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# FOUR POINTS BY SHERATON

CEI Materials' modular **CLADLOK™** Panel System is a pressure equalized rainscreen system that is easily installed to a wide variety of substrates and subgirt systems. This cassette style plate panel system has all interlocking edges formed from 1 piece of metal and does not require any additional components other than the fasteners that attach it to the wall or subgirt. This significantly reduces installation durations compared to other cladding systems on the market and offers a variety of architecturally appealing façade options without limitations.

### **CLADLOK<sup>™</sup>** Features & Benefits

- Non-Combustible
- 100% Recyclable
- Pressure Equalized Rainscreen
- 20 Year Finish Warranty on Painted Options\*
- Works Well with Continuous Insulation
- Economical
- No Sealants for Quick Installation
- Easily Field Cut
- Little to No Maintenance
- Short Lead Times
- Available in Embossed or Perforated
- Made in the USA

\*Unlimited finish options with painted anodized and natural metals





Sunrise Municipal, Florida



### **PROFILE:** Flat Panel

#### **CLADLOK™** Flat Panel System

Flat panels can be installed vertically, horizontally, or diagonally in a range of finishes offering you a variety of design options. Our flat panels provide a smooth, level surface with clean lines.

- Single-Depth Walls
- Standard Flat Surface
- Customizable
- Economical
- No Clips or Extrusions = Quick & Easy Installation





# **CASSETTE TYPES**

### **PROFILE:** Dimensional Panel

#### **CLADLOK™** Dimensional Panel System

Dimensional panels offer an inventive variation on the traditional flat substrate without disrupting the weather barrier. Panels can be installed at differing depths on the same plane to form a new level of intrigue.

- Multiple-Depth Walls
- Single-Depth Per Panel
- Customizable
- Limitless Design Options
- No Clips or Extrusions = Quick & Easy Installation



# **CASSETTE TYPES**

### **PROFILE:** Tapered Panel

#### **CLADLOK™** Tapered Panel System

Tapered panels can be used to create inventive patterns. With variations in depth and angle, the panel can taper in almost any direction without altering the substrate or the weather barrier.

- Multiple-Depth Walls
- Multiple-Depth Per Panel
- Customizable
- Limitless Design Options
- No Clips or Extrusions = Quick & Easy Installation





### **PROFILE:** Custom Panel

#### **CLADLOK™** Custom Panel System

All of our panel options can also be perforated or embossed. If you can conceive it, we can construct it. Our sales representatives will work with you to find the right fit for your building's exterior aesthetic.

- Single or Multiple-Depth Walls
- Single-Depth Per Panel
- Customizable
- Limitless Design Options
- No Clips or Extrusions = Quick & Easy Installation



PROJECT: Johnson Family Equine Hospital LOCATION: Colorado State University Fort Collins, CO PRODUCT: CLADLOK<sup>™</sup> Modular Flat Panel System ARCHITECT: Clark & Enersen



The Johnson Family Equine Hospital at Colorado State University is a state-of-the-art research facility that provides diagnosis, treatment, and critical care equine services. As part of CSU's commitment to supporting veterinary students, the building will house "The largest research program in the world for equine sports medicine, orthopedic treatment, imaging, and neurology," states University representatives. The nearly 100,000 square-foot facility was designed by Clark & Enersen. It will work with other CSU facilities such as the Translational Medicine Institute and the Diagnostic Medical Center. Serving equine patients throughout the Rocky Mountain region, this facility is two-story with horse stalls and care services on the first evel. The second level features the building's educational and research capacities. The architects describe, "The building's design will blend a hightech aesthetic with an agricultural vernacular, connecting to clientele as well as maintaining a







presence on a notable research campus."

The project utilizes CEI Materials' CLADLOK<sup>™</sup> panel system in custom and standard finishes. The finishes include a standard Regal White and a custom Corroded Texture in varying thicknesses. Perforated panels at the curtain wall and storefront windows matched the architect's design intent. This perforation was also mimicked again to produce the custom .125" box-style panels at the mechanical screen wall.

The fabricated panel system featured a variety of custom panel sizes to match various components of the exterior. For example, custom sloped-cut panels matched the single sloped roof system, while segmented curved panels on the exterior assisted the building's transition from single to double story. In addition, CEI Materials provided panels per installation schedule which required coordinating multiple releases (per color) to align with the project's schedule and sequencing.

The CLADLOK<sup>™</sup> Panel System is a pressure equalized rainscreen system easily installed to a wide variety of substrates and sub girt systems. This cassette-style plate panel system has all interlocking edges formed from one piece of metal. Therefore, it does not require additional components other than the fasteners that attach it to the wall or sub girt. This significantly reduces installation durations compared to other cladding systems on the market and offers various architecturally appealing façade options without limitations.



In downtown Ann Arbor sits a once unassuming brick building, readapted into a modern façade. In the popular city just west of Detroit, the shopping center on South University Street houses popular restaurants and retail. The architects sought to create a cohesive design concept, one that would fit the various businesses into a single unit. As a great contrasting element, metal panels were specified for the remodel. The use of metal creates a smooth transition with the existing brick, a classic mixed-material façade. Due to the building's proximity to the street and the heavy influx of pedestrian traffic, the remodel needed to employ a material that was easy to install and





durable. CEI Materials' CLADLOK Modular Panel System was specified to adhere to the architect's desire to have a clean, aesthetically-pleasing and quickly installable solution.

