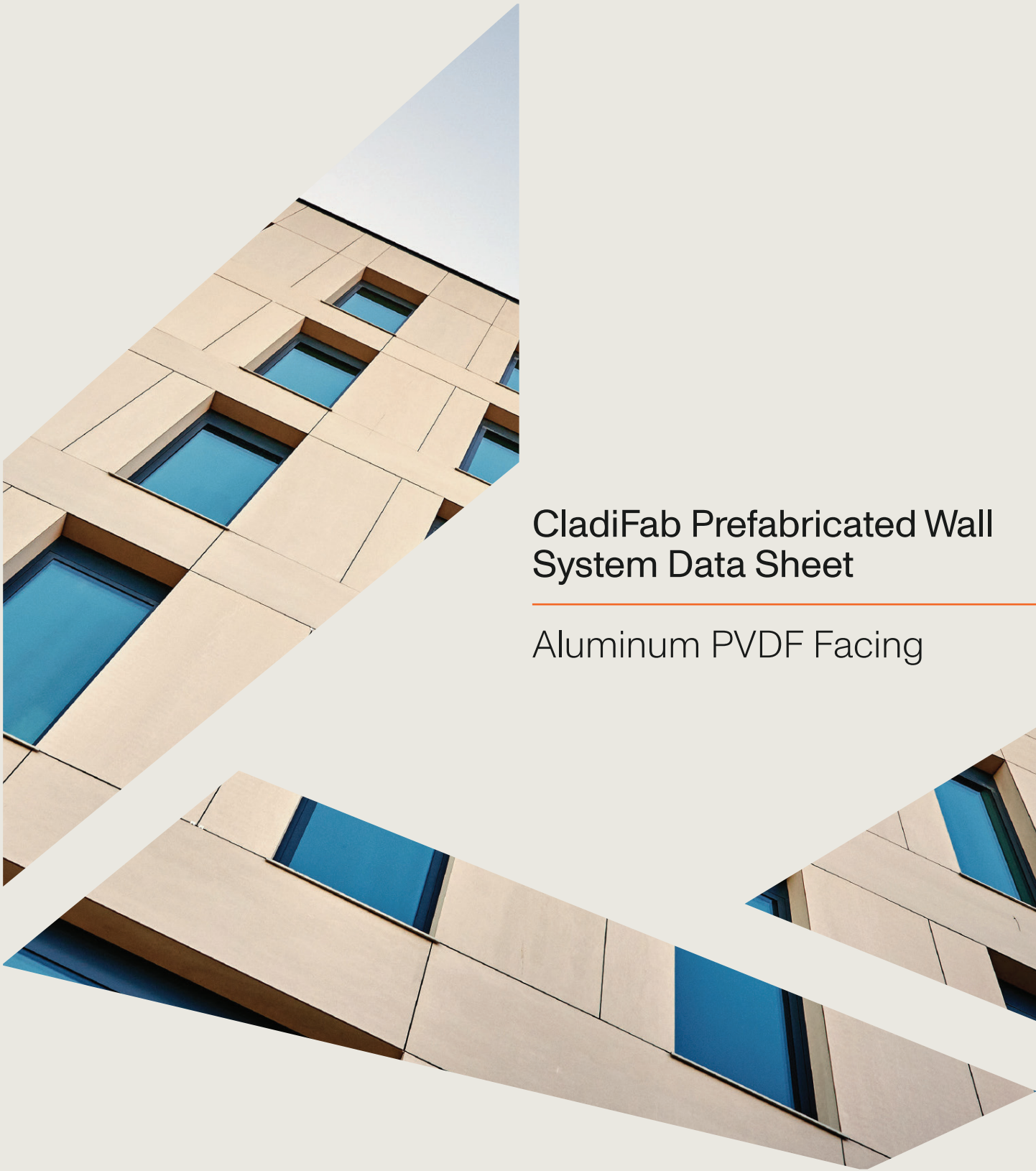




CladiFab Prefabricated Wall System Data Sheet

Aluminum PVDF Facing



Cladify™

cladify.com

CladiFab Prefab Wall System

System Description

CladiFab is a prefabricated, unitized exterior wall panel system with an aluminum honeycomb core and interchangeable finishes (stone, porcelain/sintered stone, brick veneer, coated/painted aluminum, BIPV). Panels are installed floor-by-floor from the inside and anchored to slab channels or engineered brackets. It integrates primary control layers and a drained, pressure-moderated cavity.

