



MODERN METAL WALLS AND ROOFS: COLORFUL, EVOCATIVE, INNOVATIVE

AWARD-WINNING PROJECTS WHERE METAL ACHIEVED THE MODERN AESTHETICS
AND PERFORMANCE THAT NO OTHER BUILDING MATERIAL COULD



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Course Overview

The specification of metal roofs and walls has led to some of the country's most colorful, evocative, and innovative buildings—from San Francisco's Chase Center, home to the Golden State Warriors, to a Texas residence whose unique undulating roof reflects the sky and trees, to a 10-story building in New York's Tribeca neighborhood that stands out with single-skin aluminum panels painted with organic pigments and pearlescent inks and formed into geometric angular shapes. This course dives into award-winning projects that illustrate the benefits of metal architecture for meeting environmental goals, ease of installation, performance, and cost effectiveness.

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Learning Objectives



Upon completing this course, you should be able to:

- Define the benefits of metal architecture for meeting environmental goals, ease of installation, performance, and cost effectiveness
- Discuss how metal cladding for roof and walls provide a large array of color, including custom colors, and can match specific brand colors
- Identify unique finishes that provide aesthetic options with metal to mimic wood grain, weathering, and natural materials
- Describe extraordinary designs that can be created with metal by using rainscreens, varying panel widths, lengths, direction, curves, angles, and perforations

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Introduction



- Award-winning projects featuring architectural metal panels
- Judges:
 - Christina Bazelmans, AIA, LEED AP BD+C, Associate Principal, Lamoureux Pagano Associates Inc., Worcester, Massachusetts
 - Steven G. Blye, AIA, LEED AP, Creative Director, Associate Director Healthcare, Legat Architects, Chicago
 - Yen Ong, AIA, Dallas Yen Ong, AIA, NCARB, LEED AP BD+C, 5G Studio Collaborative, Dallas

For the architect seeking to fulfill an aesthetic vision, meet environmental goals, and solve intriguing design problems, metal panels are often the only material that will do the job. This course explores award-winning projects showcasing the potential of metal for notable architecture. These projects were recently honored by an industry association competition that was judged by three AIA members: Christina Bazelmans in Worcester, Massachusetts; Steven G. Blye in Chicago, and Yen Ong in Dallas.

Quote from MCA (to come)



Metal walls and roofs bring together a wide range of benefits including environmental features, performance, fire protection, ease of installation, and cost effectiveness. Let's review each benefit.

Environmental Features



- High recycled content
- Low maintenance
- Long service life
- Excellent platform for PV systems
- Reflective cool pigment technology

Metal wall and roofing panels are an environmentally responsible and sustainable design choice that features high recycled content, low maintenance, and long service life. The metal used in the panels, for example, is 100 percent recyclable at the end of its useful life.

Metal walls and roofs are eco-friendly and sustainable building materials, and they meet building regulations for sustainable materials. Specification of metal lowers the building's carbon footprint and the stress on the earth's resources.

Many metal roofs now utilize reflective cool roof pigment technology, which results in overall energy efficiency and lower utility bills. In addition, all metal roofs are made from 30 percent to 60 percent recycled material.

Conventional roofing products other than metal roofing, including asphalt shingles, contribute an estimated 20 billion pounds of waste to U.S. landfills annually, whereas metal roofs can often be installed over an existing roof, depending upon local building codes, eliminating the cost and eco-impact of tear-off and disposal.

Metal's long service life makes it an excellent platform for rooftop photovoltaic (PV) technology installations.

Performance



- Extremely durable
- Does not dent or ding easily
- Maintains beauty for years
- 20 to 30 years of service life
- Protected by durable coatings

Metal walls and roofs are extremely durable and hold up well to regular wear and tear. Their resistance to impact may vary a bit depending on the metal used. You might be surprised that metal wall panels do not dent or ding easily. They maintain their beauty for years.

Following completion of the building, owners can look forward to a metal wall or roof panel service life of 20 to 30 years, and in many cases, even more, depending on geographic location and the surrounding environmental conditions. The longevity of the metal panels is due not only to their metallic construction, but also to the highly durable coatings used to protect them. The high-tech pretreatment and finish coatings contribute to the low maintenance requirements of the metal panel system as well.

Fire Prevention



- Fire is a risk in any construction
- Metal panels act as a barrier
- Keeps active fire from spreading

Fire is always a risk in any building construction. Metal panels can act as a barrier to fire to help keep an active fire from spreading.

