

Exploring the Painted Aluminum Panel Options of Composite and Plate





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Abstract

With the help of industry experts in fabrication across North America, the article will explore the differences between the common aluminum architectural panel materials plate and composite. The article reviews industry terms, fabrication considerations, and merits of both products.

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Key Takeaways

Painted aluminum cladding provides near-limitless finish options in a sustainable, durable, and affordable architectural panel. There are two main architectural products for painted aluminum, solid plate and composite, referred to as MCM. Fabricating a cladding system off-site can create efficiencies in building construction.

1.a. INTRODUCTION

More modern building designs are turning to architectural aluminum panels to make a statement with their façades. Whether the desired visuals are sharp metallics, earthy mattes, or vibrant colors, painted aluminum can provide an incredible range of finish and gloss. These aluminum cladding

assemblies provide protection from the weather and are abundant, economical, and highly recyclable. Aluminum walls are a good choice for performance, sustainability, and affordability. There are many options for exterior metal wall systems and two of the most popular are plate and composite.

1.b. LEARNING THE TERMINOLOGY

Plate, sheet metal, or single skin, which is the right term? Often, terms are used interchangeably. However, when it comes to architectural façades, plate, with an average minimum thickness of 1/4" (6mm), is standard. Sheet metal panels are under 1/4". Single skin refers to metals that are coated, having a single surface layer like a painted finish.

What about ACM, ACP, and MCM?
Composite panels are manufactured by

Read more in our article [What is MCM?](#)

bonding thin metal skins to either side of a thermoplastic core. Aluminum composite material (ACM) or panel (ACP) refers to composite specifically made with aluminum, often painted. Composite can also be made from other natural metals as well, like stainless steel, copper, zinc, and even titanium, so the term metal composite material (MCM) covers them all. The architectural standard thickness for MCM is 4mm.

PROJECT DESCRIPTION

The Vistas: CC Young Health Care Center is a senior living facility like no other. Featuring 22,000 sqft of QCO Rusted Steel from the ALPOLIC Pattern Series, the look speaks to the rough and tumble roots of Texas.



1.c. CLADDING ADVANTAGES AND INSTALLATION SYSTEMS

Cladding refers to an external layer applied to the exterior wall, often structured as a panel, that can be made with a wide range of materials. Architectural panels changed the nature of building façades, by separating the load-bearing wall from the aesthetic of a design. The substrate could be built on the construction site, while the panels could be prefabricated off-site. Thus, giving way to greater efficiencies, improving precision, and enabling advancements in finishes, sustainability, and safety. The design possibilities became practically limitless as products like metal composite materials (MCM) entered the arena. With an astounding versatility and expansive

palette of colors and gloss, these innovative materials have become the face of buildings around the world.

Cladding systems fall into one of two general categories, sealed and rainscreen. Multiple factors should be evaluated when determining the ideal cladding system for your specific project. Some considerations include the project environment, aesthetic needs, and wall performance. It's also important to review local code requirements as well as the project budget. Lighter in weight, MCM puts less load onto a substrate and requires less structural support compared to plate.

Read more in our article [Choosing an Installation System for Your Metal Composite Cladding.](#)



Key Takeaways

For many, price is a driving factor, and both plate and MCM could have additional cost considerations. Generally, MCM is more affordable. With comparable performance and strength, MCM is lighter and easier to fabricate. A review of engineering judgments and changes to the building code of Ontario.

2. APPLICATION AND ENGINEERING JUDGMENTS

NEIL FERDOWSI, Cladco Ltd.

Based in Burlington, Cladco Ltd. is a leading provider of panelized solutions for the US and Canada. One of the largest fabrication, distribution, and installation companies of panelized architectural products in North America, they deliver quality and affordability. Cladco Ltd. is considered a partner for

cladco.com

2.a. REVIEWING COST AND STRENGTH

When it comes to cost, “there’s always going to be a preference for MCM over plate. The only exception to the rule is if you have a very small project that needs a custom color, then post-painted plate shines,” explains Ferdowski. He also sees plate as an option for when the architect specifies welded corners, though the choice has become less common. “It’s a substantial price difference because the welding is very time-consuming without much functional use,” he notes candidly.

its customers who turn to its team of paneling experts for single source responsibility construction. Offering products and services with MCM, aluminum plate, steel, phenolic, and fiber cement, Vice President Neil Ferdowski and his team have completed thousands of projects over the past two decades.

