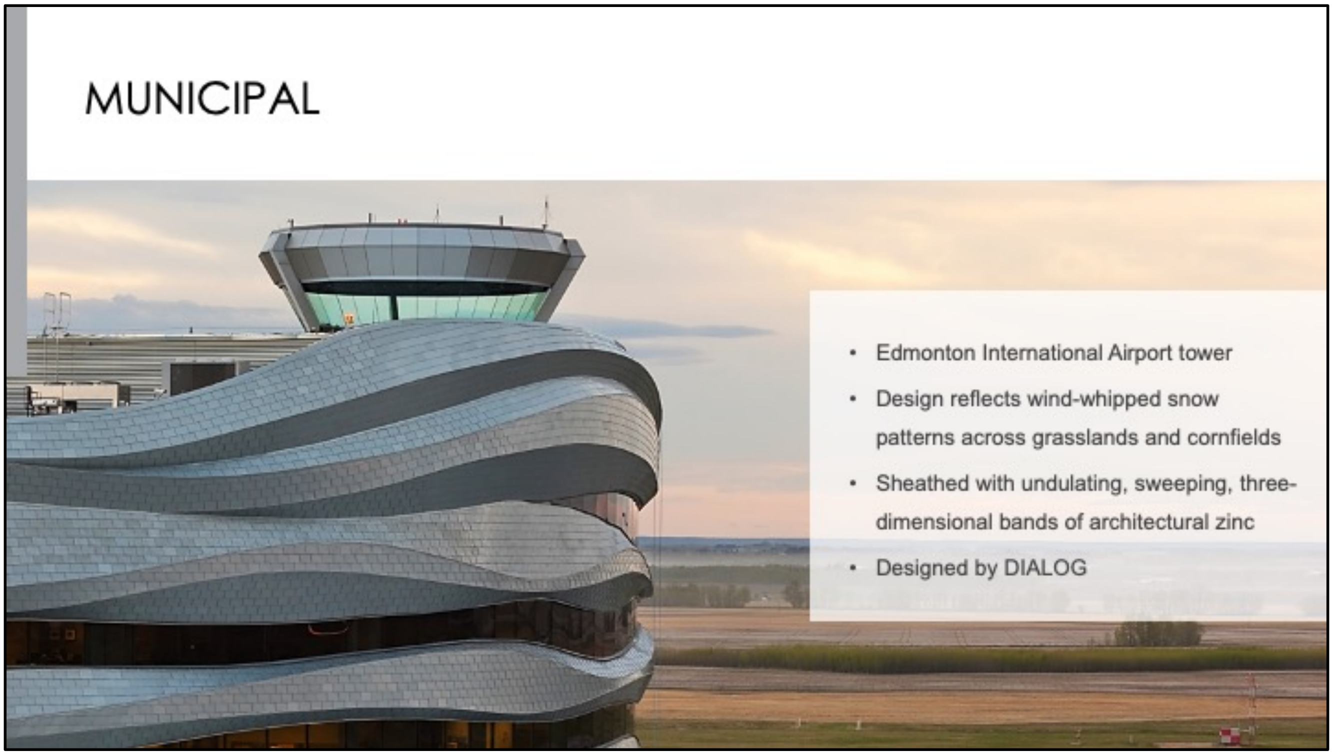
Designed by Centerbrook Architects & Planners in concert with Tsoi Kobus Design, the Jackson Laboratory (JAX) for Genomic Medicine in Farmington, Connecticut, was conceived and built to support environmental health and occupant wellness. Certified LEED® Gold through the U.S. Green Building Council (USGBC), the research center features sustainable, natural zinc from a leading global manufacturer to create the panels on both the exterior façade and the interior walls.

Presenting a positive first and lasting impression, the building exterior features 14,000 square feet of blue-gray architectural zinc panels complemented by a glass and metal curtainwall and Canadian limestone accents.

EDUCATIONAL

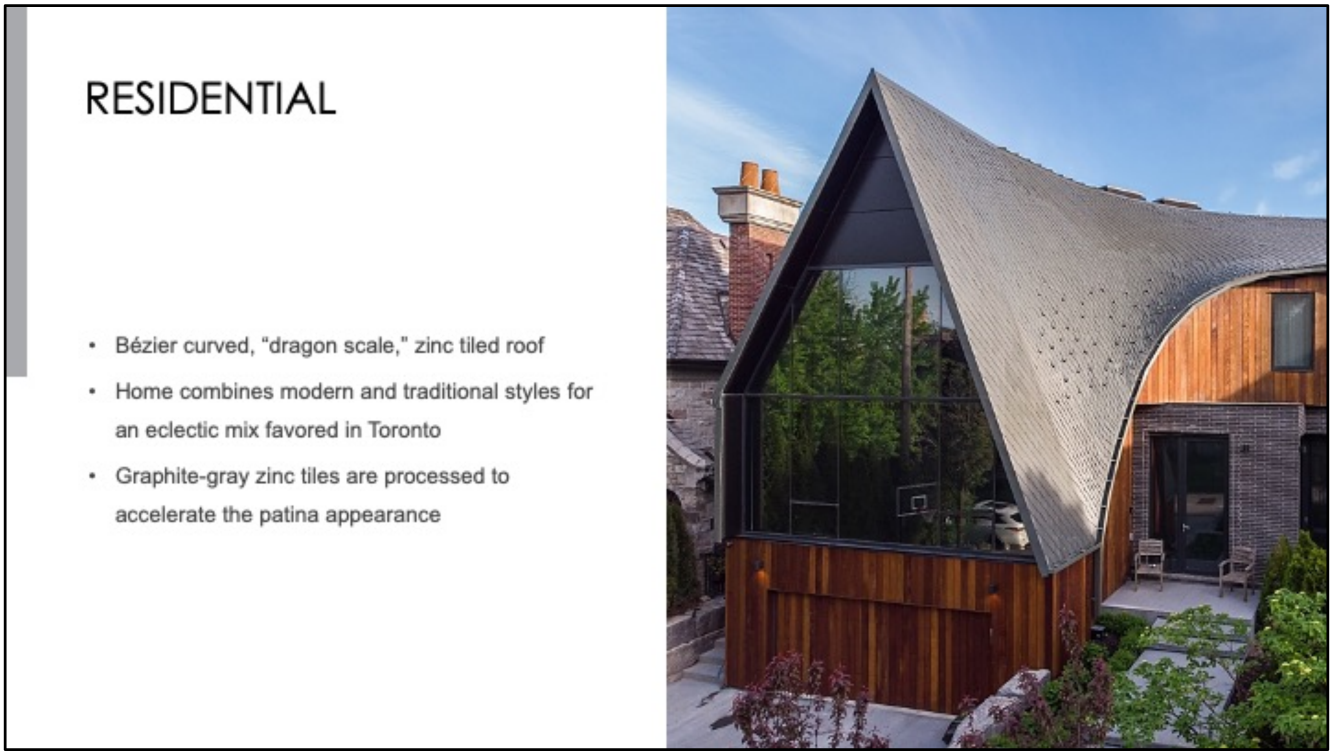
- High Street Residence Hall at Dickinson College in Carlisle, Pennsylvania
- LEED Platinum certified
- Showcases a distinctive and sustainable, architectural zinc cladding system
- Designed by Deborah Berke Partners

Designed by Deborah Berke Partners, the High Street Residence Hall at Dickinson College in Carlisle, Pennsylvania, showcases a distinctive and sustainable, architectural zinc cladding system. As the first residence constructed in 40 years on the historic campus, High Street earned LEED® Platinum certification. In addition to the zinc wall panels, the exterior also features limestone, mahogany and other durable, natural materials. The resulting structure bridges historic formality and a modern, friendly appearance to welcome students.



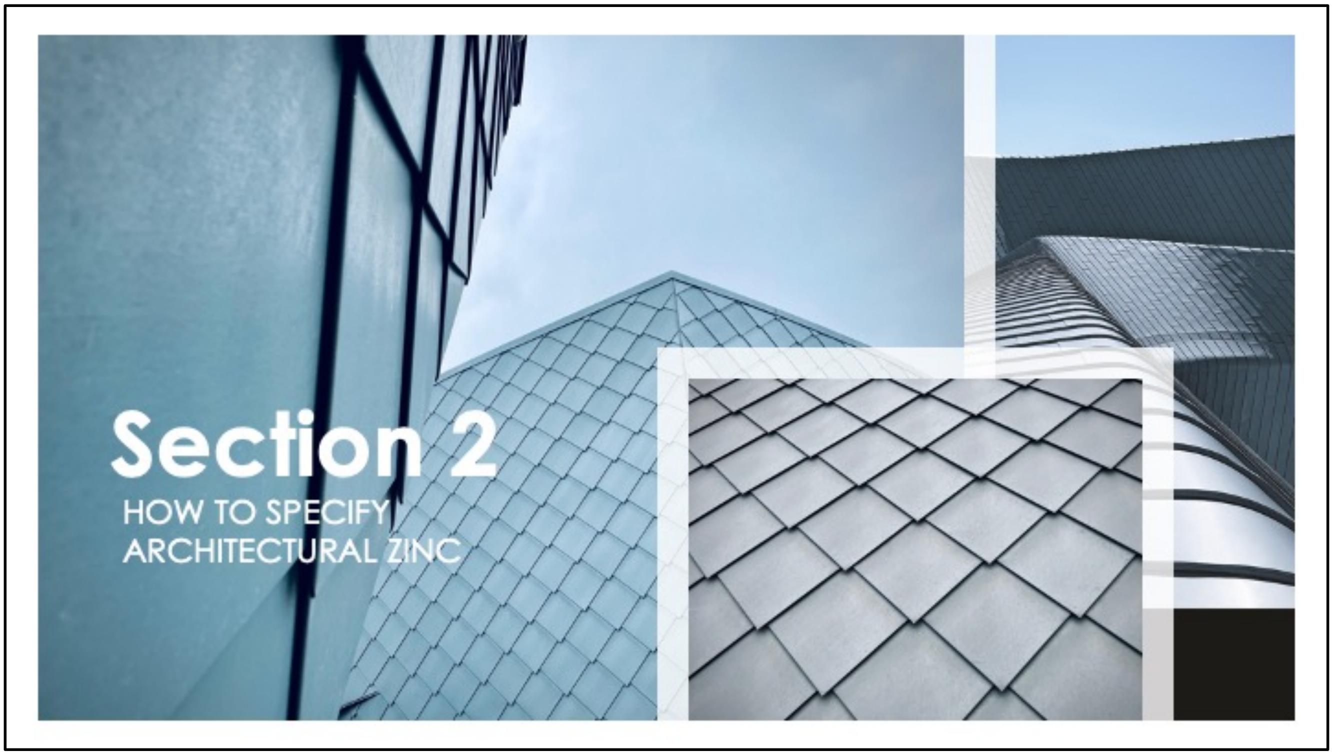
The versatility of architectural zinc in full display at the Edmonton International Airport tower. Its design by DIALOG reflects the endless prairie landscapes in Alberta, where wind whips across vast grasslands and cornfields, casting the snow into strikingly peculiar snowdrifts in winter. The Edmonton-based architectural team sought to mirror this natural spectacle in its design with undulating, sweeping three-dimensional bands sheathing the eight-story, near-elliptical building. The bands are separated by recessed rows of windows, which open onto a view of the Alberta landscape.