Ease of Installation and Cost Effectiveness

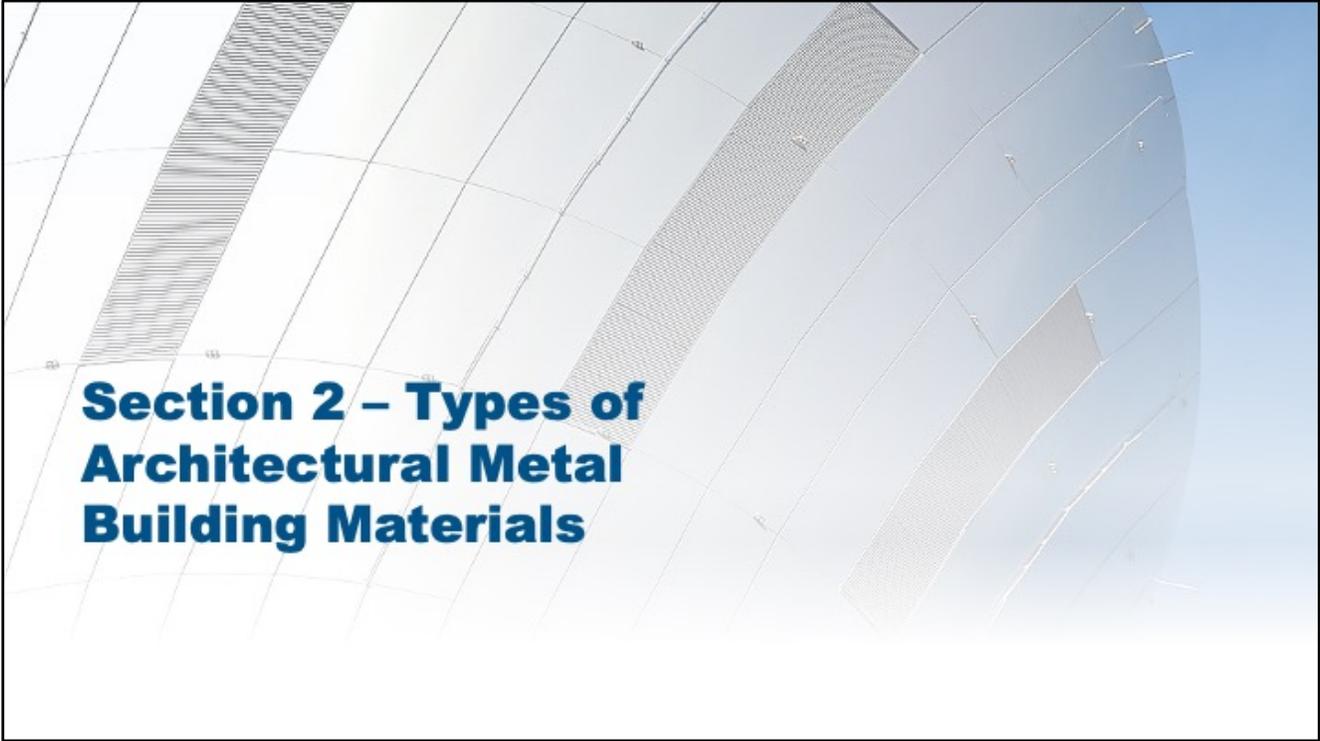
- Lower in installed costs than other systems
- Metal panels can be installed faster
- Reduced structural needs
- Reduced delays due to weather
- Reduced maintenance costs



Preformed metal panels are typically lower in installed cost than that of tilt-up, precast, or brick, and comparable to synthetic stucco or EIFS. That's because metal panels can often be installed faster than other building materials, resulting in construction cost savings. Lightweight metal systems can save money by reducing structural steel requirements, since less structural support is needed.

Preformed metal panels can be installed more quickly because their installation is not slowed by weather conditions. This all-weather capability minimizes construction delays, permits fast-track scheduling, gets the building dried-in quicker, and allows the other trades to proceed with their interior work.

Finally, ongoing maintenance costs are reduced because of continuing improvements in paint finishes.



Architectural metal specification falls into the following categories.

Single Skin Panels



- Flat sheet once used mostly on industrial plants and warehouses
- Today they are used on every type of structure
- Wider selection of profiles
- New developments in coatings
- Now in the mainstream of commercial building design

For decades the application of flat preformed, or roll-formed, metal panels have served building owners and architects as one of the best combinations of economy, service, and design. In years past, flat sheet was often seen in architectural applications, and preformed or roll-formed metal panels were used almost exclusively on industrial plants and warehouses. Today, all of these panel types are used on virtually every type of structure, from manufacturing facilities and stores to schools and office buildings.

Recent improvements in the metal panel manufacturing process have resulted in a wider selection of profiles. New developments in coating technology provide even longer life spans for the metal panels. And a multitude of new design options have allowed preformed metal panels to make their way into the mainstream of commercial building design.

Single Skin Panels

- Manufactured from a variety of metals
 - Steel (most common)
 - Aluminum
 - Copper
 - Zinc
 - Stainless Steel
- Installation options
 - Vertical
 - Horizontal
 - Diagonal
 - Geometric
 - Curved
 - Perforated



Preformed metal panels are manufactured from a variety of metals, including steel, aluminum, copper, zinc, and stainless steel. Steel continues to be the most used in commercial building construction.