Features

1. Rainscreen type

Two-stage drained & pressure-moderated rainscreen with interior air seal and exterior weather seal. Compartmentalized cavity promotes pressure equalization.

2. Cavity/venting

~10 mm deep continuous drainage/ventilation space. Drain/vent perforations distributed at max ~300 mm spacing, with floor-by-floor drainage below functional vertical joints.

3. Primary AVB

Factory-applied air/vapour barrier (AVB) on the backpan with field-applied transition membranes at vertical & horizontal panel joints (2" minimum overlaps) to complete continuity to adjacent elements.

4. Bypass of structure

Panels bypass floor slabs and connect at slab edges through embedded anchor channels or engineered top-mount connectors, allowing tolerance take-up and minimizing thermal bridging at anchors.

5. Cladding options

Stone, porcelain/sintered stone, BIPV, or coated aluminum mounted to the honeycomb carrier. See separate cladding data sheets.



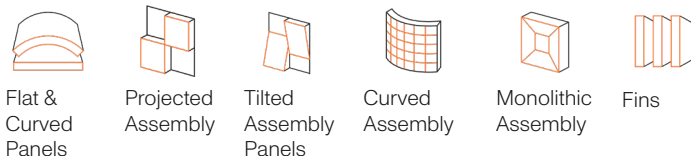
• CladiFab System

Architectural Detailing

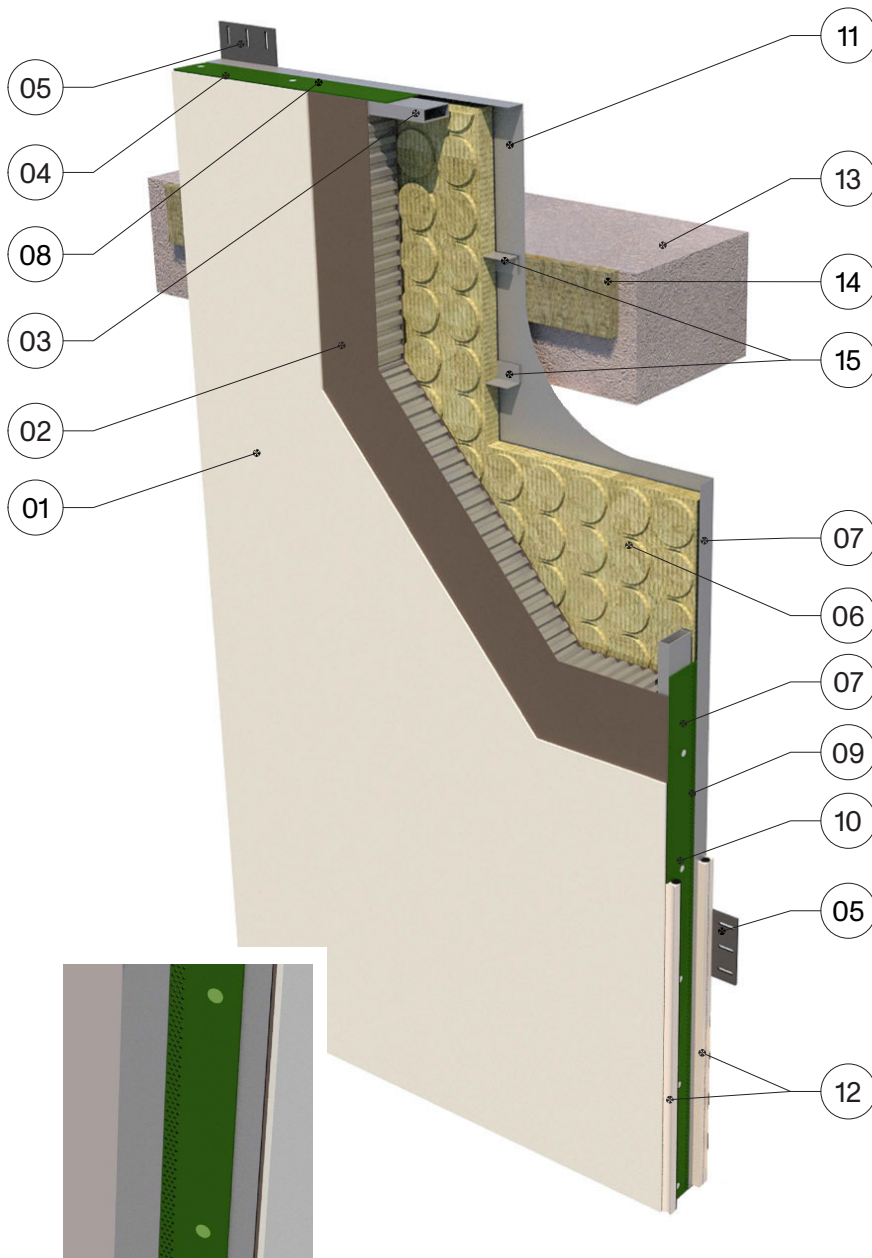
- **Bypassing slab:** Panel modules bypass floor slabs; continuous firestop at slab edges; transition membranes tie AVB to adjacent construction; maintain drainage/vent paths across floor lines; seal smoke perimeters after AVB continuity is achieved.
- **Window & door perimeters:** Two-stage joint at cladding; ensure exterior sealant includes drainage path and that panel cavity weeps do not discharge into fenestration perimeter sealant lines. Provide sub-sill collection and positive drainage to exterior.
- **Corners & returns:** Use engineered perimeter closures; maintain 10 mm drainage/ventilation continuity around corners; provide compartmentalization at floor level.