The architects opted for architectural zinc with a pre-patina blue-gray color reminiscent of the colors found in the Canadian prairie landscape and complemented the existing ensemble of airport buildings. Just as the wind leaves distinct impressions in landscape, the intention was for each element in the complex façade to be unique. The architects selected zinc as an ideal material to create this custom look and to providing lasting performance.



Inspired by the enduring, metal-paneled roof designs of Europe, a Toronto homeowner envisioned a curving zinc-tiled roof to crown his custom-built 5,300-square-foot, two-story residence. The roof's undulating, draping, fantastical "dragon scale" pattern was brought to reality through the collaborative team of developer, builder and landscape designer ABOND Inc.; and architecture firm BORTOLOTTO, in conjunction with the zinc material manufacturer, fabricator, and installer.

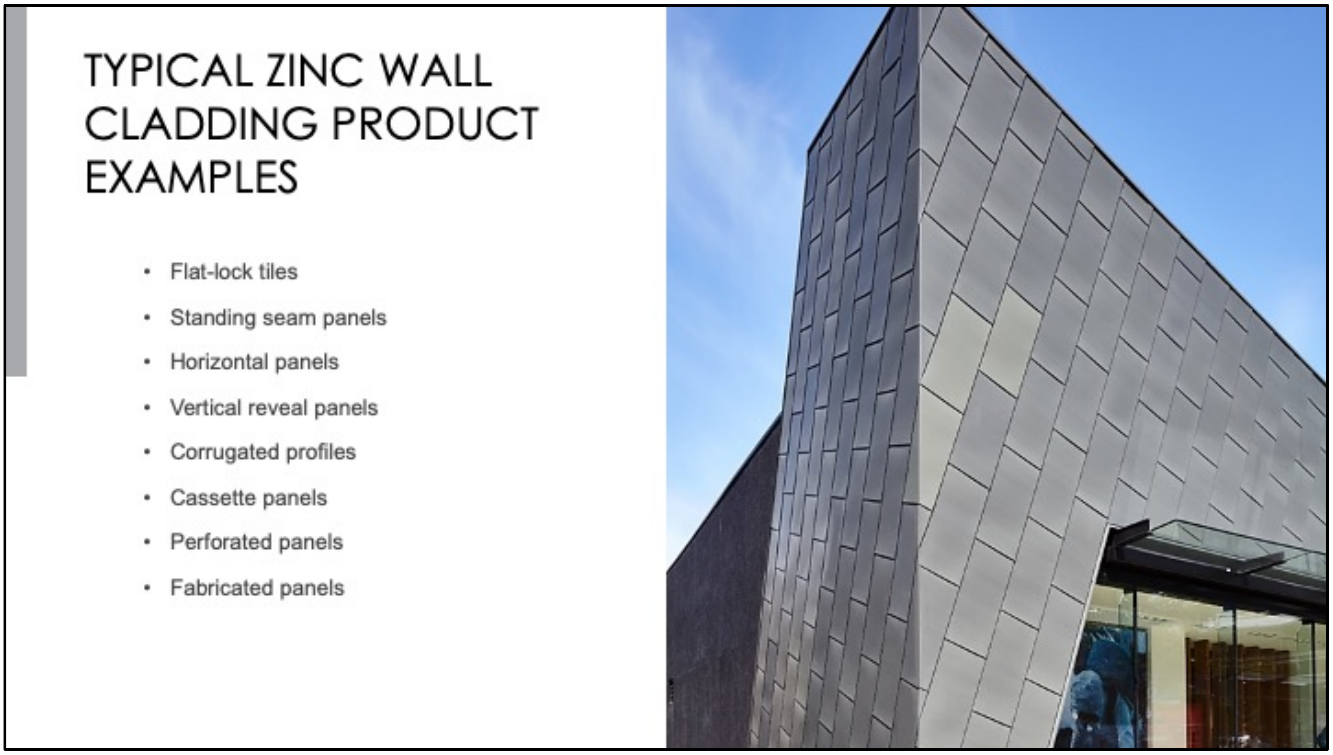
The home combines both modern and traditional styles for an eclectic mix favored in the Toronto area. A palette of natural tones and materials – glass, wood, brick and zinc – entwine and complement each other into a seamless application. The graphite-gray zinc tiles are specially processed to accelerate the desired appearance of a pre-weathered patina. The zinc material's natural finish will continue to weather and patina over time.



This section is about how to specify architectural zinc

For façade systems, wall cladding products, and other building applications, architectural zinc is typically manufactured in continuous 39.4-inch-wide coils. From these master coils, material is shipped as either flat sheets or rolled in smaller coils in 24, 22, 20, 18, 16, and 14-gauge thicknesses. Custom width coils can be ordered to minimize waste and facilitate manufacturing various profiles. Tiles and panels can be fabricated as roll-formed or brake-formed engineered wall cladding systems. Any scrap that is generated is 100 percent recyclable.

Institute for Contemporary Art at Virginia Commonwealth University
Images courtesy of RHEINZINK



Dimensions, system orientation, shapes, sizes and perforations can be further defined and customized to meet a project's unique goals. Typical zinc wall cladding product examples include:

Flat-lock tiles can be installed horizontally, vertically or with overlapping seams for a running bond or complex designs on flat or curved surfaces. Usual dimensions show face heights of 8 to 16 inches or larger, with lengths spanning up to 10 feet. Larger sizes require a heavier gauge. Shapes vary from rectangular, square or diamond.

Standing seam panels can be oriented horizontally, vertically and diagonally to produce the desired linear look. Standard seam heights are typically 1 and 1.5 inches. Lengths vary up to 40 feet with typical widths range from 12 to 16.75 inches.

Horizontal panels allow for an emphasis on the reveal with face heights up to 10 inches and lengths up to 10 feet. Joint widths from zero to 1 inch are possible. A hairline joint minimizes shadow lines for a flush look. Panels and joints can be configured to create vertical joints or can be staggered with backer plates.

Vertical reveal panels are similar to those offered for horizontal installations and feature face widths up to 13 inches. Vertical and horizontal panels can be combined to form innovative building envelope designs.

Corrugated profiles are available as sinusoidal profiles or as trapezoidal, “box” profiles to clad large areas with ease using either exposed or concealed fasteners. Panels can be installed horizontally, vertically or diagonally. Common sinusoidal profiles have heights of 0.5 and 0.875 inches. The typical sine frequency is 2.67 inches. Trapezoidal profiles for wall applications often present a strong shadow effect with depths up to 2 inches.

Cassette panels are often a part of an engineered curtain wall system. These panels allow for larger format panels through the use of reinforcements behind the panels and incorporated into the frames. For these large panels, 16 gauge is typically recommended.

Perforated panels provide the benefits of zinc, combined with advantages of daylighting and passive solar shading, plus low-maintenance punched openings that naturally patina.

There are many standard roof and wall panels that can be fabricated with architectural zinc. These are available in many profiles. Standard panels also help to reduce manufacturing costs , as well as time and expenses associated with installation labor.

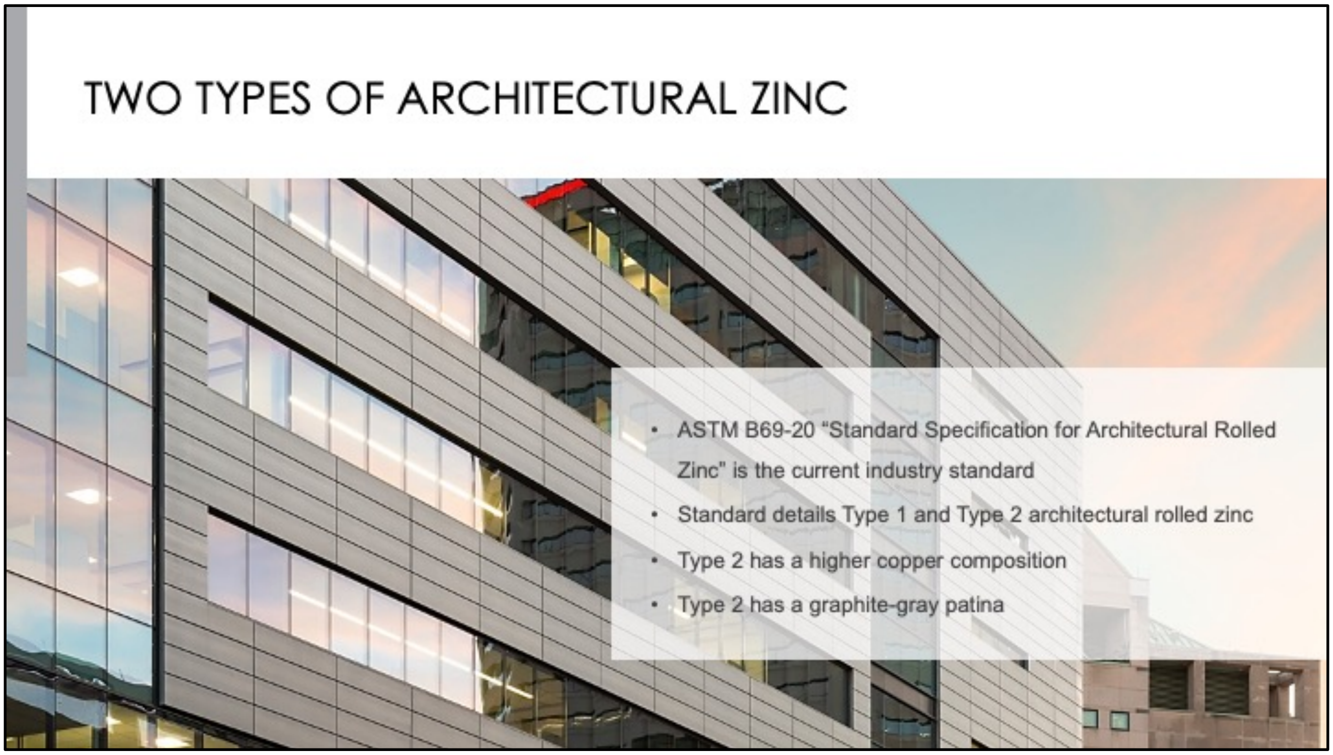
For roofing applications, roof slope and scale, local weather conditions, and warranty requirements influence the seam type selection. Options for zinc roofing include: Double- and single-locks describe seam joints between roof panels upstanding 1 inch or 1.5 inch from the draining plane. A raised seam height can emphasize the roof as a design element and have a functional purpose, such as in snowy climates.

Vertical, standing seam profiles with mechanical lock connections are the most common zinc roofs. Standing seam profiles are utilized on slopes down to 1:12. Follow manufacturers' recommendations for low-slope applications. Flat seam profiles rely on gravity and at least a 4:12 slope to maintain weathertightness.