One reason for the growth of these traditional metal panels, especially in the commercial market, is their “new” versatility. At one time, for example, preformed panels were only installed vertically. Today, they can also be installed horizontally, diagonally, or in any number of geometric designs. Curved panels can give even more shape to wall designs.

Insulated Metal Panels (IMPs)



- Lightweight composite exterior wall and roof panels
- With metal skins and insulating foam core
- Provide weather-resistant, vapor-retarding thermal barrier
- One-pass installation

Insulated metal panels (IMPs) are lightweight composite exterior wall and roof panels with metal skins and an insulating foam core. Individual units connect through tongue-and-groove joinery and when installed as a system, are designed to provide a weather-resistant, vapor-retarding thermal barrier suitable for use in commercial construction.

Their outstanding spanning capabilities and one-pass installation makes them quick to install, saving costs compared to other wall assemblies.

Insulated Metal Panels (IMPs)



- Options include:
 - Custom shapes and widths
 - Custom colors and finishes
 - Custom fabrication such as bent corners and curved panels
- Panels incorporate with:
 - Windows
 - Louvers
 - Sunshades

Architectural IMPs have the normal attributes of other commercial and industrial segments but incorporate options such as custom shapes and widths, special custom colors and finishes, and custom fabrication including but not limited to bent corners, curved panels, and trimless ends.

Architectural IMPs offer options that incorporate panels with windows, louvers, sunshades, or other products to offer total building envelope solutions. IMPs provide architects freedom to create their unique building designs.

Insulated Metal Panels (IMPs) for Roofing



- Quick installation
- Excellent insulation
- Simple maintenance
- Long life



For roofing, IMPs are the solution that provides greatest insulation, simplest maintenance, and longest life coupled with quickest installation for low- and high-rise commercial and industrial roofing applications. The essentially two-step installation process limits exposure to accidents, reduces the number of installation steps and materials required and provides a roof with superior insulation properties that can last more than four decades.

Metal Composite Materials (MCM)



- Introduced as aluminum composite material (ACM)
- Evolved into metal composite material (MCM)
- Aluminum is most common skin material
- Other skin materials include zinc, copper, stainless steel, and titanium
- Once predominately for high-end projects
- Now more cost competitive for all projects

Introduced more than 50 years ago as aluminum composite material (ACM), this product category evolved into metal composite material (MCM), reflecting the inclusion of natural metal skins such as zinc, copper, stainless steel, and titanium. Aluminum is still the predominant MCM skin material finished a broad spectrum of coil coated colors and finishes.

Design aesthetics is one reason MCM systems are increasing in popularity. Affordability is another. At one time MCM systems were primarily thought of for high-end projects, however due to manufacturers' advanced product technology, improved fabricator efficiencies, and varieties of new installation techniques, MCM are more cost competitive than ever.

Metal Composite Materials (MCM)



- MCM systems installed on a variety of building types:
 - Major commercial
 - Educational
 - Health facilities
 - Corporate identity applications
 - Architectural cornices
 - Soffit designs
- Flatness and consistency with coil coated finishes
- Protects against air and water infiltration

As a result, MCM systems are installed on a variety of building types ranging from major commercial, educational, and health facilities to many corporate identity applications and architectural cornices and soffit designs.

MCM not only provides flatness consistency, but also consistency with coil coated finishes. Aluminum MCMs can be finished in a broad spectrum of colors meeting the owners' and architects' desired look.

Properly designed, tested, and installed MCM systems provide a reliable building envelope that resists the elements and protects against air and water infiltration.

MCM systems are also recognized in the building code for a variety of applications based on small-scale and full-size testing.

Single-Skin Roofing

- Single-skin metal roof systems vary in weight from 40 to 135 pounds per 100 square feet
- Among the lightest roofing products and easiest to install
- Low slope metal roofs do not require a substrate
- Steep slope metal roofs do require a substrate
- Designed to meet ASTM and UL wind and uplift tests
- Metal roof materials protected by highly durable metallic coatings



Single-skin metal roof systems vary in weight from 40 to 135 pounds per 100 square feet, making them among the lightest roofing products and the easiest to install. A lightweight roofing system also places fewer demands on a building's structural support system, an important consideration in earthquake-prone areas.

Unlike non-metal systems which require an underlying substrate or deck, low slope metal roofs can be applied directly over bar joists or purlins. And, because of their interlocking or active fastening systems, metal roof panels are designed to meet the requirements of ASTM E1592, UL 580, UL1897, and other severe wind and uplift tests.

Architectural steep slope metal roofs always require a substrate beneath them.

Metal roofing products come in a variety of materials as well as many colors, textures, and profiles. To ensure longer life, almost all metal roof materials are protected from the elements by high-performance, highly durable metallic coatings.

Award Winning Case Studies



The following projects have won awards in their category for innovative uses of metal in architecture.