The new CLADLOK Panel System by CEI allows for faster installation, versus traditional metal cladding systems and still achieves the desired look. CLADLOK in a Grizzly Gray finish offers a juxtaposition to the brick façade and was used on the façade and numerous square columns. Additionally, CEI fabricated the flush seam soffit panel and the roof coping to match the Grizzly Gray finish.

This interlocking panel system is customizable, non-combustible and 100% recyclable. The flat panels can be installed vertically, horizontally, or diagonally in a wide range of finishes. The flat panels offer a smooth, level surface with impeccably clean lines.

PROJECT: B4 Military Barracks LOCATION: Powderly, TX PRODUCT: CLADLOK<sup>™</sup> Modular Panel System ARCHITECT: Base 4, Boca Raton, FL INSTALLER: Intellisteel, Leesburg, FL



Historically military barracks are not often designed with modernity in mind. These buildings serve an essential function, to house our nation's military personnel. Yet, the Army Barracks in Powderly, Texas goes a step further, showcasing the fusion of essential function and contemporary design. Designed by Base4 Architecture, the new Army Barracks building is entirely modular, clad in an interlocking panel system with the Army's signature camouflage color palette.

Rob Baker, NCARB, Executive VP of Base4 Architecture describes, "We were designing a modular building with the desire to install our exterior cladding in the factory. The modules needed to be placed with little on-site work once set which required a unique product to achieve. Once we reviewed the CLADLOK system and the multiple panel options and colors we were sold, it met every desire we had, and our client fully agreed. The team at CEI Materials, LLC was extremely helpful and easy to work with and we will certainly be using their products again."

The CLADLOK modular panel system was manufactured at CEI Materials facility in Manchester, MI before being post painted by Linetec. The fully fabricated materials were then shipped for offsite assembly to Intellisteel in Leesburg, Florida.











Once fully assembled, the prefabricated units were shipped directly to the Army Base in Powderly, Texas.

Stanley Adwell, President of Intellisteel explains, "When searching for an aesthetically unique, durable, rigid exterior cladding for one of its government customers landed on CLADLOK. It not only met all our requirements for our customer, the surprising ease of installation and exceptional durability and rigidity were additional benefits. Our customer is extremely pleased with CLADLOK and intend to utilize these panels on its future units and now other buildings as well"

CLADLOK is a modular panel system that offer a variety of architecturally appealing façade options not seen with your typical rainscreen systems. It provides a sustainable and economical solution to your project with fast installation times. From flat panel to tapered, perforated, or embossed, the design options are limitless. One of the greatest benefits of utilizing metal panels are their limitless design opportunities.









PROJECT: Ketchikan Pioneer Home | Ketchikan, AK



# **TECHNICAL DETAILS**

CEI Materials' CLADLOK<sup>™</sup> modular panel systems offer a variety of architecturally appealing façade options not seen with your typical rainscreen systems.

	ALUMINUM	ZINC	COPPER	STAINLESS STEEL		
PANEL SIZE	W 8" - 51" L 12" - 98"	W 8" - 32" L 12" - 98"	W 8" - 28" L 12" - 84"	W 8" - 48" L 12" - 96"		
FINISHES	<ul><li>Anodized</li><li>Painted</li><li>Specialty</li></ul>	<ul> <li>Natural</li> <li>Graphite</li> <li>Slate</li> <li>Patina</li> </ul>	• Natural • Patina	<ul> <li>2D - Cold-Rolled Dull</li> <li>4 - General Purpose</li> <li>Polished</li> <li>6 - Dull, Satin</li> <li>8 - Mirror Finish</li> </ul>		
MATERIAL THICKNESS	.050in080in	1mm & 1.5mm	24oz & 32oz	16ga & 18ga		
SYSTEM DEPTH	1-3/4 – 4" Nominal	1-3/4 – 4" Nominal	1-3/4 – 4" Nominal	1-3/4 – 4" Nominal		
REVEAL WIDTH	1/2" Nominal	1/2" Nominal	1/2" Nominal	1/2" Nominal		
WEIGHT/PSF	.8 - 1.2lbs/psf	1.6 – 2.2lbs/psf	1.5 - 2lbs/psf	2 - 2.5lbs/psf		
ALL CEI MATERIALS SYSTEMS ARE FULLY TESTED	• AAMA 508-7: Pressure Equalized Rainscreen Test • ASTM E330-02: Structural Design Loads (40psf)					
	AAMA 501.1-05: Dynamic Water Infiltration Test     ASTM E331-02: Static Water Infiltration					
	• ASTM E283-04: Static Air	Infiltration • A	• ASTM E1233-06: Standard Test Method for Structural Performance			

\*Kynar 500

	SIZE CHART ALUMINUM .080"	12"	24"	36"	48"	60"	72"	84"	96"
	48"	•	•	•	•	•	•	•	•
	42"	•	•	•	•	•	•	•	•
DTH	36"	•	•	•	•	•	•		
EL WII	30"	•		•	•		•		
PAN	24"	•		•	•				•
	18"	•	•	•	•	•	•	•	•
	8"	•	•	•	•	•	•	•	•
•	<ul> <li>Recommended Maximum</li> <li>Panel Dimensions</li> <li>Contact CEI Materials For</li> </ul>	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"
More Information					PANEL LEN	IGTH (FEET)			

#### PANEL LENGTH (INCHES)

Contact CEI Materials for different material thicknesses or larger panel sizes.