According to Ferdowski, there are two additional circumstances where plate has an advantage. “With ultra-complex geometries, you can completely weld the plate and grind it smooth before painting. And of course, combustibility. Generally, outside of those areas, MCM is going to be the better option.”

Ferdowski addresses his customers’ concerns frankly. “Some architects believe that plate is a stronger product just because it weighs

PROJECT DESCRIPTION

Fabricated by Cladco Ltd., Lakeshore Lofts is a unique example of beauty and sustainability in affordable housing design. 25,000 sqft of 4mm ALPOLIC/fr in five stock colors – TLK blue, MBU blue, ABE blue, BNT white, and BGY grey – cascade across the four-story facade as an homage to the waves of nearby Lake Ontario.



more; that if it’s heavier, it’s a better product.” From his experience, MCM with an exceptional strength-to-weight ratio performs, “relatively the same. Plate’s not

going to outlast MCM significantly better, but it is heavier. And that makes it more expensive to handle and fabricate.”

Read more in our article [A Master Class in Metal Composite Materials: From design to build, the details that make MCM preferred by professionals.](#)

2.b. ENGINEERING JUDGMENTS

Fire protection engineers are used to evaluate wall assemblies to confirm compliance with building code requirements. They work with building owners, code officials, commercial laboratories, manufacturers, and the design team to review a near infinite possible combination of products and construction configurations to ensure life safety. They are often called in to help navigate locality-specific code concerns like those formerly found in Ontario.

Beginning 2025, the province of Ontario will align with the National Building Code of Canada on its use of MCM. “Previously, for projects over six stories, you had to get an engineering report from a fire consultant, in a process referred to as an alternative

Read more in our article [Demystifying Fire Code Compliance and MCM.](#)

solution,” explains Ferdowski. “You have seen MCM projects of all sizes and heights, even in Ontario. Most consultants are very comfortable with it,” Ferdowski continued, confident in the appropriate use of MCM.

For Ferdowski’s team, there are clear advantages to MCM beyond price as well. “It’s more flexible, it’s lighter, it’s more manageable, it doesn’t have oil canning, one of the biggest factors with plate products.” However, he acquiesces that there is a segment of the market that wants a non-combustible product, regardless of code definitions and testing.



Key Takeaways

Plate can be pre- or post-finished. While post-painting is less expensive and can allow for more manipulation of the material, it is a longer process with quality control concerns. Pre-finished plate is more comparable to MCM with its fabrication process.

3. PAINT CONSIDERATIONS

RICK MARCOVECCHIO, Bamco, Inc.

Rick Marcovecchio is the vice president at Bamco, an employee-owned architectural façade company headquartered in New Jersey. Over his 20-year career, he estimates he's fabricated over 700,000 panels. Operating up and down the eastern seaboard of the US, Bamco has provided state-of-the-art

gobamco.com

3.a. PRE- AND POST-FINISHED PLATE

Marcovecchio explains that when plate is coated with the desired finish, it changes the price, process, and workability of the panel. When delivered as a mill-finished solid plate, as is the case in post-finished plate, the cost of the panels drops significantly but increases the steps and timeline for a finished product.

The unfinished goods are first fabricated, then sent to painters, and returned to the fabrication shop for additional detailing before the panels can go out for installation. "I have to send it out to the painter, and I'm

wall products as well as design, engineering, and project management support for almost 40 years. With expertise in metal paneling, they are at the forefront of fabrication with both plate and MCM, in addition to supporting materials like fiber cement and HPL.

then obligated to their schedule. It could mean delays for our customers and our field team." Marcovecchio also has concerns about the panel protection from the paint shop and details that the panels may need to be wrapped and re-wrapped multiple times. "One thing to know with post-painting, this is a manual process. So, you'll get more inconsistencies compared to pre-finished plate." To combat these quality and timeline concerns Bamco has invested in their own paint shop for projects where pre-finished plate is out of budget.

PROJECT DESCRIPTION

The renovation of **Harlem Hospital** stands as a monument to African-American history and culture. Over 80,000 sqft of custom 4mm ALPOLIC®/fr framed the glass mural, expertly fabricated by Bamco.