Best Overall Building of the Year Award Winner: Chase Center, San Francisco



- Home to Golden State Warriors NBA team
- Used for basketball, concert, entertainment events
- Sits on an 11-acre site
- Includes:
 - 18,000-seat arena
 - Two office buildings
 - 100,000 square feet of mixed-use/retail space
 - Underground parking

"Chase Center must be a suitable home for arguably the best basketball team on the planet, and we want every world-class artist to think that their resume isn't complete until they play here." — Warriors COO Rick Welts.

The competition's overall grand winner, the Chase Center, is a multipurpose arena which is home to the Golden State Warriors NBA team. The arena sits on an 11-acre site in San Francisco and is used primarily for basketball and concert/entertainment events. In addition to a state-of-the-art 18,000-seat arena, the Chase Center has two office buildings, 100,000 square feet of mixed-use/retail space, and underground parking. The arena opened in time for the 2019–20 NBA season.

The stakes were high according to the Warriors COO Rick Welts:

"Chase Center must be a suitable home for arguably the best basketball team on the planet, and we want every world-class artist to think that their resume isn't complete until they play here."

Chase Center, San Francisco



- Metal used to achieve look of prestige with:
 - Custom colors
 - Sleek and seamless configuration
 - Modern luster
- 230,000 square feet of metal on exterior
- 35,000 square feet of exposed-fastener, corrugated, 20-gauge metal panels
- 7,000 square feet of matching integrated louvers
- Stainless steel and aluminum soffits

Metal was used to achieve the required look of prestige with custom colors, sleek and seamless configuration, and modern luster. The use of metal in the Chase Center, from the facade to the interior, is obvious and artful. Metal cladding adds aesthetic contrasts of warmth and color to the exterior while capturing the modern grandeur of the interior.

The metal vendor contributed metal panels and louvers to the building's facade, including 35,000 square feet of exposed-fastener, corrugated, 20-gauge metal panels, and nearly 7,000 square feet of matching integrated louvers. The soffits are stainless steel and aluminum. The stadium facade and soffits are clad in metallic white and wood, respectively. Some 230,000 square feet of total metal was used on the exterior.

Chase Center Interior



- Massive size unified with materials
- Faceted and angular monumental escalator
- Aluminum deeply saturated, wood grain finish
- Unified with exterior soffits

Because of the project's massive size, the interior space needed a clear way for the masses to navigate the mega maze. The solution was in unifying the interior materials, beginning with the faceted and angular monumental escalator. Visible through the main entrance glass facade is a deeply saturated finished aluminum wood grain with physical texture to bestow warmth to the touch. The finish pays homage to the exterior soffits, contextualizing and unifying the interior and exterior spaces.

Chase Center Interior



- Custom aluminum with wood-look finish covers 12,000 square feet
- Finish made from organic inks and resins
- Matte finish offers physical texture
- Finish painted on 3-millimeter flat sheets
- Finish is VOC free, Red List free
- Aluminum 100 percent recyclable at end of life cycle
- Building achieved LEED Gold certification

The custom aluminum wood-look finish covers approximately 12,000 square feet of the stadium interior and is used on the exterior soffits. The finish is made from organic inks and resins, with a matte-surface that offers a physical texture. Using the offset gravure process, the finish is painted on to 3mm aluminum flat sheets. It is made from at least 20 percent post-consumer recycled content, VOC free, Red List free, and 100 percent recyclable at the end of its life cycle. The simplicity of the material, and the functionality of metal ensures there will be no legacy of maintenance.

Metal materials helped the center achieve LEED Gold certification in 2019.

Chase Center

"This is just wonderful. The use of metal creates a sense of mystery and provides subtle gestures. Absolutely timeless design, very ambitious, extremely dynamic. I love it!"

— Competition judge Steven G. Blye, AIA, LEED AP, Legat Architects, Creative Director, Associate Director Healthcare

- Architect: Manica Architecture
- Architect: Kendall/Heaton Associates
- Contractor: Mortenson-Clark Construction Group
- Metal installer: Enclos (cq)
- Metal installer: MG McGrath
- Metal vendor: Centria

Photo credit: Jason O'Rear Photography/Chase Center



"This is just wonderful. The use of metal creates a sense of mystery and provides subtle gestures. Absolutely timeless design, very ambitious, extremely dynamic. I love it," said competition judge Steven G. Blye.

Those responsible for the design and construction of the project include:

Architect: Manica Architecture

Architect: Kendall/Heaton Associates

Contractor: Mortenson-Clark Construction Group

Metal installer: Enclos (cq)

Metal installer: MG McGrath

Metal vendor: Centria

Photo credit: Jason O'Rear Photography/Chase Center

Roofing Award Winner: Austin Residence

- A focus on sustainability
- A focus on aesthetics
- Metal was the obvious choice



The attributes of metal architecture discussed here come together in this award-winning project, the roof of a house in Austin, Texas. It was designed and constructed with a focus on sustainability and to bring out the aesthetics of the residence. Energy efficiency and environmental benefits made metal the obvious choice for the roof. The aesthetics of standing seam panels achieved a clean, appealing look.