# PANEL LAYOUT OPTIONS



1/4 Horizontal Joint Stagger



1/4 Vertical Joint Stagger



1/2 Horizontal Joint Stagger



**Horizontal Panel Stacked** 



1/2 Vertical Joint Stagger



**Vertical Panel Stacked** 

# **COLOR OPTIONS**

With an unlimited number of color options, customizing your design is simple. Below is a sample of our most popular colors.

### Pre-Coated Stock Finishes (ALUCOBOND®)

Bone White	JLR Champagne Metallic	JLR Gray Metallic	West Pewter Mica II	Anodic Clear Mica
New Age Dark Bronze Mica	Focus Black II	Dusty Charcoal II		

### Standard Non-Stock Finishes (ALUCOBOND®)



### Zinc Finishes (RHEINZINK®)













#### **GRANUM** Basalte

### Pre-Coated Wood & Metal Finishes (PURE+FREEFORM®)



Roma Noce



Brooklyn Steel





Hollywood



Autumn Cherry



Parisian Rust



Miele Maple



Vintage Nickel



Pearl White Oak



Vintage Steel



Tribeca Bronze



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# **INSTALLATION GUIDE**

CEI Materials' modular **CLADLOK<sup>m</sup>** Panel System is easily installed to a wide variety of substrates and subgirt systems. This cassette style plate panel system has all interlocking edges formed from 1 piece of metal and does not require any additional components other than the fasteners that attach it to the wall or subgirt. This significantly reduces installation durations compared to other cladding systems on the market. **CLADLOK<sup>m</sup>** is a pressure equalized rainscreen system that shields the weather resistant barrier while being visually appealing. Understanding that the drainage plane is behind the panel system is critical to assure proper flashing and waterproofing preparation.

### **Receiving Your Shipment**

Upon arrival of your order, inventory and inspect crates and panels. Be sure to note any damage on the bill of lading prior to the truck leaving. Failure in doing so will make freight claims difficult. Contact your CEI Materials Project Manager immediately for further instructions.

### Starter J

It is critical to locate your continuous starter track location. This will be a level line at the bottom of your panel system. The bottom of the starter track is 5/8" below the bottom of your first panel thus creating a joint. The top of the starter track should be flashed to the buildings AVB to divert any moisture. Weep holes must be field drilled according to CEI Materials System details allowing water to escape. Since the starter track has exposed corners it should be mitered and set square. A miter saw with a quality aluminum blade is best for making the cuts to the starter track.



### **Sequencing of Panels and Fastening**

The Cladlok Panel System easily installs from left to right on the building. Bottom up installation is required due to fastening points being located only at the top of the panel. It's important that attachment occur at every hole along the top flange of panel. This requires a suitable substrate or girting layout.



### **Field Cutting**

When field cutting utilizing either a jig saw or circular saw, select a fine blade. For a jig saw a 20TPI blade will cut very clean and not burh the cut edge. For a circular saw a 7 ¼" blade with a 40t will be your best option. Blades are available specific to non ferrous metals that have less of a rake on the tooth. Cladlok panels are formed from 3003 aluminum typically and because of the softness of the metal, it cuts well.

# **INSTALLATION GUIDE**

### **Termination Extrusions**

The Cladlok system can be ordered with extrusions for panel terminations as opposed to break metal trims or formed corners. The extrusions are painted with the panels and match the panel system. Our termination extrusion will have a receiver, stiffener and a cap. These 3 components create a clean termination from any panel that is field cut. It also creates a margin at the terminations that proportionally looks great. Two extrusions can be used to create outside corners and offer a lot of flexibility for the installer. Overall schedules can often benefit from this method because standard size wall panels can be ordered without as-built measurements driving the design. The single line on the receiver extrusion is for the stiffener alignment. The double lines are for reference while fastening screws.



### **Formed Corners vs Extruded Corners**

Outside corners are handled in 2 ways. Formed outside corners require precise layout because they will wrap to the next elevation. Another option is an extruded 2 piece corner allowing the ability to use standard size panels that will be field cut at terminations. Inside corners are 2 panels that abut on the inside corner extrusion. In either the inside or outside corner detail utilizing extrusion, a receiver is mounted to the substrate or girt then panels cut and a cap installed into the preset receiver. This method simplifies the layout requirements from 1 elevation to the next. It also allows for more flexibility with using standard size panels.







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# **INSTALLATION GUIDE**

### **Installing The Gasket**

Whenever extrusions are used we will send 12' lengths. The gasket will ship in a separate box to the site. The gasket is easily installed after cutting extrusion to length by dipping gasket in soapy water and sliding into the cap prior to engaging into the receiver. All extrusions use the same gasket profile allowing for interchangeable use. Gasket material comes standard black in color.



### **Care and Maintenance**

Panels may be washed down with mildly soapy water. Abrasive, highly acidic or harsh chemicals should not be used. In the unlikely event a panel needs to be replaced, consult CEI Materials directly.