In addition to potential cost savings, post-finished plate has added fabrication flexibility compared to pre-finished. Without needing to worry about the paint, plate can be welded and manipulated in a variety of ways. "I can put some returns or a reveal

in the middle of the panel, something that's very hard to do by hand with pre-painted plate," explains Marcovecchio. After working the material with his press break, "I can sand it, clean it up, to prepare it for post-painting."

Read more in our article [Finish is More than a Color.](#)

3.b. COMPARING PRE-FINISHED PLATE AND COMPOSITE

Reviewing the options, pre-finished plate and MCM are closer in comparison with their fabrication process. "I started my career here doing ACM, and it's easier. It's a process I know very well," says Marcovecchio. Because of the density of plate, he notes that machines run at a slower speed and routing plate is a bit more difficult. Further, unless purchasing a significant volume, "pricing hasn't been that great with pre-finished plate."

However, Bamco is leaning into the plate space to be more competitive in the marketplace. "New York City has become the place for plate, it's actually specified a lot more," he explains. Updates to the NYC Buildings code state that combustible exterior wall coverings shall be limited to 40 feet in height above grade plane, a unique modifier within the US. With much of their work coming from the five boroughs, Bamco has made considerable capital investments to improve operational efficiency to work with plate.

Read more in our article [Understanding the Role of Fabrication in Cladding Applications.](#)



Key Takeaways

Fabricators should be aware of the additional equipment and labor considerations when working with plate. Architects looking for a uniform finish should look for panels made from the same batch.

4. WHAT MATTERS IN THE INDUSTRY

JOHN ROBIS, Exterior Technologies Group (ETG)

Exterior Technologies Group helps architects across Canada to specify and detail wall construction to code. Working with materials like aluminum, composite, steel, and zinc, ETG partners with material manufacturers and customers to offer technical support, consultation, value engineering,

exteriortechnologiesgroup.com

4.a. KEY CONSIDERATIONS FOR THE FABRICATOR AND THE ARCHITECT

"The main difference between the products I point out to fabricators is that plate panels have more rounded corners compared to the 'sharper-looking' composite, it's slower to fabricate, requires more stiffening than MCM, and more equipment," explains Robis. He details plate fabrication may require a hydraulic shear for cutting, a press brake for bending, and a welding station to weld the corners. "All equipment requires skilled labor and takes up valuable shop real estate. Whereas MCM only requires a CNC routing table."

and more. John Robis, principal of ETG, has been in the industry for three decades and is the region's ALPOLIC representative. With offices in Montreal, Calgary, Burlington, Halifax, and Vancouver, the team at ETG knows the Canadian market, and they know aluminum cladding.

Robis finds the extra labor and logistics of post-painting solid aluminum a deterrent, preferring the streamlined process of painted MCM shipped directly to the job site following fabrication. "This not only saves time and coordination efforts, but also minimizes panel damage risk due to the extra handling."

For the design community, Robis highlights the visual considerations. In addition to being susceptible to oil canning, "aluminum plate panels are batch painted. MCM is coil coated. You should look out for visual

PROJECT DESCRIPTION

Easily fabricated by **Cladco Ltd.**, white ALPOLIC MCM takes on a beautiful leaf motif featured at every entrance of this Pickering, Ontario shopping centre. Additional finishes featuring on the interior elevator towers perpetuate the theme.



inconsistencies across each plate batch, which can be avoided with MCM from the same coil run."

Additionally, he extols the flexibility of the composite core to address the possible pillowing effect of plate. "Larger plate panels are likely to bow (pillow) more

Read more in our article [The Evolution of Coil Coatings and Paint Systems for Metal.](#)

4.b. COMBUSTIBILITY

Aluminum plate is a non-combustible material. The composite core of MCM is a thermoplastic and thus is a combustible material. That distinction is, for many, the key differentiator between the two cladding options. "It comes down to perception. I can pull out the building code and show someone both products are approved, but for some, the term combustible is a hurdle," says Robis.

International incidents have brought a sharp focus on the use of combustible cladding. Thankfully in North America, there are safeguards in place with both the US and Canadian building codes that detail

because of the inherent stress of monolithic aluminum combatting wind pressure and wind suction; whereas MCM is flexible, more able to return to its natural position. It stays flat without the extra expense and effort of installing additional stiffeners," says Robis.