Austin Residence Roof



- Roof is 24-gauge 70 percent PVDF coated steel
- Double-lock standing seam panel
- 12-inch pans in matte black
- Covers 6,800 square feet over four buildings
- Material recyclable at end of life

The roof is 24-gauge 70 percent PVDF (polyvinylidene fluoride) coated steel, manufactured in a double-lock standing seam panel with 12-inch pans in matte black. The roofing covers 6,800 square feet over four buildings. The roofing panels were custom roll formed on site. It was completed May 2020.

The environmentally conscious clients liked the energy efficiency of the 70 percent PVDF material and the fact that the material is recyclable at the end of its life.

Austin Residence Roof



"This roof is simple and poetic." — Competition judge: Yen Ong, AIA

"This is a beautiful project. Metal is the only material I can think of where you could create this hyperbolic/parabolic roof. The reflectivity of it on the skies and the trees is just gorgeous." —

Competition judge: Christina Bazelmans, AIA

- Several companies were honored for their part in the creation of the roof:
- Architect and Contractor: Bercy Chen Studio, Austin, Texas
- Metal installer: Green Knight Metal Roofing, Austin, Texas
- Steel provider: US Steel
- Metal vendor: McElroy
- Coil coater: Precoat Metals
- Coatings: Sherwin-Williams

Photo credit: Joel Kenty/Green Knight Metal Roofing

"This roof is simple and poetic," said competition judge Yen Ong, AIA.

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Photo credit: Joel Kenty/Green Knight Metal Roofing

Municipal Award Winner: Williston Basin Municipal Airport



- New airport serves booming North Dakota economy, and includes:
 - 110,000-square-foot terminal
 - Four gates
 - Three passenger boarding bridges
 - Two runways
 - Full-service restaurant
 - Baggage claim
 - Children's play area
- Terminals offer extensive views of the prairie

A booming North Dakota economy led to construction of the new Williston Basin International Airport (XWA) to replace Sloulin Field International Airport. The new airport has a 110,000-square-foot terminal, four gates, three passenger boarding bridges, two runways a full-service restaurant, a baggage claim, children's play area, and more lounge seating. The terminals offer extensive views of the prairie they are built on.

Williston Basin Municipal Airport



- Exterior finish colors are nod to stratified limestone in nearby Missouri River
- Interior reflects nearby Badlands National Park by mimicking:
 - Limestone style color
 - Canyon horizon
 - Rolling prairie grasses
- Metal selected to achieve look of limestone without heavy weight
- Products used include:
 - Perforated screen walls
 - Corrugated panels in rust colored finish
 - Panels in flat and embossed finishes
 - Single skin wall panels in dark bronze

The finish colors on the exterior facade are a nod to the stratified limestone in the nearby Missouri River and the region's industrial mining sectors. The interior was meant to reflect the nearby Badlands National Park by mimicking the same limestone style color, canyon horizon, and rolling prairie grasses.

Metal was selected to achieve the look of limestone without having the heavy weight and environmental impact. The airport uses tens of thousands of square feet of metal products, including perforated screen walls, corrugated panels in a rust-colored finish, panels in flat and embossed finishes, and single skin wall panels in dark bronze.

Williston Basin Municipal Airport



- Metal panel system in a dark bronze finish installed at the bridge abutments and interior soffits
- Main entrance elevation has custom champagne-colored anodized finish
- All metal panels installed over five inches of mineral wool insulation
- The bulk of the project completed over the winter months

Approximately 2,500 square feet of a metal panel system in a dark bronze finish was also installed at the bridge abutments and interior soffits. The main entrance elevation and north/south returns feature a 10,000-square-foot enclosure in custom champagne-colored anodized finish developed specifically for this project with clear anodized accents. All of the metal panels were installed over five inches of mineral wool insulation. The interior of the project also included metal panels at the interior window openings and elevator enclosures.

As testimony to the workability of metal as a building material, the bulk of the project was completed over the winter months with record-breaking temperatures dipping well below zero degrees.

Williston Basin Municipal Airport



"This is a great exploration of metal. The patterning is strong and done very effectively. Metal is used in a lot of different textures and forms, but it remains cohesive throughout and works well for a greater whole."

— Competition judge Steven G. Blye, AIA, LEED AP, Legat Architects, Creative Director, Associate Director Healthcare

- Architect: Alliance Architects
- Contractor: JE Dunn Construction
- Metal panel vendor: Centria
- Metal panel vendor: Kingspan
- Metal installer: MG McGrath, Inc.

Photo credit: Brennan Photo + Video

Competition judge Steven G. Blye, AIA, said: "This is a great exploration of metal. The patterning is strong and done very effectively. Metal is used in a lot of different textures and forms, but it remains cohesive throughout and works well for a greater whole."