CEI Part #: STF-1

CEI Part #: STR-1





CEI Part #: IC-1

CEI Part #: IC-2







CEI Part #: T-1







CEI Part #: OC-1

CEI Part #: OC-2



CEI Part #: GSK-1

### DETAIL DRAWINGS Flat Panel



# **DETAIL DRAWINGS**

**Dimensional Panel** 



### DETAIL DRAWINGS Tapered Panel



# **EXTRUSIONS**

All CLADLOK<sup>™</sup> extrusions are made of 6063 T-6 aluminum and can be painted to match. Two-piece extrusions are ideal on projects with tight time frames and offer installation flexibility. These extrusions work best with our flat panel system and come with gaskets to eliminate vibration and seal the panel.



#### 2-Piece Outside Corner Extrusion

Part Name & Number: Outside Corner Cap OC-2 Outside Corner Receiver OC-1

**CEI** Materials offers two options:

- Formed outside corners require a precise layout since they will wrap to the next elevation.
- The outside corner extrusion gives a clean look and more layout flexibility.



2-Piece Inside Corner Extrusion

Part Name & Number: Inside Corner Cap IC-2 Inside Corner Receiver IC-1

• Inside corner extrusions are used where two walls meet or where a soffit meets a vertical wall.

# **EXTRUSIONS**



#### **2-Piece Termination Extrusion**

Part Name & Number: Termination Cap T-2 Termination Receiver T-1

• Termination extrusions are ideal at doors, windows, louvers, and dissimilar surfaces.



#### **CLADLOK™** Starter

### Part Name & Number: STR-1

- The Starter is used on the majority of CLADLOK<sup>™</sup> projects and is used to start a panel run, typically at the base of a wall.
- The Starter requires field drilled weep holes.

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# **EXTRUSIONS**



#### **Formed Corners\***

- One dimension must not exceed a maximum dimension of 30".
- The minimum dimension is 3".
- The total unfolded panel length cannot exceed 98".



#### **Formed Column\***

- The return leg dimensions cannot exceed 80% of the column face (.8x") or a maximum of 30".
- The total unfolded panel length cannot exceed 98".

\*If you have corner or column panels that fall outside of these parameters contact CEI Materials for additional options.



#### SECTION 07 42 13.16

#### MODULAR METAL WALL PANELS

This section includes editing notes to assist the user in editing the section to suit project requirements. These notes are included as hidden text, and can be revealed or hidden by the following method in Microsoft Word:

Display the FILE tab on the ribbon, click OPTIONS, then DISPLAY. Select or deselect HIDDEN TEXT.

#### PART 1 GENERAL

#### SUMMARY 1.1

- Section Includes: Α.
  - Pressure-equalized aluminum plate exterior wall panel system. 1.
- Β. **Related Requirements:** 
  - Division 01 General Requirements: Administrative, procedural, and temporary work 1. requirements.
  - 2.
  - Section [05 40 00 Cold-Formed Metal Framing.] [\_\_\_\_\_\_ \_\_\_\_.] Section [06 11 00 Framing and Sheathing.] [06 16 43 Gypsum Sheathing.] [\_\_\_\_\_\_ -3.
  - Section [07 28 00 Moisture Barriers.] [\_\_\_\_ 4.
  - Section [07 62 00 Sheet Metal Flashing and Trim.] [ 5.
  - Section [07 92 00 Joint Sealants.] [ -6.
  - Section [08 51 13 Aluminum Windows.] 7.
  - 8. Section [08 44 13 - Glazed Aluminum Curtain Walls.]

#### REFERENCES 12

- American Architectural Manufacturers Association (AAMA): Α.
  - 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior 1. Performing Organic Coatings on Aluminum Extrusions and Panels.
  - 2. 501 - Methods of Test for Exterior Walls.
  - 508 Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall 3. Cladding Systems.
- Aluminum Association (AA): Β.
  - ADM Aluminum Design Manual. 1.
  - DAF-45 Designation System for Aluminum Finishes. 2.
- C. American Society of Civil Engineers (ASCE) ASCE/SEI 7 - Minimum Design Loads for Buildings and Other Structures.
- D. ASTM International (ASTM):
  - B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate. 1.
  - 2. E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
  - 3. E331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Wall, and Doors by Uniform Static Air Pressure Difference.
  - 4. E1233/E1233M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Cyclic Air Pressure Differential.
- American Welding Society (AWS): E.
  - D1.1/D1.1M Structural Welding Code Steel. 1.
  - D1.2/D1.2M Structural Welding Code Aluminum. 2.
- SYSTEM DESCRIPTION 1.3