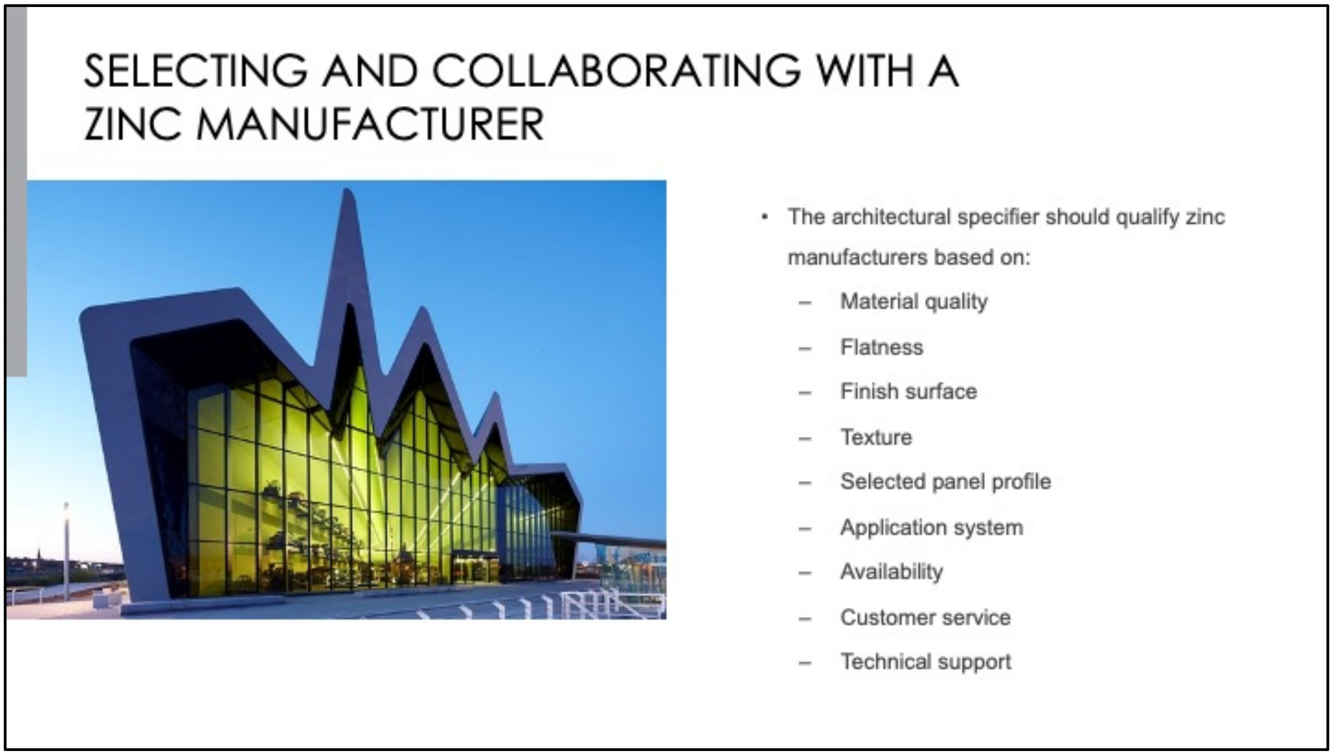
Low-profile zinc shingles and interlocking or overlapping tiles applied parallel to the eave present a familiar aesthetic. They involve a technically easier installation method than vertical joints and are always applied as a "dry-joint" roof system without solder or sealant. Tiles can be small. They provide good wind resistance, but cannot offer the same level of weather protection as a vertical seam.

For vertical seam profiles, vertical joints are attached to one vertical side joint, overlapped, and closed on the opposite side. The soft metal simplifies the task of hand-seaming or power-seaming zinc panels. Long panel lengths can make this design more vulnerable to oil-canning (panel waviness), panel disengagement, and wind uplift. Accommodating longer panels, taller seams, and those with added capillary breaks offer better water and wind resistance. Engineered panel systems are available through several manufacturers to facilitate long length panels and special roof geometry.

Folding the zinc, rather than relying on J-channels and sealant, to close the vertical seam panel end is a fail-safe detail. Requiring “folded” zinc detailing eliminates the needs for cuts, rivets, sealant, or solder at the ridge termination or at the head flashing details.
Specifications outlining seam style, height, panel widths, and closures will reduce confusion and the potential for errors. A general specification recommendation for water-check folds at the top of the lap and staggering of traverse seams should also be prescribed.



ASTM B69-20 "Standard Specification for Architectural Rolled Zinc" is the current industry standard. It details Type 1 and Type 2 architectural rolled zinc, where Type 2 has a higher copper composition and a graphite-gray patina.

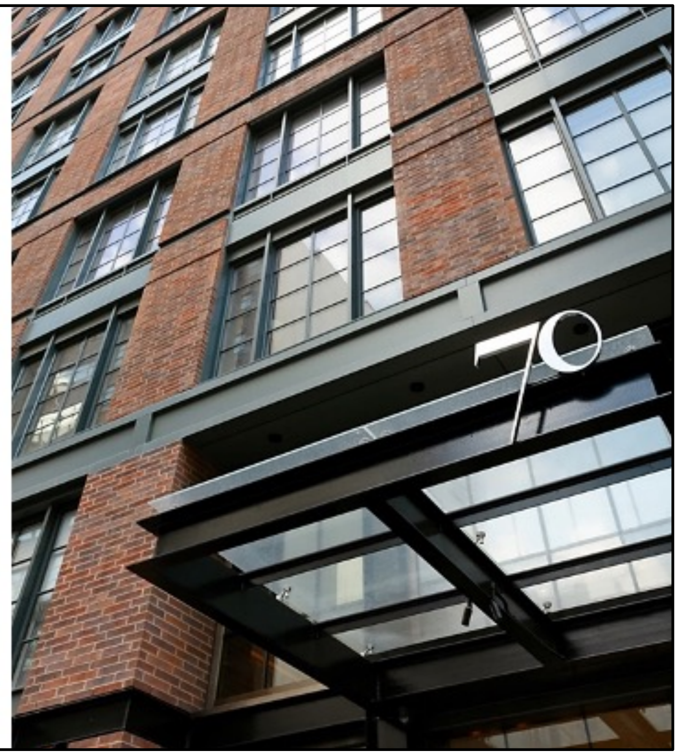


Selecting a zinc manufacturer that certifies its material to ASTM B69-16, and has demonstrated its experience in similar climates and applications, offers a good indication that they will prove successful on future projects. Designating one zinc manufacturer as the basis of design will further minimize opportunities for variations in material performance.

As part of the architectural building team, the architectural specifier should qualify zinc manufacturers based on material quality, flatness, finish color, texture, selected panel profile, application system, availability, customer service, and technical support.

SELECTING AND COLLABORATING WITH A ZINC MANUFACTURER

- Selected zinc material manufacturers should provide:
  - Product data
  - Details
  - Installation instructions
  - Material samples for submittal
- A mock-up may be necessary



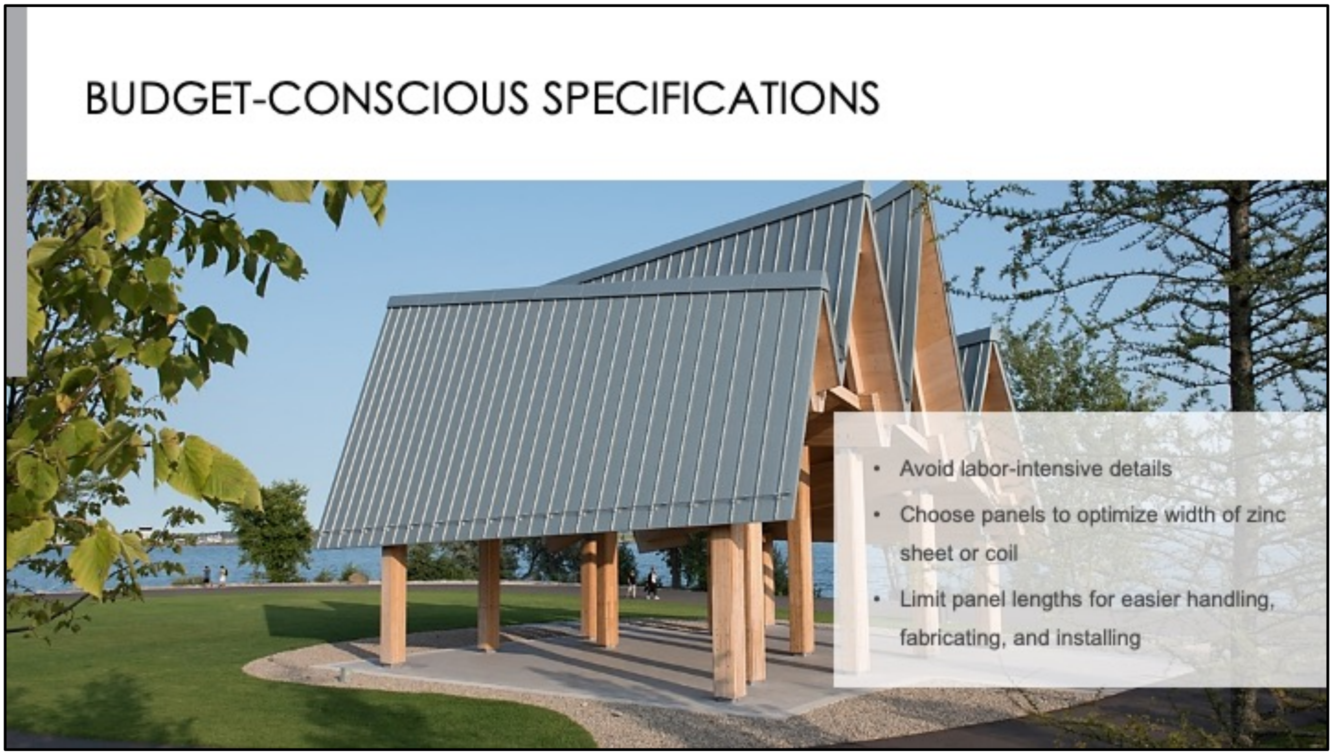
Selected zinc material manufacturers should provide product data, details and instructions, as well as material samples for submittal. These usually are accompanied by engineering calculations and shop drawings provided by the subcontractor. The calculations must be prepared and stamped by a professional structural engineer who is licensed and registered in the same location as the project.

To ensure zinc a wall cladding system or roofing system meets a project’s aesthetic and performance requirements, a mock-up may be necessary. This is produced using the specified materials and methods, and quality control standards. If needed, a full-size mock-up may be installed on location for a final approval.

A high-quality architectural zinc manufacturer will offer in-depth information on efficient and cost-effective fabrication and installation. As examples: Roll-forming zinc panels is almost always less expensive than brake-forming. There are numerous profiles that can be roll-formed for roofing and wall applications.

Zinc has a high coefficient of thermal expansion and should have accommodations in the design to allow for movement. Caulking often is not required at these critical junctures, helping to lower initial and lifetime costs, and to reduce recurring maintenance.

The first consideration at any joint should be how to achieve the detail minimizing the use of solder or sealant. Sealants can limit airflow or trap moisture behind the zinc panels and decrease the panel's lifespan. If soldering is essential, choose one that does not contain lead, cadmium or copper to maintain zinc's environmental material attributes recognized by LEED and other green building programs.