Companies who designed and built the airport include:

Architect: Alliance Architects

Contractor: JE Dunn Construction

Metal panel vendor: Centria

Metal panel vendor: Kingspan

Metal installer: MG McGrath, Inc.

Photo credit: Brennan Photo + Video

Institutional Award Winner: Drivers Club



- Drivers Club connects people through shared passion for cars
- Part museum, part storage facility, part clubhouse
- Pre-engineered steel chosen to:
 - Deliver the project as lean as possible
 - Provide large, column-free space for vehicles
- Design includes irregular, graphic patterning evoking the experience of speeding past a fence or a guardrail

The Drivers Club connects people through their shared passion for cars. It is part museum, part storage facility, and part clubhouse. Challenged to deliver the project as lean as possible and to provide a large, column-free space for vehicles, a pre-engineered steel building was chosen by the design team as the best solution. The facility needed to be a secure place for members' rare and exotic vehicles, but it also needed to be open and inviting to allow for a wide range of interactions, from informal gatherings to special events. It was essential for the project to reach a design level that is worthy of the vehicles it houses while simultaneously adhering to the strict budgetary parameters of a start-up business.

Sited in a commercial/industrial zoned district of Redmond, Washington, the project could easily have become a large, featureless box. The design solution, however, seeks to express the unique nature of this program by employing an irregular, graphic patterning intended to evoke the experience of speeding past a fence or a guardrail on a memorable drive.

Drivers Club

- Project consists of two buildings
- High-performance insulated wall and roof panels
- Cost effective and energy efficient
- Elegant striping effect on panels changes when seen from different orientations



The project consists of two structures, with the main building housing both the primary storage/gallery space and the clubhouse. A second structure houses additional car storage (automated mechanized stackers) as well as the area's premier detailing and automotive accessories provider.

Both structures have high-performance insulated wall and roof panels, which are both cost-effective and extremely energy efficient. The insulated metal panels, which are the primary building envelope material (other than glass), were patterned using the manufacturer's standard panel sizes. The design team shifted the tone, sheen, and texture on the panels on the largest parts of the building to create an elegant striping effect that changes as you move around the building and see the panels from different orientations.

Drivers Club

"This facility is elegantly detailed. I really like the rhythm of the room as well as the interaction between cool metal and warm wood." — Competition judge: Christina Bazelmans, AIA

- Architect: TVA Architects, Inc.
- Contractor: Synergy Construction, Inc.
- Metal panel vendor: Kingspan
- Metal panel vendor: Metal Sales Manufacturing Corp.
- Sealant and paint: Sherwin-Williams

Photo credit: Christian Columbres Photography



Competition judge Christina Bazelmans, AIA, said: "This facility is elegantly detailed. I really like the rhythm of the room as well as the interaction between cool metal and warm wood."

Companies who designed and built the project include:

Architect: TVA Architects, Inc.

Contractor: Synergy Construction, Inc.

Metal panel vendor: Kingspan

Metal panel vendor: Metal Sales Manufacturing Corp.

Sealant and paint: Sherwin-Williams

Photo credit: Christian Columbres Photography

Health Care Award Winner: Esperanza Brighton Park Health Center



- 26,000-square-foot health center
- Reaches underserved community in Southwest Chicago
- Serves without regard for immigration status, insurance status, or ability to pay
- Architect's goal: a hospitable clinic with walking paths, garden, and communal spaces

Esperanza Brighton Park Health Center was completed in 2019 with the intent to reach an underserved community in southwest Chicago with a new, welcoming 26,000 square-foot facility. The facility provides bilingual primary care, behavioral health, and wellness services to the community regardless of immigration status, insurance status, or ability to pay.

The architect's goal for this project was to transform an empty lot to a new and hospitable clinic with outdoor walking, community garden, and multipurpose communal spaces for educational programs.

Esperanza Brighton Park Health Center



- Design intent to liberate typical definitions of interior and exterior applications
- Goal achieved using 10,400 square feet of metal composite material
- Prismatic finish allows color to shift with the angle of the light
- Brings modernity and color to an historic, notable city

The design intent was to liberate the typical definitions of interior and exterior applications, which was achieved by using 10,400 square feet of metal composite material (MCM) with a prismatic finish. The prismatic finish allows for the color to shift with the angle of the light, allowing the metal panels to appear to have fluidity or movement to them.

The center is a unique type of architecture that brings modernity and a pop of color to an historic, notable city.

Esperanza Brighton Park Health Center



"For us, this represents a continuation of a long line of projects where we're challenging paradigms in architecture in our communities of color." — Juan Gabriel Moreno, JGMA Founder and President, in a statement to Curbed Chicago

- Architect: JGMA: Juan Gabriel Moreno Architects
- Contractor: Skender
- Metal fabricator: East Coast Metal Systems, Inc.
- Metal vendor: 3A Composites USA Inc.
- Metal panel vendor: Tuschall Engineering Company Inc.