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# MASTER SPEC

- A. Performance Requirements: Provide installed system designed to withstand specified loadings while maintaining allowable deflection, thermal movement performance without defects, damage, or failure.
- B. Deflection and Thermal Movement: Provide system designed to resist to positive and negative wind loading in accordance with Building Code.
  - 1. Perimeter framing deflection: Maximum L/175 normal to plane of wall.
  - 2. Panel deflection: Maximum L/60.
  - 3. Anchor deflection: Maximum 0.0625 inch (1.6 mm) at connection points of framing members to anchors.
  - 4. At 150 of design pressure, no permanent deformation exceeding L/1000 or failure to structural members.
  - 5. Thermal movement: Allow for horizontal and vertical thermal movement over temperature range of minus 20 to plus 180 degrees F (minus 29 to 82 degrees C.
    - a. Not permitted: Buckling, opening of joints, undue stress on fasteners, failure of sealants, or other detrimental effects.
- C. System Requirements:
  - . Pressure equalized rainscreen system (PER):
    - a. Tested to AAMA 508 modified ASTM E1233/E1233M.
      - 1) Lag between cavity and cyclic wind pressure: Maximum 0.08 seconds.
      - Maximum differential between cavity and cyclic wind pressure: 50 percent of maximum test pressure.
    - b. Static water penetration: ASTM E331, tested to AAMA 508 under static pressure at minimum 12.0 PSF (575 Pa) for 15 minutes:
      - Water penetrating exterior rainscreen cladding including condensation controlled and drained to exterior.
      - 2) Water droplets contacting air/water barrier: Maximum 5 percent of air/water barrier surface
      - 3) No continuous stream of water on air/water barrier.
    - c. Dynamic water infiltration: AAMA 501.1, tested to AAMA 508 with wall pressure equivalent to 12.0 PSF (575 Pa) for 15 minutes:
      - 1) Water penetrating exterior rainscreen cladding including condensation controlled and drained to exterior.
      - 2) Water droplets contacting air/water barrier: Maximum 5 percent of air/water barrier surface
      - 3) No continuous stream of water on air/water barrier.
    - d. Structural performance: ASTM E330, modified to AAMA 508, tested to minimum 30.0 PSF (1436 Pa) pressure with joinery closed, taped or sealed, with deflections not to exceed limitations defined herein.

#### 1.4 SUBMITTALS

- A. Action Submittals:
  - 1. Shop Drawings: Include elevations, layout, profiles, and components including:
    - a. Details showing thickness and dimensions of system parts, edge conditions, attachments, corners, fastening and anchoring methods, locations of joints and gaskets, location and configuration of joints necessary to accommodate thermal movement, and trim and flashings.
    - b. Signed and sealed by qualified Design Professional in Project jurisdiction.
  - 2. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each material and accessory.
  - 3. Samples:
    - a. Selection samples: Manufacturer's color charts or chips illustrating full range of available colors, finishes, and patterns.
    - b. Verification samples:
      - 1) System assembly: 12 × 12 inches (300 × 300 mm) samples including anchors, supports, fasteners, closures and other accessories.
      - 2) Each color or finish selected, minimum 3 x 4 inches (75 x 100 mm).

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Modular Metal Plate Panels

# MASTER SPEC

- B. Informational Submittals:
  - 1. System calculations: System fabricator's system design and engineering analysis/calculations including:
    - a. Mounting system including anchorages, connections, and fasteners.
    - b. Location, type magnitude, and direction of loads imposed on building structural frame.c. Signed and sealed by qualified Design Professional in Project jurisdiction.
  - c. Signed and sealed by qualified Design Professional in Project jurisdiction.
     2. Material test reports: Certified test reports showing compliance with specified performance
  - requirements, and third-party listing documenting compliance to comparable code section.
  - 3. Certificates: Product certificates signed by manufacturer certifying that materials comply with specified performance requirements.
  - 4. System fabricator's certified system test reports: Certify system compliance with specified performance characteristics or third-party listing documenting compliance to comparable code section.
- C. Closeout Submittals:
  - 1. Warranty: Executed system warranty.

#### 1.5 QUALITY ASSURANCE

- A. Qualifications:
  - 1. Manufacturer qualifications:
    - a. Minimum 10 years continuous experience manufacturing specified wall panel systems.
    - Provide list of previous projects of similar scope, including date of installation and name of Architect.
  - 2. Installer gualifications:
    - a. Minimum 5 years continuous experience installing specified wall panel systems.
    - b. Provide list of previous projects of similar scope, including date of installation and name of Architect.
  - 3. Regulatory Requirements: Wall panel system evaluated and are in compliance with applicable building code.
- B. Mockup:
  - 1. Size: Minimum [8 x 8] [\_\_ x \_\_] feet.
  - 2. Locate [\_\_\_\_.] [where directed.]
  - 3. Approved mockup may [not] remain as part of the Work.
- C. Pre-Installation Conference:
  - 1. Convene at Project site [2] [\_\_] weeks prior to beginning installation.
  - 2. Attendance: [Owner,] [Architect,] [Contractor,] [Construction Manager,] system fabricator,
  - system installer, and related trades.
  - 3. Review and discuss Contract Documents, system manufacturer's literature, project conditions, scheduling, and other matters affecting application.
  - 4. Tour representative areas for installation; discuss installation construction, related work, work conditions, and materials compatibility.

#### 1.6 WARRANTY

- A. Painted Finish: Provide manufacturer's 20 year warranty against cracking, peeling, fading, or chalking of panel finish.
- B. Anodized Finish: Provide manufacturer's 5 year warranty against fading or chalking of panel finish.

#### PART 2 PRODUCTS

- 2.1 MANUFACTURERS
  - A. Contract Documents are based on CLADLOK Modular Plate Panel System by CEI Materials, LLC. <u>www.CEIMaterials.com</u>

CEI Materials, LLC	07 42 13.16-3	Modular Metal Plate Panels
07/31/2019		



#### 2.2 MATERIALS

Α. Aluminum Sheet: ASTM B209, 3003-H14 alloy and temper.