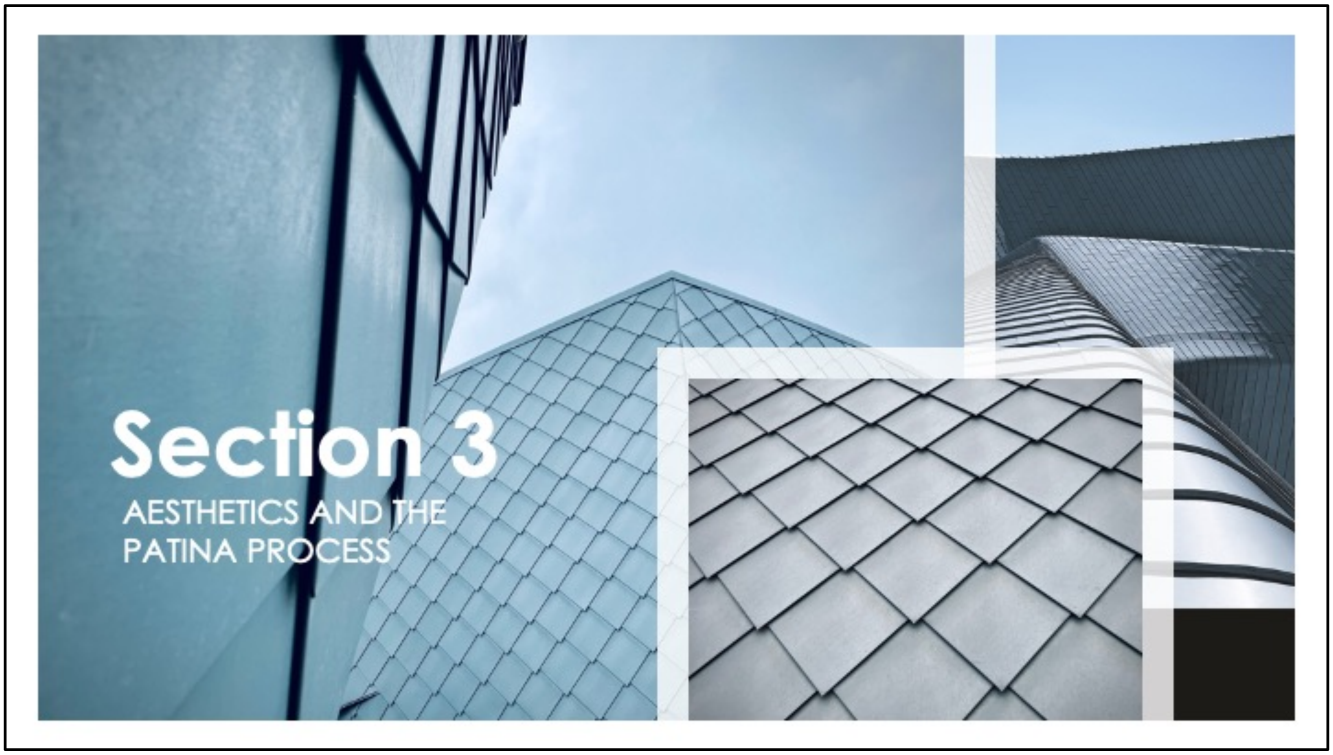
When detailing a zinc system, it should be noted that some details require less labor. Because labor often represents 66 percent or more of the contract, expensive time-consuming details should be reviewed to ensure they are necessary to fulfill the architect's vision.

Panel sizes should be chosen to optimize the width of the zinc sheet or coil and to minimize scrap material. Similarly, panel lengths should be limited for easier handling, fabricating and installing, as well as to reduce waste in the shop and the field.

Fewer pieces can save time and labor. However, heavier gauge zinc or smaller panels may be necessary to reduce perceived waviness (oil-canning).

Architectural rolled zinc is affected by its surrounding conditions. This means that wall cladding products loosely stacked on pallets or platforms must be protected by a weatherproof and ventilated covering. They cannot be stored in contact with other materials that could cause staining, denting or other surface damage. Acidic materials are of key concern. Avoid placing zinc in contact with or downstream from acidic woods including oak, red cedar, white cedar, larch, hemlock or chestnut. Red rosin paper produces an acidic vapor and should never be used as a slip sheet. Use sealants that are pH-neutral. Follow the manufacturer's recommended storage and handling guidelines.

Glass, aluminum, galvanized steel, stainless steel, painted steel and most solid, dry building materials present no known compatibility issues with zinc. Corrosion can be caused by electrochemical reactions, such as when copper is installed above zinc. Chlorides also are problematic and may be found as an additive in mortar or concrete as a bonding agent or to inhibit freezing. Architectural zinc also should be protected from acidic cleaning agents. Contact with human perspiration should be avoided. Wearing clean gloves when handling and installing the zinc material may be necessary.



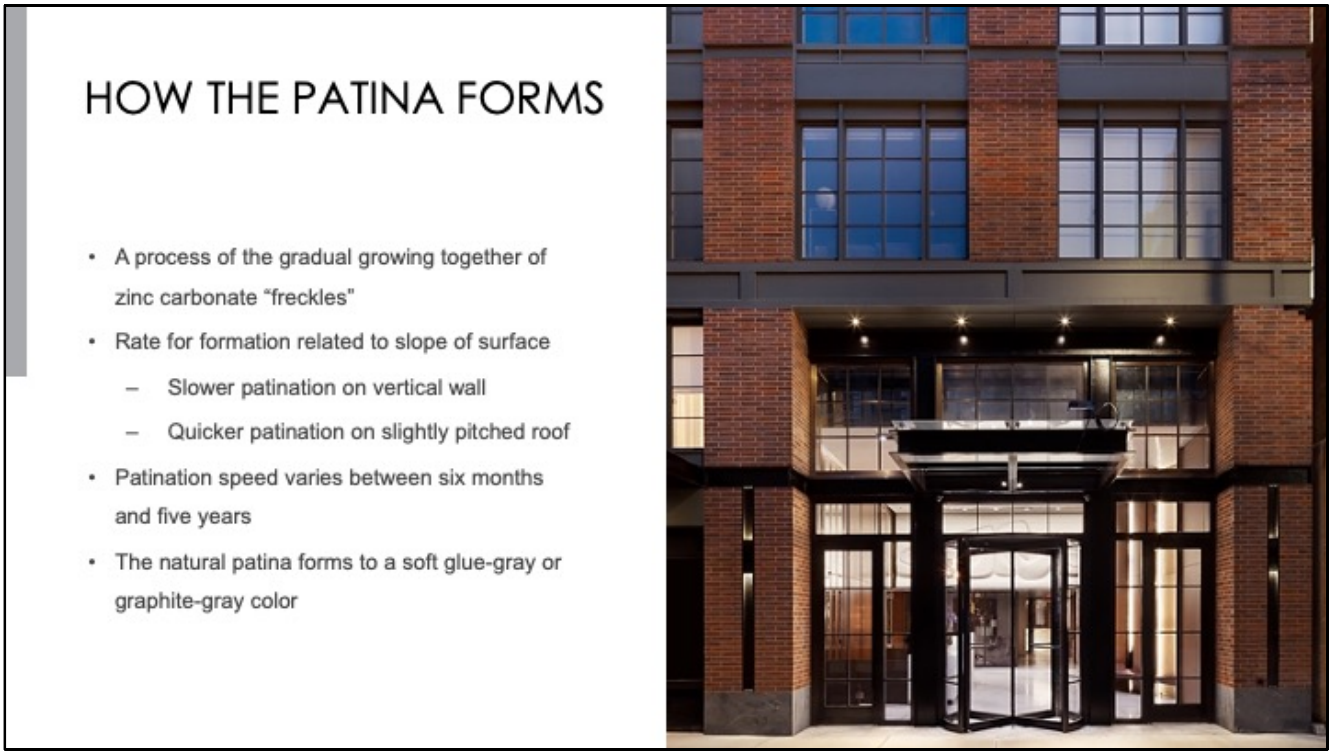
This section is about the aesthetics of architectural zinc and the patina process

PATINATION AND COLORIZATION

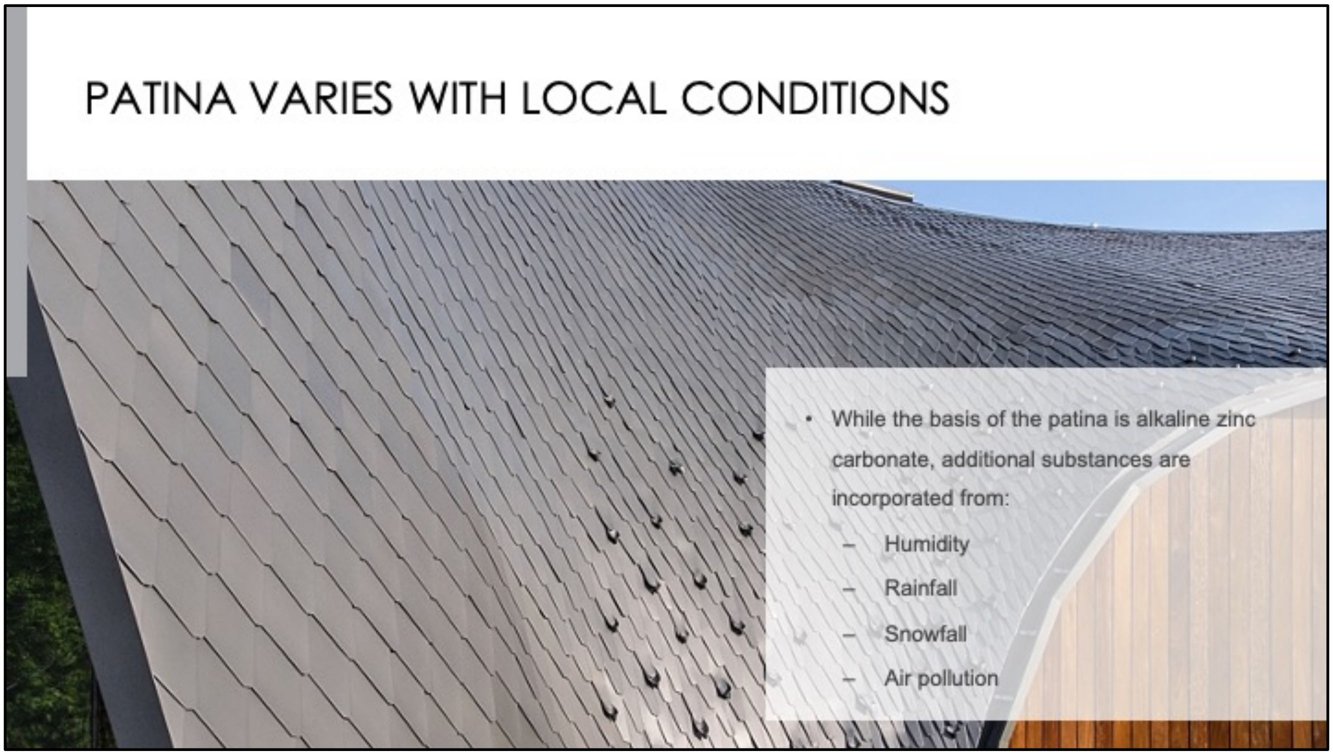
- Zinc starts with a bright surface
- Patina presents a dynamic, evolving, natural look
- Patina provides a protective, "self-healing" layer for long-lasting performance
    1. Zinc combines with water and oxygen to form zinc hydroxide
    2. Zinc combines with carbon dioxide in air to generate a dense outer layer and packed inner layer of alkaline zinc carbonate

Mill-finish architectural zinc starts with a bright surface. Most architects, however, select zinc for its future patina appearance. Like copper, zinc develops its distinctive patina, or surface crust, based on the alloy composition and local environmental conditions.