According to Juan Gabriel Moreno, founder and present of Juan Gabriel Moreno Architects: "For us, this represents a continuation of a long line of projects where we're challenging paradigms in architecture in our communities of color."

Those who designed and built the project include:

Architect: JGMA: Juan Gabriel Moreno Architects

Contractor: Skender

Metal fabricator: East Coast Metal Systems, Inc.

Metal vendor: 3A Composites USA Inc.

Metal panel vendor: Tuschall Engineering Company Inc.

Education Award Winner: Richard J. Daley College Manufacturing Technology and Engineering Center



- Located on Chicago's southwest side
- Intended to inspire youth to consider manufacturing careers
- High bay manufacturing spaces placed along street
- Metal provides perfect complement to design vision

The Daley College Manufacturing Technology and Engineering Center (MTEC) is a project that strives to change the stereotypes associated with manufacturing careers as well as that of attending a Community College. Located on Chicago's southwest side in a neighborhood of working-class families, the design intentionally aims to inspire youth to consider higher education and manufacturing careers as a sophisticated and high-technology endeavor. High bay manufacturing spaces have been placed along the street edges providing glimpses of the technology within. The design places the manufacturing areas on a pedestal, so the technology and students are fully on display to which celebrate the sophistication of the modern era of manufacturing. Metal is the protagonist as the idea of high industry is seen throughout the exterior and interior spaces. The design remains true to the process within, and the metal panel exterior provides the perfect complement to the design vision.

Richard J. Daley College Manufacturing Technology and Engineering Center

- 57,000-square-foot center links to existing college via pedestrian bridge
- Bold interior finishes and yellow exterior accents
- Industrial aesthetic expressed through insulated metal panels, glass, and steel
- Seating areas inside bridge
- Includes 28,000 square feet of architectural metal panels



The 57,000-square-foot center links to the existing college facility via a pedestrian bridge. Bold interior finishes and yellow exterior accents echo the brightly colored machinery in the high bay.

The facility's industrial aesthetic is expressed through insulated metal panels, glass, and steel, as well as the "caution yellow" on the underside of the pedestrian bridge. Inside the bridge, circulation space intentionally collides with seating areas, platforms, and alcoves, encouraging students to congregate and participate in incidental learning outside of class.

The project includes 28,000 square feet of architectural metal panels.

Richard J. Daley College Manufacturing Technology and Engineering Center

"This is an outstanding project. The triangular motif is expressive, and they really showcase the use of metal, which plays up the school's curriculum." — Competition judge Steven G. Blye, AIA, LEED AP, Legat Architects, Creative Director, Associate Director Healthcare

- Architect: JGMA: Juan Gabriel Moreno Architects
- Metal Vendor: Centria
- Contractor: Old Veteran Construction
- Photo credit: Tom Rossiter



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Those responsible for the design and construction include:

Architect: JGMA: Juan Gabriel Moreno Architects

Metal Vendor: Centria

Contractor: Old Veteran Construction

Photo Credit: Tom Rossiter

Residential Award Winner: 108 Chambers, Tribeca, New York City

- Known as The Tribeca Rogue
- 10-story mixed-use building
- Metal specified to create unique, specific shapes
- Metal panels formed into geometric angular slab/spandrel cover combinations
- More than 10,000 square feet of 3-millimeter thick, single skin aluminum wall panels



108 Chambers—also known as “The Tribeca Rogue”—is a 10-story mixed-use building in the Tribeca neighborhood of New York City.

Because of the unique, specific shapes the project required, metal was specified for its ability to be shaped, formed, and cut. The metal panels were formed into geometric angular slab/spandrel cover combinations, giving the facade a unique look. The metal vendor engineered and fabricated more than 10,000 square feet of 3-millimeter-thick, single skin aluminum wall panels.

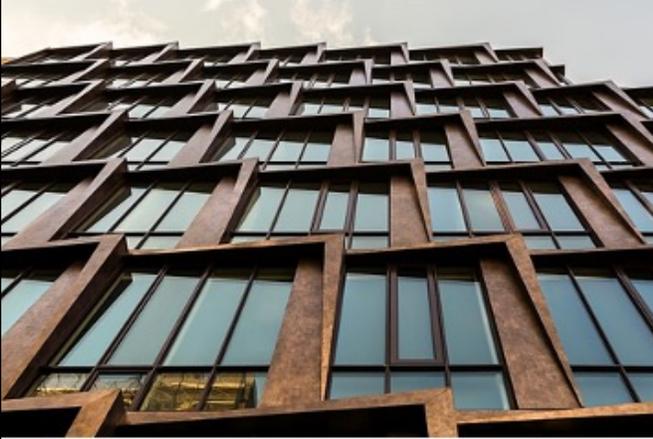
108 Chambers, Tribeca, New York City

- Optical textures achieved with a deco bronze finish
- Provide multiple levels of luminosity and glinting
- Matches previous color on facade before site was razed
- Finish uses the organic resins of pure aluminum with organic pigments and pearlescent inks



Additionally, optical textures were achieved with a deco bronze finish, which provide multiple levels of luminosity and glinting. The bronze finish used here is contextual to the space as it was a match to the previous color used on the facade before the site was razed. The finish is a clear coat metal, colored using the organic resins of pure aluminum with organic pigments and pearlescent inks.