- **Parapets & roof edges:** Terminate cavity with baffles and screened vents; integrate through-wall flashing with AVB continuity.
- **Base-of-wall:** Starter flashings with two-stage sealed joint; provide drainage outlet to façade exterior plane.
- **Movement joints:** Size exterior weather sealant joint to accommodate building and thermal movements; maintain backer rod and secondary air seal inbound.

Architectural Shapes

The CladiFab system offers versatile, flexible solutions that create seamless monolithic architectural elements—wrapping columns, curving facades, and spanning extrusions with precision panels, advanced bonding, and aerospace-grade reinforcement.



System Components



09 → Perforated weep holes on FRP angle bar panel closure located at drainage cavity of insulation

COMPONENT LEGEND :

- 01 → 0.4MM(0.0015") OF ALUMINUM PVDF AS SPECIFIED BY CLIENT
- 02 → 75 MM (3") OR 100 MM (4") CLADIFY WALL
- 03 → EXTRUDED PANEL EDGE CLOSURE
- 04 → CONTINUOUS SEALANT
- 05 → CONNECTOR TYPE-02
- 06 → INSULATION WITH 10MM DEEP CIRCULAR GROOVE GEOMETRICALLY DEFINED DRAINAGE CAVITY AND AIR SPACE (FACTORY INSTALLED)
- 07 → INSULATION STICK PINS
- 08 → FRP ANGLE BAR PANEL PERIMETER CLOSURE
- 09 → PERFORATED WEEP HOLES ON FRP ANGLE BAR PANEL CLOSURE LOCATED AT DRAINAGE CAVITY OF INSULATION
- 10 → COUNTER SUNK SCREWS (COLOR TO MATCH FRP ANGLE BAR)
- 11 → 20 GA SHEET METAL BACKING WITH 1-5/8" RETURN FLAP ADHERED TO INSULATION & ATTACHED TO FRP ANGLE BAR PANEL CLOSURE
- 12 → 2 STAGE CAULKING WEATHER SEAL 20MM JOINT WITH SEALANT AND BACKER ROD DRAINED BELOW HORIZONTAL PANEL JOINTS
- 13 → BUILDING STRUCTURE
- 14 → 1" to 1-1/2" THK. FIRE AND STORM SEAL
- 15 → 1-1/2"x1-1/2" LBAR BACKPAN SUPPORT AT FIRESTOP LOCATION