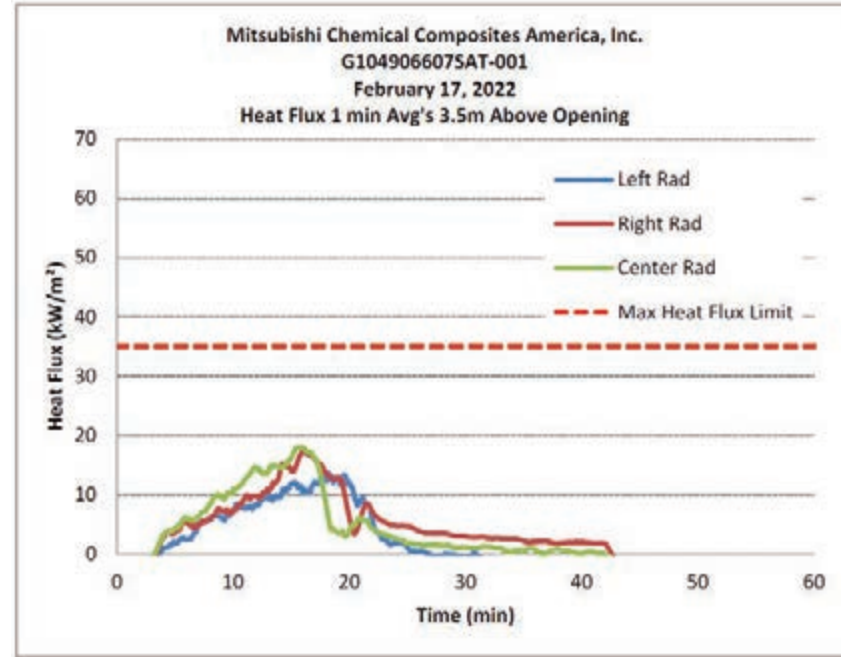
what materials are acceptable in different applications. Strict code compliance has ensured North America has not had to compromise on building safety.

Combustible cladding like composite with a mineral fill fire-resistant core, can be used safely in a variety of construction types. Stringent fire testing standards like those set out in the US NFPA 285 and the CAN ULC S134 use full-scale wall tests that ignite and measure fire spread. This is to ensure that the real-world applications of any wall assembly pass the fire standards that keep us safe.

Continued from previous page.

When used correctly and in accordance with established building codes, MCM with a fire-resistant core is a safe part of the building envelope and can pass these multi-story tests designed to ensure that a fire will not spread from floor to floor. "Aluminum panels, when tested as a part of a well-engineered wall assembly, perform very well. Whether that's plate or fire-resistant MCM, neither propagates the fire. When the heat source is removed, they both perform in a very comparable way," explains Robis. The fire-resistant composite core has properties to absorb heat from a fire and release water to help cool the area, which enhances the fire safety and resistance of the building.

Read more in our article [ALPOLIC Announces Latest Certified S134 Fire Test.](#)



Seeing is Believing

And, there can be little doubt of the suitability of code-compliant ALPOLIC metal composite materials (MCM) for the construction of buildings across Canada that are both safe and beautiful. The ALPOLIC division of Mitsubishi Chemical America is therefore pleased to share the results of our most recent Canadian full-scale wall assembly test, the S134.

PROJECT DESCRIPTION

Over 30 years after it was built, Denver's **Cesar E. Chavez Memorial Building** began to show its age and required major upgrades. Rather than demolish, Tryba Architects designed a retrofit featuring ALPOLIC MCM. Champagne Metallic and Mica Anodic Clear finishes replaced the original cladding, thereby saving time and money on the project.

The renovation helped revitalize Denver's skyline, and use of ALPOLIC helped contribute to its LEED Gold status.

BEFORE



AFTER





Key Takeaways

Beautiful, durable, safe ALPOLIC MCM is code compliant and has look that lasts, backed by the strongest Repair and Replace warranty in the industry.

5 FINAL THOUGHTS

5.a. TESTING FOR RELIABLE PERFORMANCE

Architectural products, whether MCM or plate, are subject to local and national building codes and their respective testing standards. Always design to meet the requirements of the code but utilize these independent testing standards to ensure

Read more in our article [Specifying MCM](#).