The patination of architectural zinc products forms through a two-step chemical reaction. First, the zinc combines with water and oxygen to form zinc hydroxide, and then with carbon dioxide in free-flowing air, the zinc generates a dense outer layer insoluble to water and a packed inner layer of alkaline zinc carbonate.



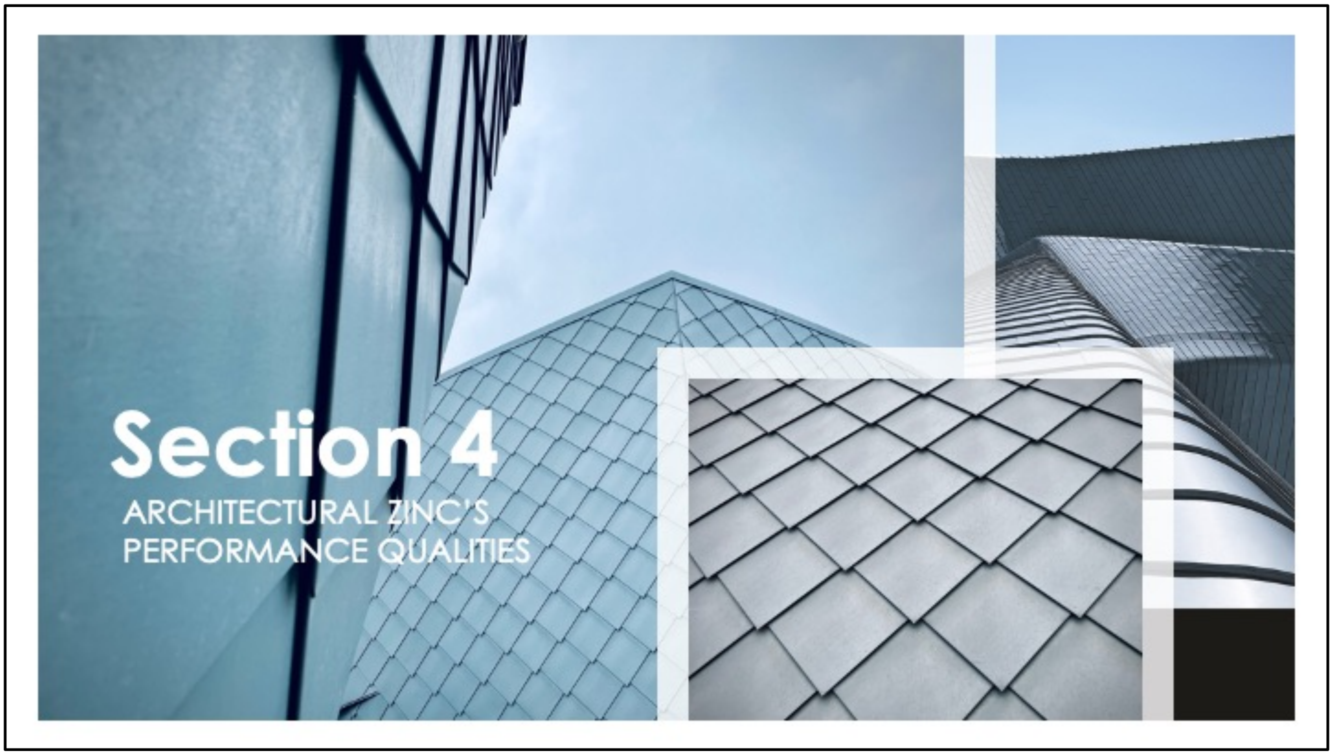
A patina’s formation is a process of the gradual growing together of zinc carbonate “freckles” and the rate of its formation is related to the slope of the surface. The patina will form slower on a vertical wall surface than on a slightly pitched roof. The patination speed can vary between six months and five years or more, depending on climatic conditions. The more exposure to wetting and drying cycles, the quicker the patina will develop. After the true patina has fully formed, the process will slow down but it never stops. Ultimately, the natural patina will form to a soft blue-gray or graphite-gray color, depending on the alloy.



While the basis of the patina is alkaline zinc carbonate, additional substances are incorporated from the local humidity, rainfall, snowfall, and air pollution levels. This is why the color of the patina can vary from one place to another. The natural patina will appear lighter when used in marine locations where the air contains chlorides. When used in environments where sulfur levels are higher, the patina may appear somewhat darker. In marine environments, lighter colors of architectural zinc will not show salt deposits as much as darker surfaces. For aesthetic reasons, lighter surfaces are often chosen for coastal applications.

Manufacturers use three common methods to achieve the zinc's surface appearance. Pickling is a pre-treatment process that chemically etches the metal and derives the color from the alloy.

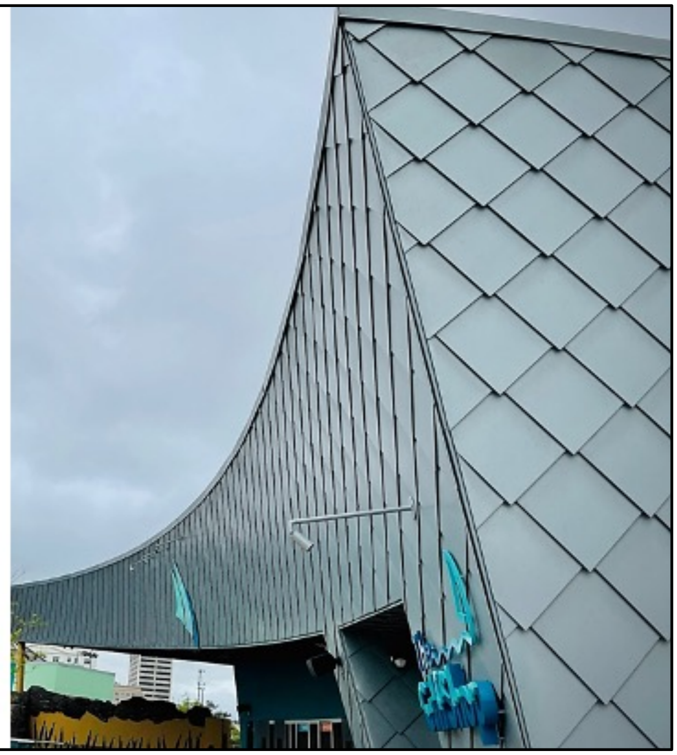
The resulting appearance brings out the metal's natural gray color and subtle grain texture, and will naturally patinate as it ages.
Phosphating is a treatment where phosphate crystals are deposited on the surface to create a darker color from the titanium or copper alloy. The resulting color is produced by the coating. The durable phosphate coating provides a surface that looks similar to the zinc structure of natural patina. The natural patina will form over time.
Color coating is applied to the zinc and seals the metal with a selected color during its manufacturing process. The resulting color is imparted by the coating and will prolong the natural patination process for a longer period.



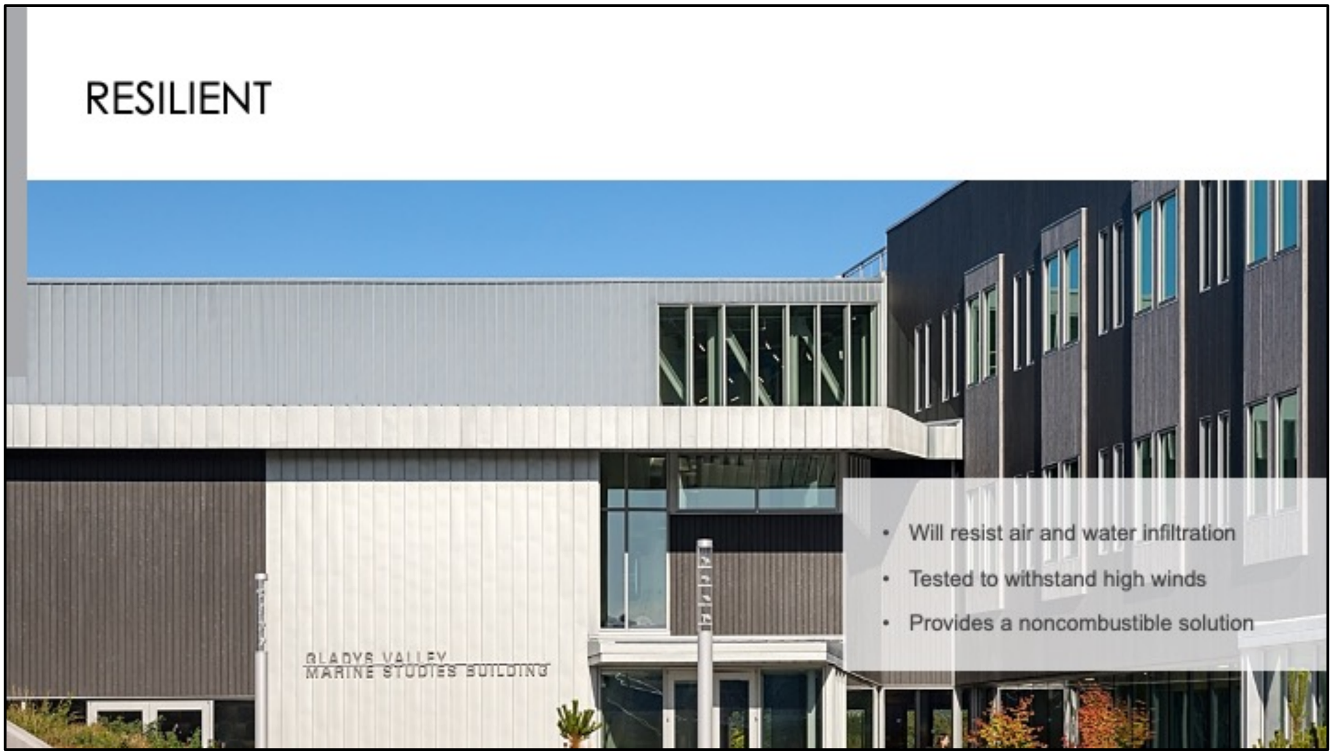
This section is about architectural zinc's performance qualities

VERSATILE

- Can be shaped into a multitude of forms:
  - Geometric
  - Organic
  - Curves



Architectural zinc can be shaped into a multitude of forms – geometric, organic or curves – and so, provides innumerable design options.



Installed properly, zinc roofing systems will resist air and water infiltration. For regions with high winds and hurricane conditions, zinc roofing and wall systems have been tested to withstand high winds as required by codes and local jurisdictions. In environments that are susceptible to fires, zinc also provides a noncombustible solution.

LOW MAINTENANCE ARCHITECTURAL ZINC

- Low-maintenance and long-lasting performance
  - Does not require paint, varnish, or sealants
  - Runoff is non-staining with no adverse environmental affect
  - Self-healing if scratched

Zinc's inherent metallic properties allow the material to deliver low-maintenance and long-lasting performance in roofing and wall cladding applications. No paint, varnish, or sealants are required. Once the patina forms, or if the architectural zinc is coated, the runoff is minimal, non-staining and does not adversely affect the environment.