#### 2.3 FINISHES

- Exterior Finish: Α.
  - Meet performance criteria of AAMA 2605. 1.
  - Type: [Standard two coat finish.] [Standard two coat Mica finish.] [Standard three coat finish.] 2. [Custom two coat finish.] [Custom two coat Mica finish.] [Custom three coat finish.] [Standard one coat FEVE clear finish.] [Standard specialty finish.]
  - 3. Color: [\_\_\_\_\_] [To be selected from manufacturer's full color range.]

#### \*\*\*\* OR \*\*\*\*

Β. Exterior Finish: AA DAF-45, M12C22A41, Class I anodized, clear.

#### \*\*\*\* OR \*\*\*\*

Exterior Finish: AA DAF-45, M12C22A44, Class 1 anodized, [light bronze] [medium bronze] [dark C. bronze] [black] [\_\_\_\_] color.

#### 2.4 ACCESSORIES

- Provide fabricator's standard system accessories, including fasteners, anchorage devices, and Α. attachments for specific applications indicated.
- Β. Attachment Components: Extruded aluminum, formed to resist design loads.
- C. Flashing and Trim: Match material, finish, and color of adjacent wall panels, minimum 0.040 inch (1.0 mm) thick.
- D. Panel Fasteners: Series 300 stainless or approved corrosion-resistant coated steel, minimum 7/16 inch (6.8 mm) diameter head with neoprene washers.
- Subgirts: Specified in Section [05 40 00.] [\_\_\_\_\_] Ε.
- Wall Sheathing: Specified in Section [06 11 00.] [06 16 43.] [\_\_\_\_\_] F.
- Moisture Barrier: Specified in Section [07 28 00.] [\_\_\_\_\_] G.
- Joint Sealants: Specified in Section [07 92 00.] [ .] Η.

#### FABRICATION 2.5

- Α. System Type: Pressure equalized rainscreen; open joint design with allowance for ventilation while preventing excessive water to contact air/water barrier.
- Β. System Depth: 1-3/4 inches (44 mm).
- Aluminum Panels: 0.080 inch thick. C.
- D. Shop fabricate panels to dimensions and joint configurations indicated based on assumed design temperature of 70 degrees F (21 degrees C).
- Ε. Form panel lines, breaks and angles sharp and true, with surfaces free from warp and buckle.
- F. Provide integral drainage system to route entrapped moisture to exterior of wall assembly.

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# MASTER SPEC

- G. Welding to conform to AWI D1.1/D1.1M and D1.2/D1.2M.
- H. Fabrication Tolerances:
  - 1. Width: Plus or minus 0.079 inch (Plus or minus 2 mm).
  - 2. Length: Plus or minus 0.079 inch (Plus or minus 2 mm).
  - 3. Squareness: Plus or minus 0.079 inch (Plus or minus 2 mm).

#### PART 3 EXECUTION

#### 3.1 INSTALLATION

- A. Install system in accordance with manufacturer's instructions and approved Shop Drawings.
- B. Install system support members and anchorage devices.
- C. Install system plumb, level, and true to line.
- D. Do not cut, trim, weld, or braze components in manner that could damage finish, decrease strength, or result in visual imperfection or failure in performance.
- E. Install flashings and trim to maintain visual continuity of system.
- F. Separate dissimilar metals with bituminous paint, plastic shims, or other approved methods as defined by AA DM. Use gasketed or corrosion-resistant coated fasteners to corrosive or electrolytic action between metals.
- G. Welding to conform to AWI D1.1/D1.1M and D1.2/D1.2M.
- H. Install joint sealants as specified in Specified in Section [07 92 00.] [\_\_\_\_\_]
- I. Installation Tolerances:
  - 1. Maximum deviation from horizontal and vertical alignment of installed panels: 0.25 inch in 20 feet (6.4 mm in 6.1 m), noncumulative.

#### 3.2 FIELD QUALITY CONTROL

A. Conduct water spray tests on mockup of panel system to AAMA 501.2.

#### 3.3 ADJUSTING

- A. Remove and replace system components damaged beyond repair.
- B. Repair minor damage so that repairs are not discernible at distance of 10 feet (3 m) from surface at 90 degree angle per AAMA 2605.
- 3.4 CLEANING
  - A. Remove protective films immediately after installation.
  - B. Ensure that weep holes and drainage channels are unobstructed.
- 3.5 PROTECTION
  - A. Protect installed panel system from damage during remainder of work on Project.

#### END OF SECTION

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#### SECTION 07 42 13.17

#### MODULAR METAL WALL PANELS

This section includes editing notes to assist the user in editing the section to suit project requirements. These notes are included as hidden text, and can be revealed or hidden by the following method in Microsoft Word:

Display the FILE tab on the ribbon, click OPTIONS, then DISPLAY. Select or deselect HIDDEN TEXT.