108 Chambers, Tribeca, New York City



"This struck me as really interesting. It's innovative, the paneling is bold, and the strong forms are interesting and make an insightful statement about the neighborhood—an all-around unique look." —

Competition judge: Christina Bazelmans, AIA

- Architect: Woods Bagot
- Contractor: Ross & Associates
- Metal Installer: PG New York

Photo credit: Joe Brennan/Brennan Photo + Video

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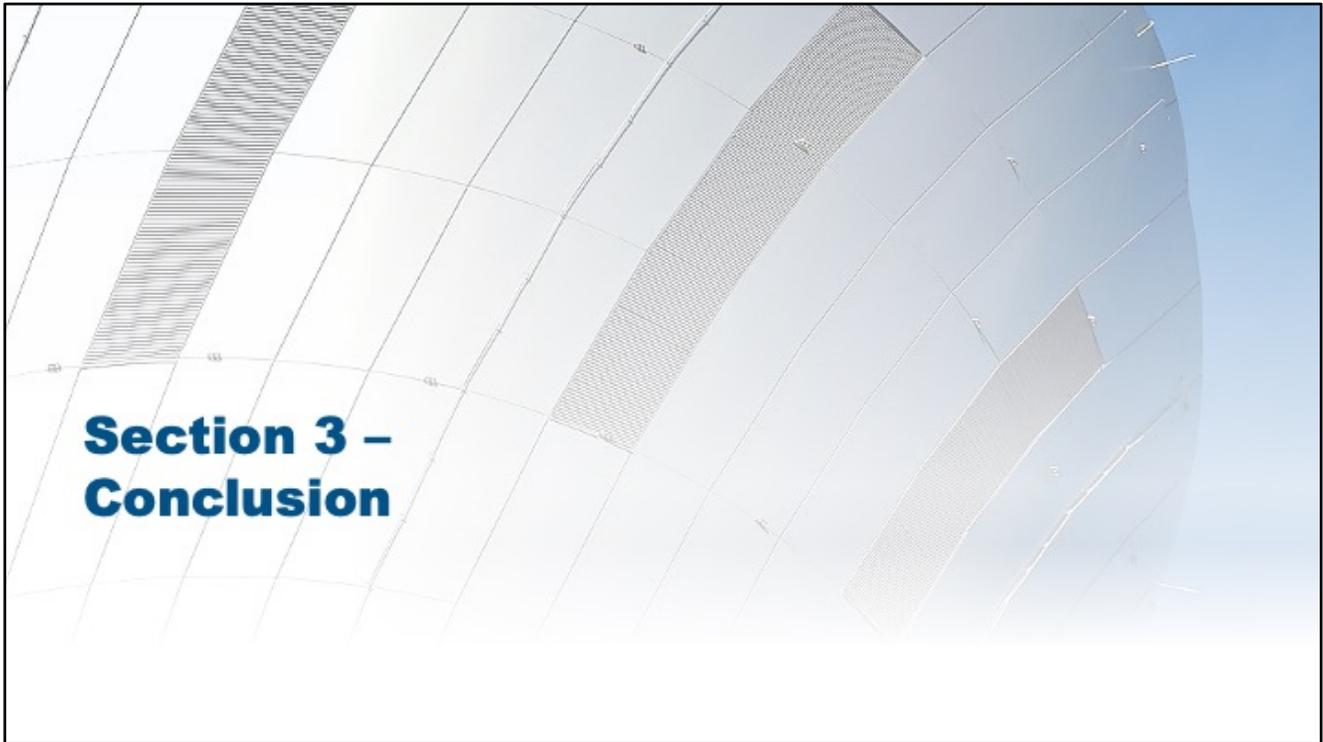
Those responsible for the design and construction include:

Architect: Woods Bagot

Contractor: Ross & Associates

Metal Installer: PG New York

Photo credit: Joe Brennan/Brennan Photo + Video



After reviewing these award-winning projects, it's clear that today's metal wall and roof panels are available in wider choice of sizes, textures, colors, and profiles than ever before. The choice of textures ranges from smooth to a stucco-like appearance, while the choice of colors ranges from standard hues to custom-matched colors to help create more visually interesting buildings.

The myriad design options now available with preformed metal wall and roof panels offers the opportunity to add distinctive architectural effects to a building without necessarily incurring a lot of additional expense. The economic cost combined with time-proven performance positions metal panels as a very viable choice for exterior wall applications and roofing solutions.

Thank You



This concludes the continuing education unit on the **Modern Metal Walls and Roofs: Colorful, Evocative, Innovative** course.

Please take the quiz to receive your credits.

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