Depending on the location, it may be important to review the ASTM E1886/E1996 and TAS 201, 202 and 203 for hurricane impact testing. This is particularly

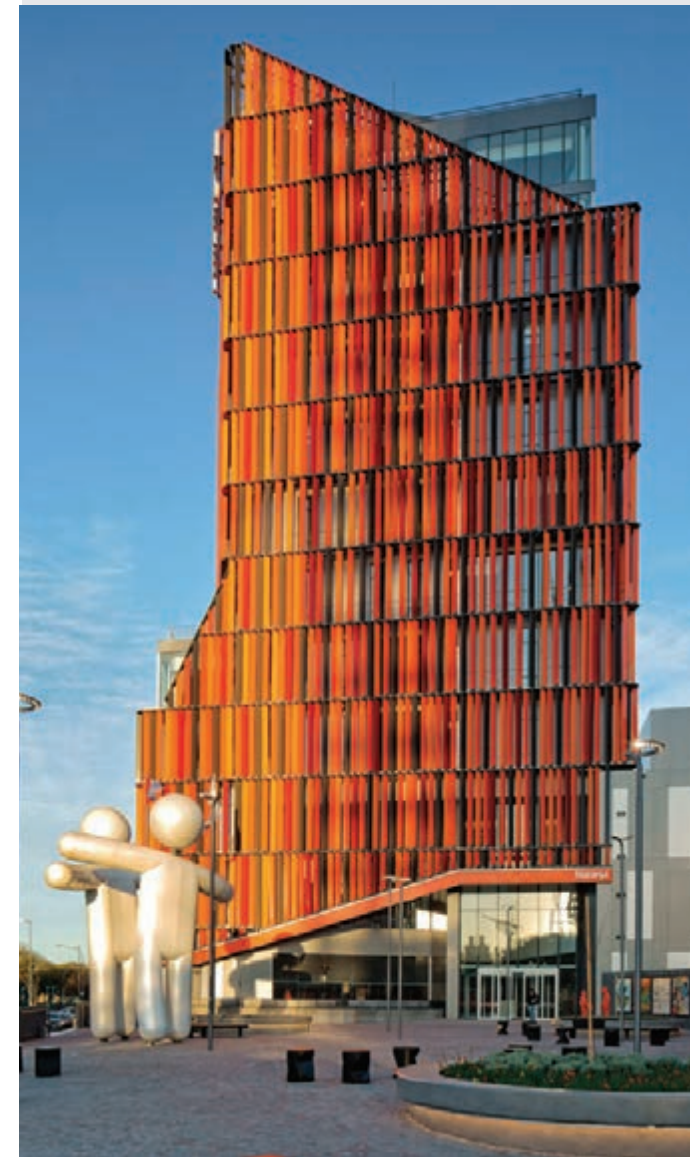
Read more in our article [Better Rainscreen Systems for High-Velocity Hurricane Zones](#)

material performance. For a better finish, that may mean requiring an AAMA 2605-compliant paint system, certified by the manufacturer. For a better product, look for the ICC-ES and ETL marks.

important for plate applications, as a thinner gauge plate aluminum may not be appropriate for certain locations because of the wind load and pressure requirements.

PROJECT DESCRIPTION

This corporate headquarters for **Tarjeta Naranja** lives up to the company motto of "innovation, efficiency, and joy." Twelve stories of vibrant ALPOLIC® in custom orange, red, and charcoal fr bring life to the city skyline.



5.b. DEMAND A BETTER WARRANTY

The façade of a building is the first impression and often the calling card for many of the AEC professionals involved in a project. It's an investment that should last and customers deserve a material manufacturer that stands behind its product. Too often, buried in the fine print of finish warranty

Explore the difference of estimated finish warranty value with our [Warranty Calculator](#)

5.c. CONCLUSION

Painted aluminum panels are one of the many options for building cladding and there are benefits to each of the main product types, MCM and plate. Balancing performance and appearance are important considerations when selecting building material, but with ALPOLIC MCM, you don't

[Let's get started.](#)

need to compromise on either. ALPOLIC is committed to quality, in both our manufacturing process and our materials' safety and durability. Get the look you want that will last. Contact your regional sales manager to learn more.

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