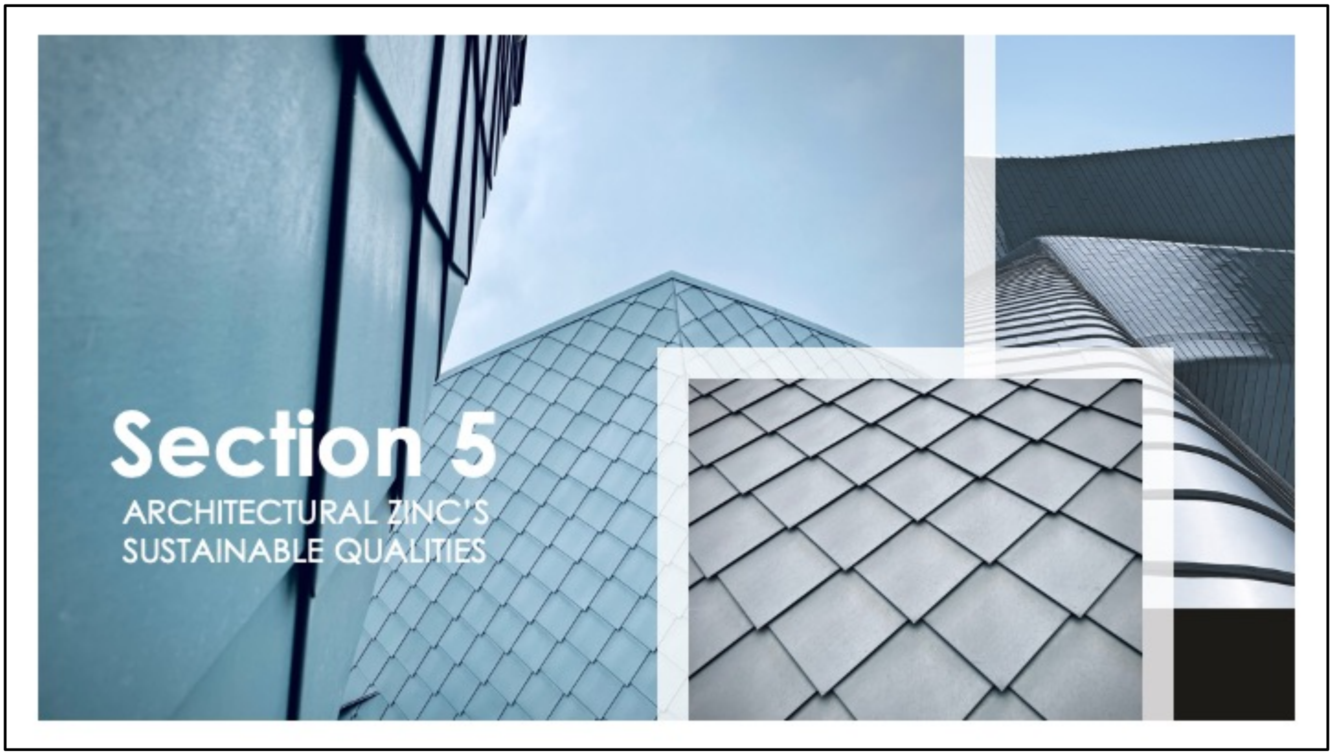
CLEANING GUIDANCE

- Easy maintenance
  - Wash with clean water twice a year
  - Wash more frequently in dusty conditions
  - Follow the manufacturer's cleaning instructions

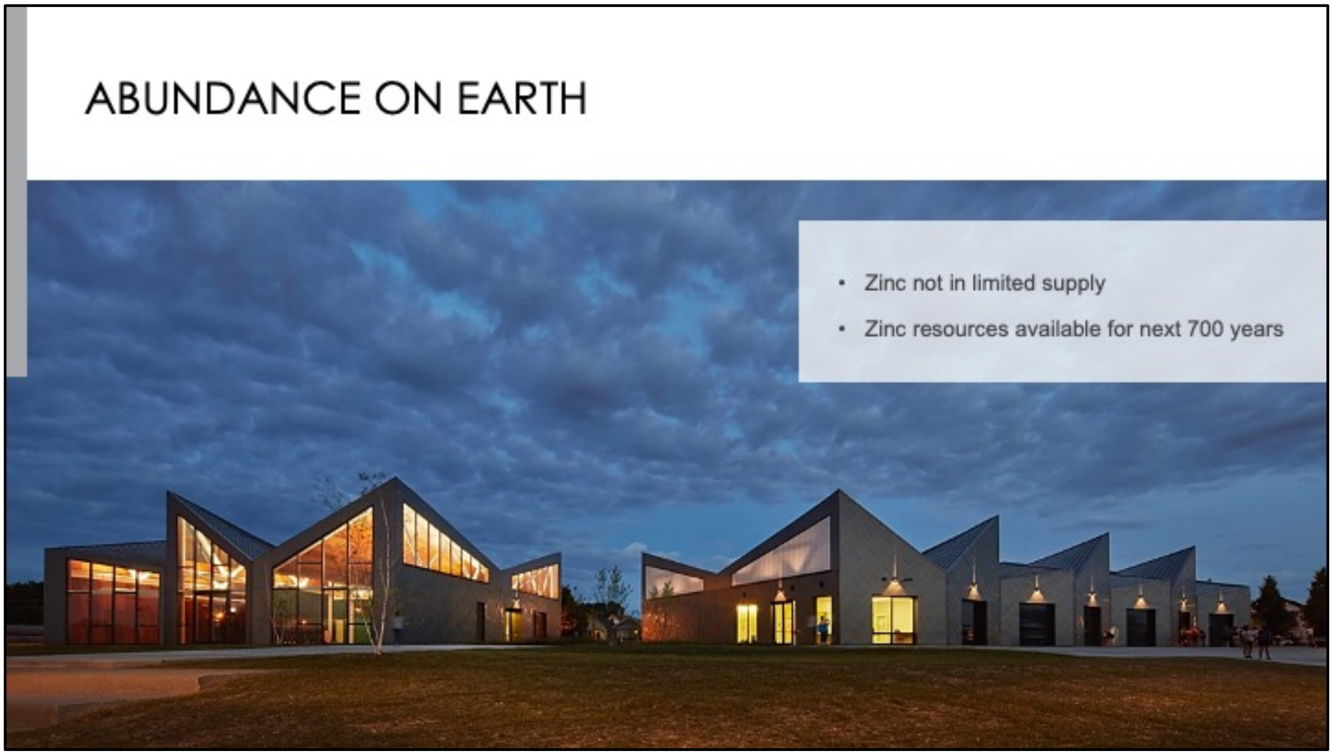
- In marine environments
  - Salt can develop on the surface of all metal
  - Salt shows less on lighter colored coatings and surfaces on architectural zinc

White deposits from salt in the atmosphere can develop on all metal roofing materials. Lighter colored coatings and surfaces on architectural zinc show salt less.

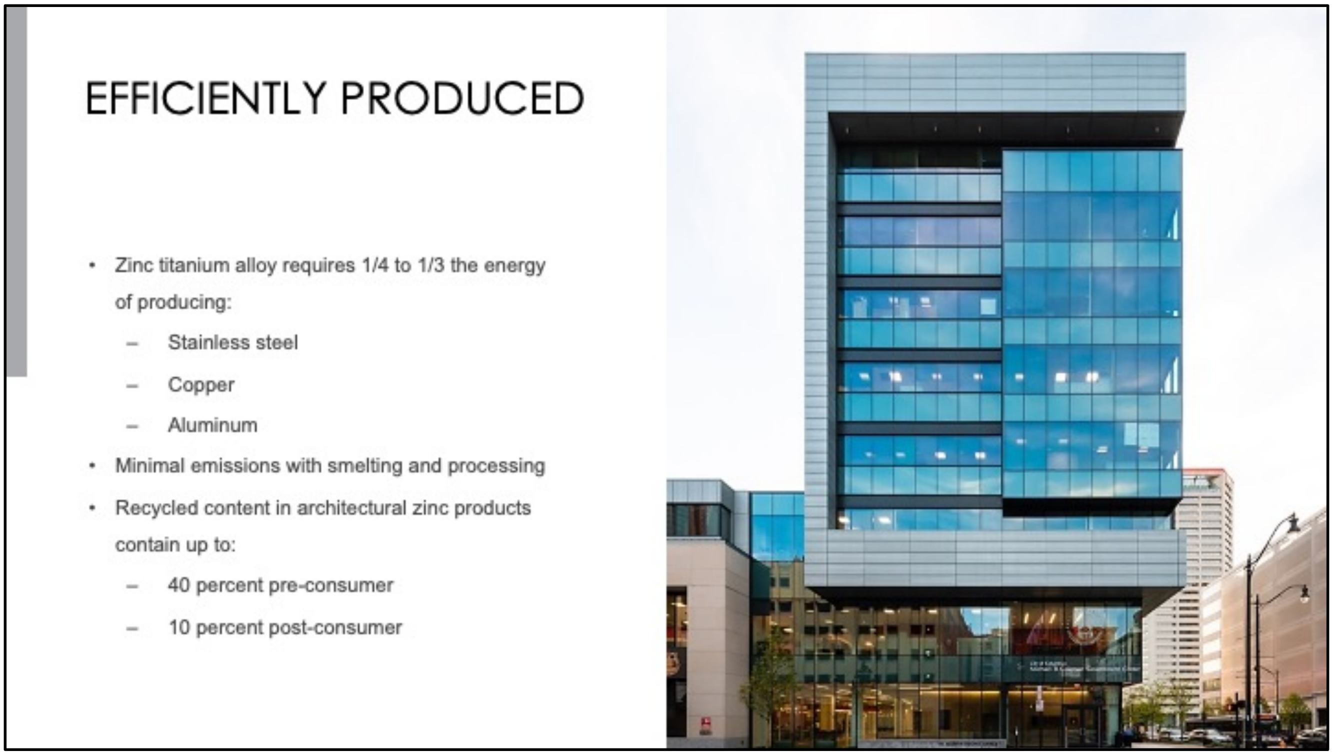
For aesthetic reasons, it is recommended to clean the surface of the material with clean water (not seawater) at least twice a year or more, if necessary, in maritime climate zones, depending on local conditions. Follow the manufacturer's cleaning instructions. Some manufacturers may require washing for their warranty. Many manufacturers have exclusions in "splash zones."