#### PART 1 **GENERAL**

#### 1.1 SUMMARY

- Section Includes: Α.
  - Pressure-equalized [copper] [zinc] [stainless steel] plate exterior wall panel system. 1
- Related Requirements: Β.
  - Division 01 General Requirements: Administrative, procedural, and temporary work 1. requirements.
  - 2. Section [05 40 00 - Cold-Formed Metal Framing.] [
  - Section [05 40 00 Cold-Formed Metal Framing.] [\_\_\_\_\_ \_\_\_ \_\_\_\_.] Section [06 11 00 Framing and Sheathing.] [06 16 43 Gypsum Sheathing.] [\_\_\_\_\_ \_\_\_ -3.
  - Section [07 28 00 Moisture Barriers.] 4.
  - Section [07 62 00 Sheet Metal Flashing and Trim.] [ 5.
  - 6. Section [07 92 00 - Joint Sealants.] [\_\_\_\_\_
  - Section [08 51 13 Aluminum Windows.] [ 7.
  - 8. Section [08 44 13 - Glazed Aluminum Curtain Walls.] [

#### 1.2 REFERENCES

- American Architectural Manufacturers Association (AAMA): А
  - 501 Methods of Test for Exterior Walls. 1.
  - 2. 508 - Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems.
- Β. American Society of Civil Engineers (ASCE) ASCE/SEI 7 - Minimum Design Loads for Buildings and Other Structures.
- ASTM International (ASTM): C.
  - A480/A480M Standard Specification for General Requirements for Flat-Rolled Stainless and 1. Heat-Resisting Steel Plate, Sheet, and Strip.
  - 2. B69 - Standard Specification for Rolled Zinc.
  - B152/B152M Standard Specification for Copper Sheet, Strip, Plate and Rolled Bar. 3.
  - E330 Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, 4. and Doors by Uniform Static Air Pressure Difference.
  - E331 Standard Test Method for Water Penetration of Exterior Windows, Curtain Wall, and 5. Doors by Uniform Static Air Pressure Difference.
  - 6. E1233/E1233M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Cyclic Air Pressure Differential.
- D. Copper Development Association (CDA) - Contemporary Copper, A Handbook of Sheet Copper Fundamentals, Design, Details and Specifications.
- E. National Association of Architectural Metal Manufacturers (NAAMM) - Metal Finishes Manual.
- SYSTEM DESCRIPTION 1.3
  - Α. Performance Requirements: Provide installed system designed to withstand specified loadings while maintaining allowable deflection, thermal movement performance without defects, damage, or failure.

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### B. Deflection and Thermal Movement: Provide system designed to resist to positive and negative wind loading in accordance with Building Code.

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- 1. Perimeter framing deflection: Maximum L/175 normal to plane of wall.
- 2. Panel deflection: Maximum L/60.
- 3. Anchor deflection: Maximum 0.0625 inch (1.6 mm) at connection points of framing members to anchors.
- 4. At 150 of design pressure, no permanent deformation exceeding L/1000 or failure to structural members.
- 5. Thermal movement: Allow for horizontal and vertical thermal movement over temperature range of minus 20 to plus 180 degrees F (minus 29 to 82 degrees C.
  - a. Not permitted: Buckling, opening of joints, undue stress on fasteners, failure of sealants, or other detrimental effects.
- C. System Requirements:
  - 1. Pressure equalized rainscreen system (PER):
    - a. Tested to AAMA 508 modified ASTM E1233/E1233M.
      - 1) Lag between cavity and cyclic wind pressure: Maximum 0.08 seconds.
      - Maximum differential between cavity and cyclic wind pressure: 50 percent of maximum test pressure.
    - b. Static water penetration: ASTM E331, tested to AAMA 508 under static pressure at minimum 12.0 PSF (575 Pa) for 15 minutes:
      - 1) Water penetrating exterior rainscreen cladding including condensation controlled and drained to exterior.
      - 2) Water droplets contacting air/water barrier: Maximum 5 percent of air/water barrier surface
      - 3) No continuous stream of water on air/water barrier.
    - c. Dynamic water infiltration: AAMA 501.1, tested to AAMA 508 with wall pressure equivalent to 12.0 PSF (575 Pa) for 15 minutes:
      - 1) Water penetrating exterior rainscreen cladding including condensation controlled and drained to exterior.
      - 2) Water droplets contacting air/water barrier: Maximum 5 percent of air/water barrier surface
      - 3) No continuous stream of water on air/water barrier.
    - Structural performance: ASTM E330, modified to AAMA 508, tested to minimum 30.0 PSF (1436 Pa) pressure with joinery closed, taped or sealed, with deflections not to exceed limitations defined herein.

#### 1.4 SUBMITTALS

1.

- A. Action Submittals:
  - Shop Drawings: Include elevations, layout, profiles, and components including:
    - a. Details showing thickness and dimensions of system parts, edge conditions, attachments, corners, fastening and anchoring methods, locations of joints and gaskets, location and configuration of joints necessary to accommodate thermal movement, and trim and flashings.
    - b. Signed and sealed by qualified Design Professional in Project jurisdiction.
  - 2. Product Data: Include construction details, material descriptions, dimensions of individual
  - components and profiles, and finishes for each material and accessory.
  - 3. Samples:
    - a. Selection samples: Manufacturer's color charts or chips illustrating full range of available colors, finishes, and patterns.
    - b. Verification samples:
      - 1) System assembly: 12 × 12 inches (300 × 300 mm) samples including anchors, supports, fasteners, closures and other accessories.
      - 2) Each color or finish selected, minimum 3 x 4 inches (75 x 100 mm).
- B. Informational Submittals:

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- 1. System calculations: System fabricator's system design and engineering analysis/calculations including:
  - a. Mounting system including anchorages, connections, and fasteners.
  - b. Location, type magnitude, and direction of loads imposed on building structural frame.c. Signed and sealed by qualified Design Professional in Project jurisdiction.
- Signed and sealed by qualified Design Professional in Project jurisdiction.
   Material test reports: Certified test reports showing compliance with specified performance requirements, and third-party listing documenting compliance to comparable code section.
- Certificates: Product certificates signed by manufacturer certifying that materials comply with specified performance requirements.
- 4. System fabricator's certified system test reports: Certify system compliance with specified performance characteristics or third-party listing documenting compliance to comparable code section.
- C. Closeout Submittals:
  - 1. Warranty: Executed system warranty.

#### 1.5 QUALITY ASSURANCE

- A. Qualifications:
  - 1. Manufacturer qualifications:
    - a. Minimum 10 years continuous experience manufacturing specified wall panel systems.
    - b. Provide list of previous projects of similar scope, including date of installation and name
      - of Architect.
  - 2. Installer qualifications:
    - a. Minimum 5 years continuous experience installing specified wall panel systems.
    - b. Provide list of previous projects of similar scope, including date of installation and name of Architect.
  - 3. Regulatory Requirements: Wall panel system evaluated and are in compliance with applicable building code.
- B. Mockup:
  - 1. Size: Minimum [8 x 8] [\_\_ x \_\_] feet.
  - 2. Locate [\_\_\_\_.] [where directed.]
  - 3. Approved mockup may [not] remain as part of the Work.
- C. Pre-Installation Conference:
  - 1. Convene at Project site [2] [\_\_] weeks prior to beginning installation.
  - 2. Attendance: [Owner,] [Architect,] [Contractor,] [Construction Manager,] system fabricator, system installer, and related trades.
  - Review and discuss Contract Documents, system manufacturer's literature, project conditions, scheduling, and other matters affecting application.
  - 4. Tour representative areas for installation; discuss installation construction, related work, work conditions, and materials compatibility.

#### PART 2 PRODUCTS

- 2.1 MANUFACTURERS
  - A. Contract Documents are based on CLADLOK Modular Plate Panel System by CEI Materials, LLC. www.CEIMaterials.com
- 2.2 MATERIALS
  - A. Copper: ASTM B152/B152M.

#### \*\*\*\* OR \*\*\*\*

B. Zinc: ASTM B69, alloy best suited to forming.

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#### \*\*\*\* OR \*\*\*\*

C. Stainless Steel: ASTM ASTM A480/A480M, Type 316, rollable temper.

#### 2.3 FINISHES

A. Copper: CDA finish [2B, bright.] [\_\_\_\_.]

\*\*\*\* OR \*\*\*\*

B. Zinc: [Natural.] [Preweathered.] [\_\_\_\_.]

\*\*\*\* OR \*\*\*\*

C. Stainless Steel: NAAMM No. [2D - Cold-Rolled, Dull Finish.] [4 - General Purpose Polished Finish.] [6 - Dull, Satin Finish.] [8 - Mirror Finish.] [\_\_\_\_.]

#### 2.4 ACCESSORIES

- A. Provide fabricator's standard system accessories, including fasteners, anchorage devices, and attachments for specific applications indicated.
- B. Attachment Components: Formed to resist design loads.
- C. Flashing and Trim: Match material, finish, and color of adjacent wall panels, minimum 0.040 inch (1.0 mm) thick.
- D. Panel Fasteners: Series 300 stainless or approved corrosion-resistant coated steel, minimum 7/16 inch (6.8 mm) diameter head with neoprene washers.
- E. Subgirts: Specified in Section [05 40 00.] [\_\_\_\_\_]
- F. Wall Sheathing: Specified in Section [06 11 00.] [06 16 43.] [\_\_\_\_\_]
- G. Moisture Barrier: Specified in Section [07 28 00.] [\_\_\_\_.]
- H. Joint Sealants: Specified in Section [07 92 00.] [\_\_\_\_\_]

#### 2.5 FABRICATION

- A. System Type: Pressure equalized rainscreen; open joint design with allowance for ventilation while preventing excessive water to contact air/water barrier.
- B. System Depth: 1-3/4 inches (44 mm).
- C. Copper Panel Thickness: [0.0320 inch (0.8128 mm).] [0.0430 inch (1.0922 mm).

\*\*\*\* OR \*\*\*\*

D. Zinc Panel Thickness: [1.0] [1.5] mm.

\*\*\*\* OR \*\*\*\*

- E. Stainless Steel Panel Thickness: [0.060 inch (1.524 mm).] [0.048 inch (1.2192 mm).]
- F. Shop fabricate panels to dimensions and joint configurations indicated based on assumed design temperature of 70 degrees F (21 degrees C).
- G. Form panel lines, breaks and angles sharp and true, with surfaces free from warp and buckle.

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- H. Provide integral drainage system to route entrapped moisture to exterior of wall assembly.
- I. Fabrication Tolerances:
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#### PART 3 EXECUTION

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- 3.5 PROTECTION
  - A. Protect installed panel system from damage during remainder of work on Project.

#### END OF SECTION

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