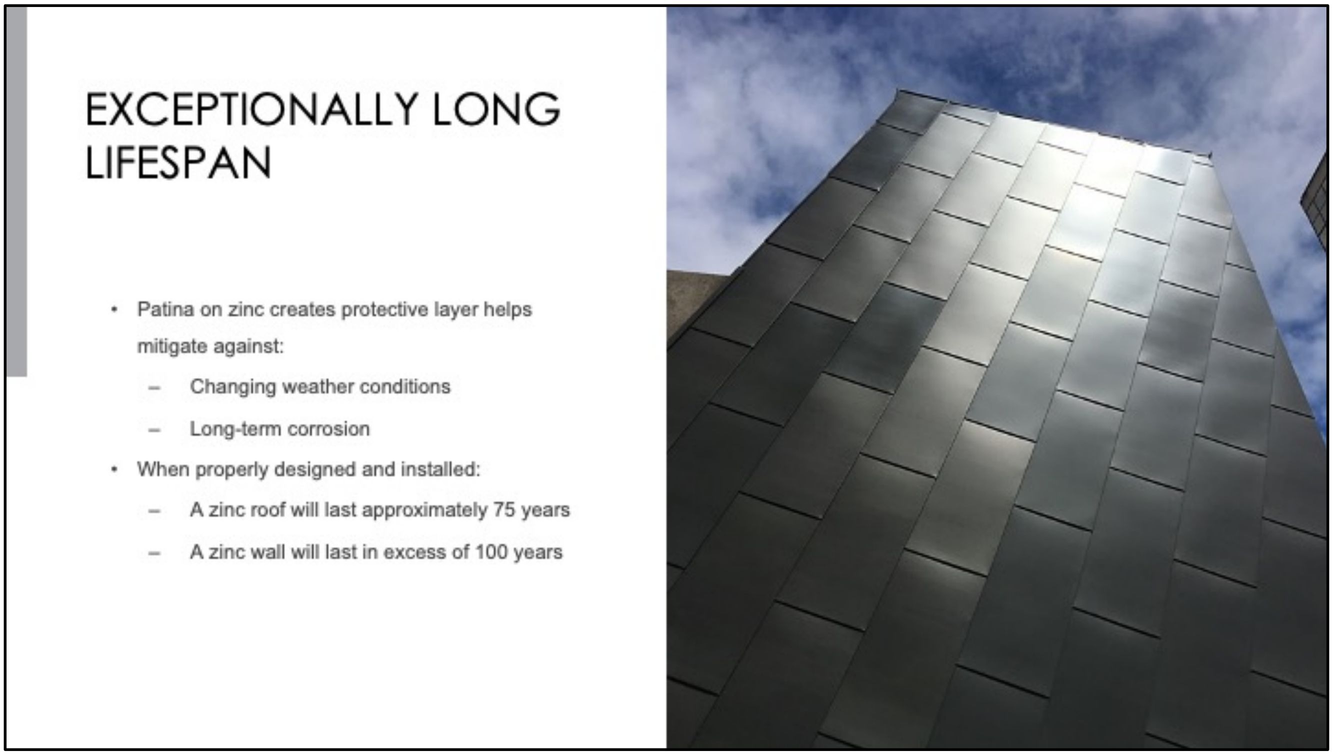
This section discusses Architectural Zinc's sustainable qualities.



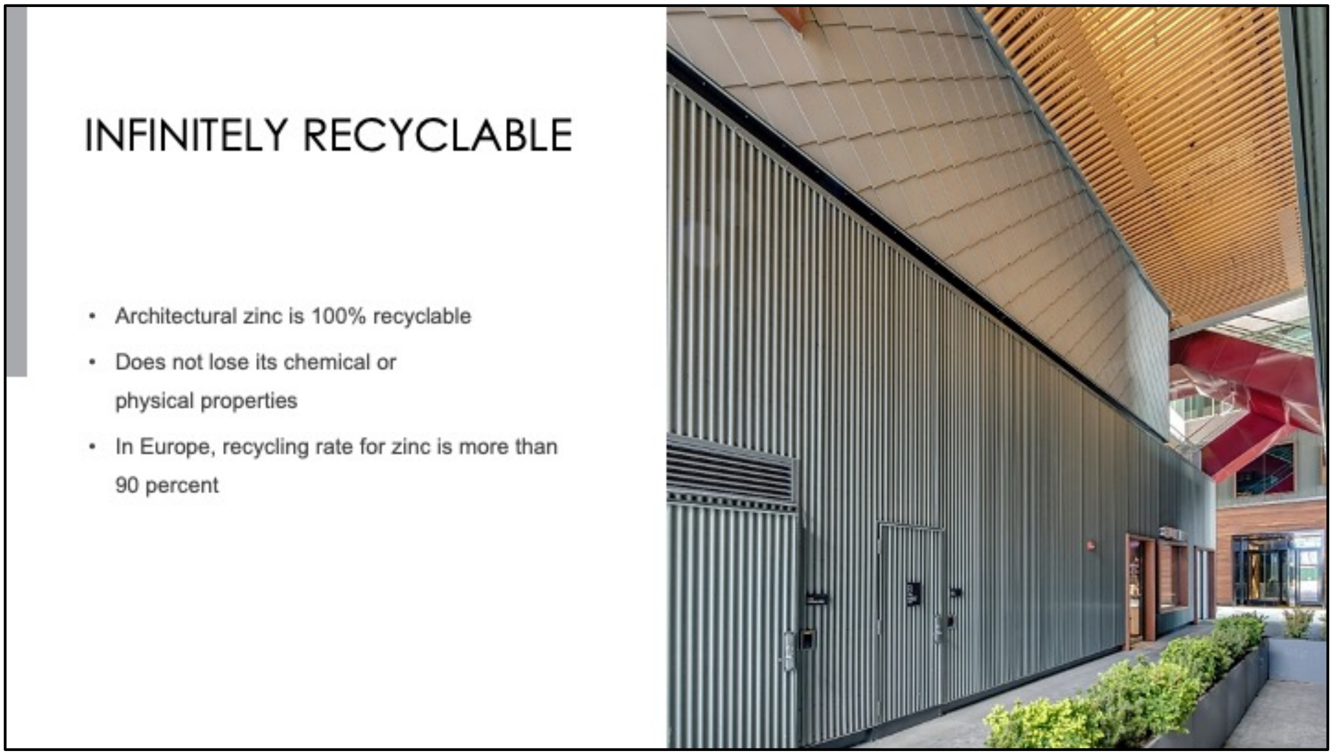
While zinc could be considered a precious metal for its usefulness, it is not in limited supply. As was mentioned earlier, zinc is the 24th most abundant material on earth. The data available today indicates that zinc resources should cover zinc requirements for at least the next 700 years, without taking recycled zinc scrap into account.



Less energy required to produce zinc titanium alloy, as little as one-fourth to one-third the energy to produce other metals such as stainless steel, copper, and aluminum. This is because of zinc's low melting point and its malleability to shape. Emissions during smelting and processing are kept to a minimum through state-of-the-art production equipment. In the highest quality manufacturing companies, pre-consumer scraps are 100 percent recycled.



The quest for quality and durability is fulfilled by the use of architectural zinc. Over time, the patina formed on zinc creates a protective layer helping mitigate against changing weather conditions and long-term corrosion. This natural patina process also diminishes small scratches. When correctly installed, zinc products are extremely long-lasting, which makes them extremely cost-efficient over their entire life cycle. As examples, when properly designed and installed, a zinc roof will last approximately 75 years and a zinc wall will last in excess of 100 years.



High-quality zinc building products are infinitely recyclable without loss of its chemical or physical properties. Recycled content in architectural zinc products reaches up to 40 percent for pre-consumer and 10 percent for post-consumer, depending on the source.

In Europe, the recycling rate for zinc is more than 90 percent in the scrap industry. One reason for this is the high residual material value of up to 60 percent of the original material price, which is a strong incentive to collect scrap and waste materials.

Architectural zinc can contribute to green building rating systems such as:

LEED
Green Globes
BREEAM (Building Research Establishment Environmental Assessment Method, the British certification system for sustainable construction)

However, testing and documentation is necessary. When assessing architectural zinc products, look for the following documentation.

Consider the entire lifecycle of a product or material, the Cradle to Cradle Products Innovation Institute's evaluation differs from other certifications in its focus on safe, sustainable products for a circular economy. To receive Cradle to Cradle certification, products are assessed from material generation until its re-use across five categories: material health, material reuse, renewable energy and carbon management, water stewardship, and social fairness.

Perhaps the most reliable indication of a product's sustainability will be found in a product's environmental product declarations (EPD), an internationally recognized and standardized tool for the sustainability certification of buildings.

Supported with EPDs and Cradle to Cradle documentation, specification of architectural zinc for walls, roofs, and drainage, can contribute to the USGBC's LEED criteria in several categories. In LEED v4 Building Design and Construction, here are some examples:

Sustainable Sites

- Rainwater Management
- Heat Island Reduction
- Site Master Plan

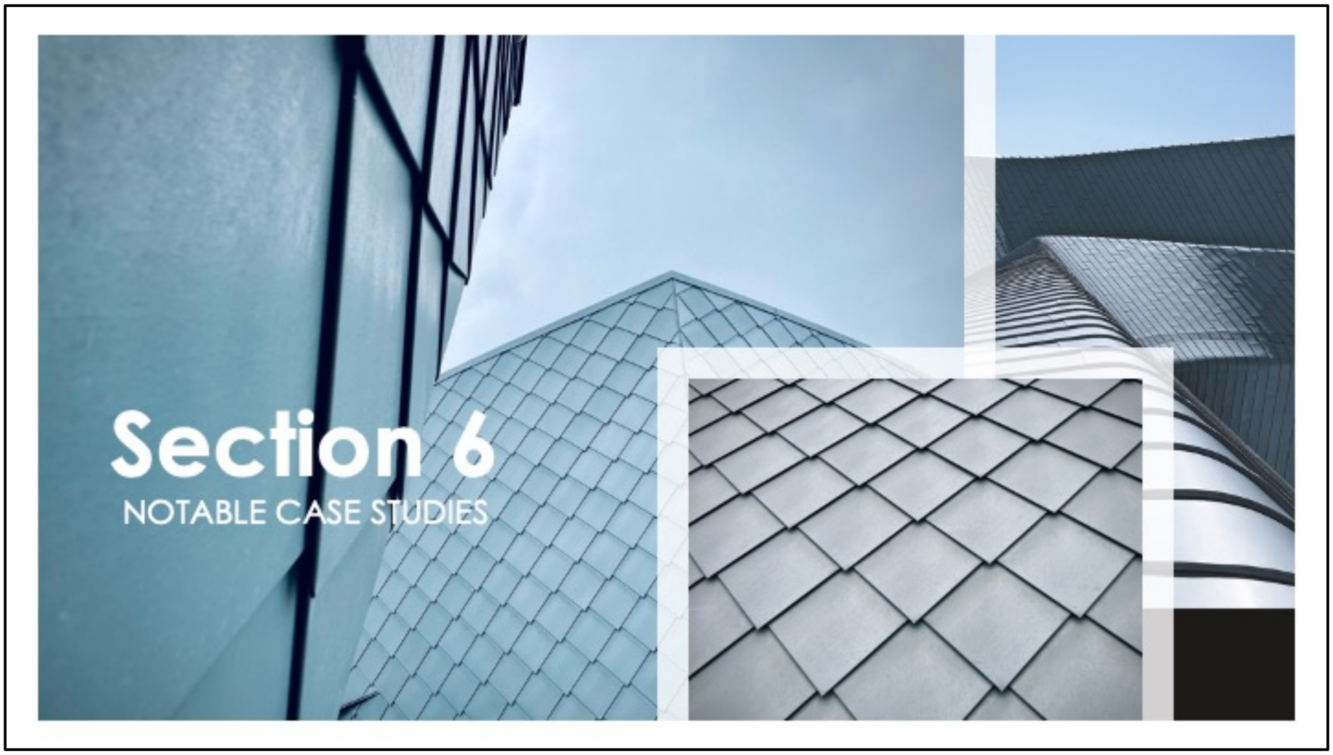
Water Efficiency

- Outdoor Water Use Reduction
- Indoor Water Use Reduction
- Cooling Tower Water Use

Materials and Resources

- Building Product Disclosure and Optimization—Sourcing of Raw Materials
- Building Product Disclosure and Optimization—Material Ingredients
- PBT Source Reduction—Lead, Cadmium, and Copper

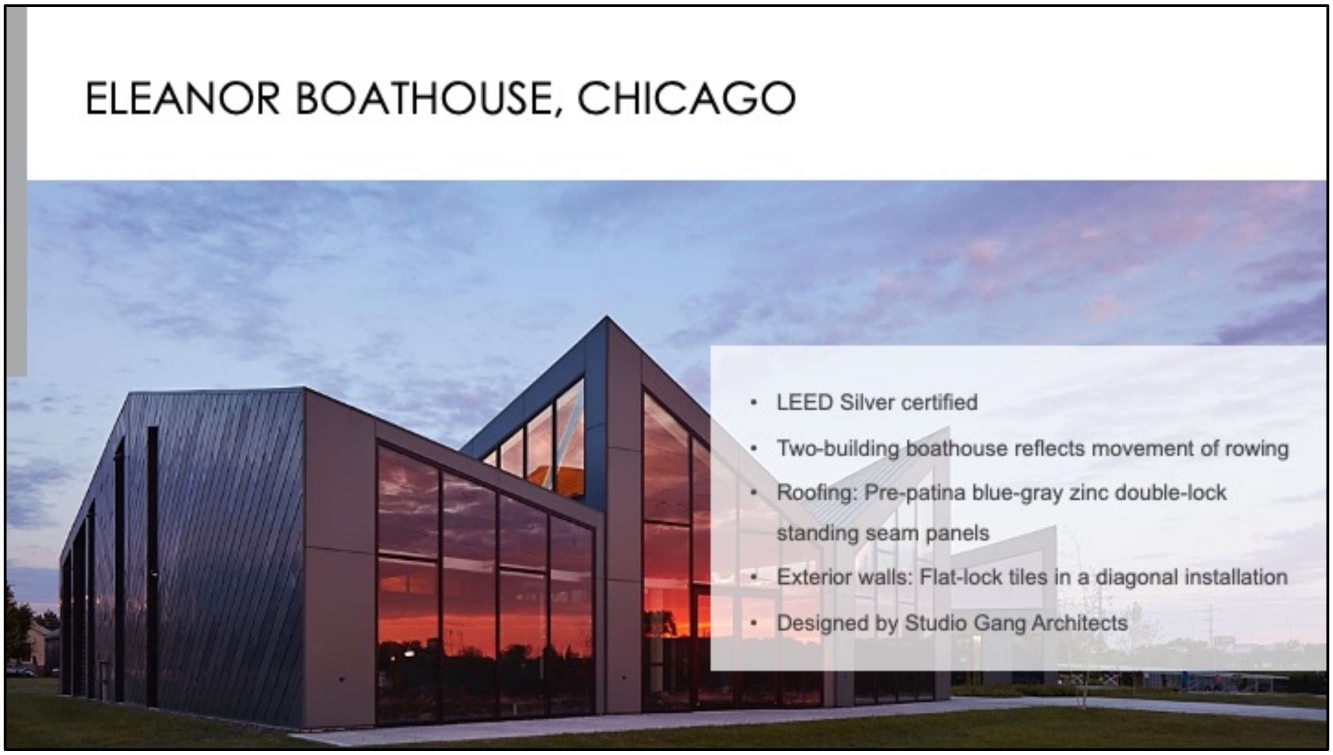
Credits also may be earned for other LEED certification programs such as Interior Design and Construction, Building Operations and Management, Home Design and Construction, and Neighborhood Development.



This section shows notable case studies of projects using architectural zinc.

No stranger to the University of Iowa campus, Steven Holl Architects designed the LEED Gold-certified Visual Arts Building, led by senior partner Chris McVoy. Within its sustainably and beautifully crafted building envelope, the 126,000-square-foot space replaces an original arts building from 1936 that was heavily damaged during a 2008 flood in Iowa City.

The new Visual Arts Building presents an industrial aesthetic with poured-in-place concrete walls clad in architectural zinc panels. Curved zinc panels also were used on the building's vegetative roof and large skylights. Approximately 38,000 square feet of pre-patina blue-gray zinc material were fabricated in Germany and shipped ready-to-install.



The LEED Silver-certified, 19,000-square-foot Eleanor Boathouse at Park 571 in Chicago's Bridgeport neighborhood is the final of four boathouses and river launches created by the Chicago Park District to reclaim the Chicago River as a major system of parks and water-based recreation.

Designed by Studio Gang Architects, the two-building boathouse reflects the movement of rowing. The structure's sustainable and striking design incorporates architectural zinc in both the building's roof and wall applications.

Approximately 23,000 square feet of pre-patina blue-gray zinc double-lock standing seam panels cover the roof of both buildings and their alternating trusses. A hybrid version of traditional flat-lock panels with a slight offset was installed at the top to bring the panel overlaps more into plane and to create a subtle reveal. With no lap seams, the continuous roll-formed roof panels saved labor and improved the performance. An additional 10,000 square feet of flat-lock tiles clad the exterior walls in a diagonal installation.

Zinc flat-lock tiles also clad one of the other four boathouses completed earlier. The WMS Boathouse at Clark Park on the northwest side of the city also was designed by Studio Gang Architects and features wall cladding composed of 7,000 square feet of vertically oriented architectural zinc tiles.

According to the zinc panel system's installing contractor's project manager, Ryan Broom, "Zinc provides a great quality look and allows more architectural detailing than can be done with many other metals."

HARRIET TUBMAN UNDERGROUND RAILROAD VISITOR CENTER, MARYLAND

- LEED Silver certified
- Roofing and exterior walls: Pre-patina blue-gray zinc flat-lock tiles
- "The inherent quality (of the zinc) to dull and self-heal was important because it's a direct parallel to the story. That's what we were trying to interpret." — Chris Elcock, AIA, IIDA, LEED AP, GWWO Architects' associate principal

The inspiring Harriet Tubman Underground Railroad Visitor Center in Dorchester County, Maryland, immerses visitors in the story and heroics of one of the most famous figures of the slavery resistance movement in the United States. Certified LEED® Silver, the Center was designed by GWWO Architects of Baltimore.

Approximately 9,200 square feet of architectural zinc was selected to clad the roof and exterior walls of the Visitor Center because of the attributes of its natural patina process. According to GWWO Architects' associate principal, Chris Elcock, AIA, IIDA, LEED AP: "The inherent quality to dull and self-heal was important because it's a direct parallel to the story. That's what we were trying to interpret."

CHRIST CHURCH CATHEDRAL, VANCOUVER

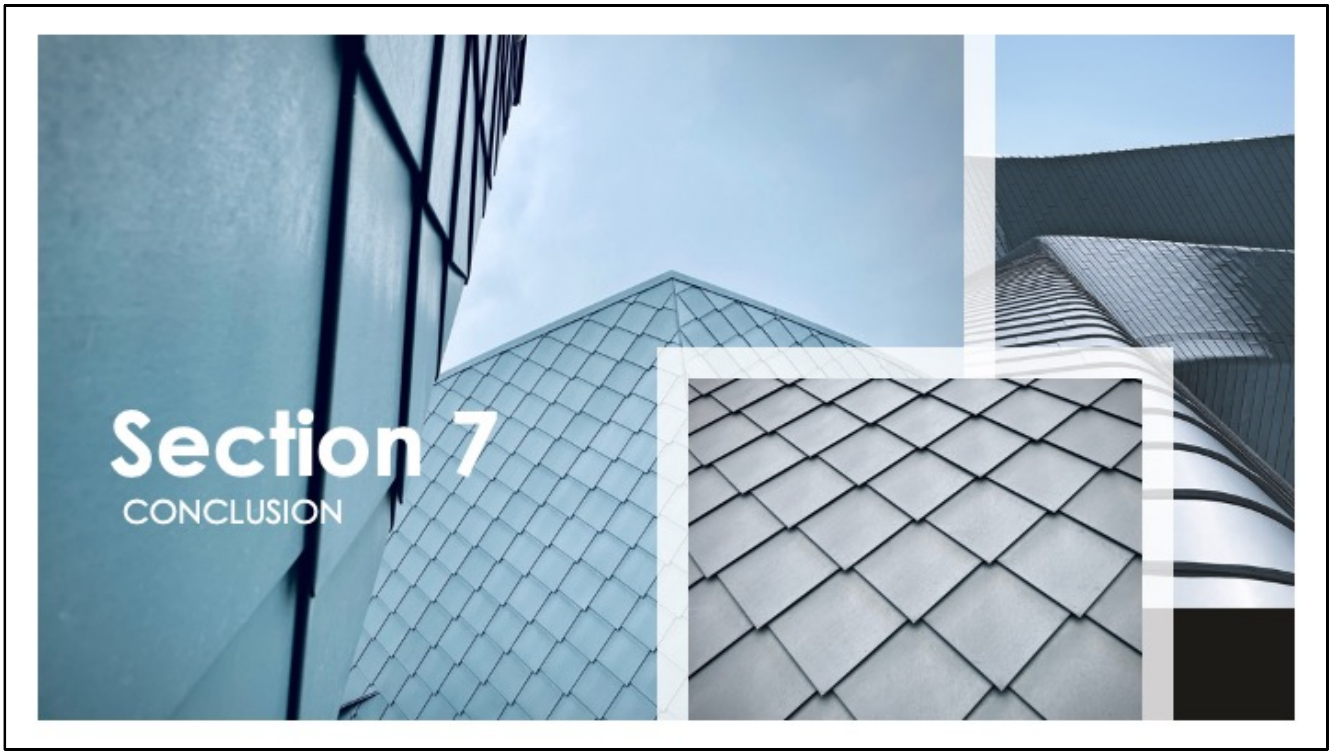
- 120-year-old building's original cedar shake roof most recently replace with asbestos shingles
- Roofing renovation: Pre-patina blue-gray zinc panels with traditional batten seam profile
- "We wanted a durable material that would last forever. …Plus, it looks contemporary, but is respectful of good Heritage practice."
  – Hugh Cochlin, Architect, AIBC, Principal at Proscenium Architecture + Interiors

The re-roof project at the historic Christ Church Cathedral in Vancouver, British Columbia, marked the culmination of a massive four-phase, 22-year renovation plan.

The cathedral was built in 1894. Its original cedar shake roof had previously been replaced by asbestos shingles. A formal plan was undertaken to make the cathedral both structurally sound with respect to seismic stabilization requirements, and to serve its parishioners for generations to come.

Approximately 12,000 square feet of pre-patina blue-gray architectural zinc panels were installed using a traditional batten seam profile and fabricated using traditional techniques. Zinc systems can be crafted in the field, fabricated in the contractor's shop, or produced on sophisticated CNC equipment in the factory and shipped to the building site.

Architectural design for the project was provided by Proscenium Architecture & Interiors Inc. of Vancouver. Principal architect Hugh Cochlin said: "We gravitated to zinc pretty early in the process. We wanted a durable material that would last forever. We expect to get 100 years or more from the roof. Plus, it looks contemporary, but is respectful of good Heritage practice. The Heritage Commission quickly approved our use of it."



Architectural zinc is a highly desirable building material with qualities proven over centuries that exudes both an historic feeling as well as a contemporary aesthetic. Architectural zinc is a natural metal befitting and benefitting sustainably designed building projects. It enhances commercial, cultural, educational, municipal, health care, and residential projects all over the world and throughout North America. Understanding beauty, versatility, resilience and longevity of this abundant material, it quickly becomes the choice for cladding and roofing for a wide number of projects.

Thank You

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