Technical Specifications

Standard Dimension (Other dimensions available on request)



Physical Properties

	Imperial	Metric
Panel Weight	4.52 - 5.28 lb/ft ²	22.07 - 25.77 kg/m ²
Panel Depth (Typical): Overall module depth before interior framing/sheathing.	Commonly 5.9"-7.8"	Commonly 150 - 200mm
Exterior finish + aluminum honeycomb carrier	~2.9in	~76mm
Cavity	0.39in	10mm
Insulation	1.9 - 2.9in	50 - 75mm
Backspan	0.04in	1mm

System Components Details

Dimensions vary by project and finish; values below are typical starting points for coordination and engineering.

● Component	● Description
1. Facing Material	Aluminum PVDF
2. Core Structure	75mm (3") or 100mm (4") aluminum honeycomb wall.
3. Ventilated Cavity	10 mm (0.39") nominal depth, continuous with localized weeps/vents.
4. Thermal Layer (Exterior Ci)	50mm (2") or 75mm (3") Stone wool or Aerogel Mineral Insulation.
5. Backsheet	20 GA galvanized steel with 50.8mm (2") return flap
6. Edge Closure	Nonconductive perforated FRP angle bar panel perimeter closure.
7. Connectors	Type-01B and Type-02 galvanized steel connectors.

1. Facing Material

Cladify aluminum PVDF cladding offers high-performance external envelope assemblies with increased thermal efficiency, low sound transmission, and improved fire safety performance criteria for new construction, renovations, and retrofits.

1.1 Facing Thickness Data

	Imperial	Metric
PVDF Facing	0.0015in	0.4mm

1.2 PVDF Facing Standard Specification

	Test Standard	Result
Film Thickness	ASTM D1005	25 µm / 1 mil
Abrasion Resistance	ASTM D968	PVDF passes minimum of falling sand test (65±5 liters/mil).
Bend Adhesion	ASTM D4145	No loss of adhesion.
Chalk Resistance	ASTM D4214	No chalking greater than #8 rating.
Chemical Resistance	ASTM D1308	No significant color change after 24 hours exposure to 10% solutions of hydrochloric and sulfuric acids.
Finish Color Coat Change	ASTM D2244	No more than 5 Hunter units color change.
Cross-Hatch Adhesion	ASTM D3359	No paint removal with cellophane tape after cross-scoring with eleven horizontal and eleven vertical lines 1/8" apart.
Cure Test	ASTM D5402	Withstood 100 double rubs of an MEK soaked cloth before exposing primer coat.
Direct & Reverse Impact Adhesion	ASTM D2794	No visible paint removal with cellophane tape after direct and reverse impact of 80-inch pounds using 5/8" steel ball on a Gardner Impact Tester.
Flame Spread Rate	ASTM E84	Class A/1
Hardness	ASTM D3363	Minimum pencil hardness is HB to 2H
Humidity Resistance	ASTM D2247	No blistering, cracking, peeling, loss of gloss or softening of the finish
Salt Spray Resistance	ASTM B117	No blistering and no loss of adhesion greater than 1/8" from score line
Weatherometer Test	ASTM D822	No checking, blistering or adhesion loss of coating system.

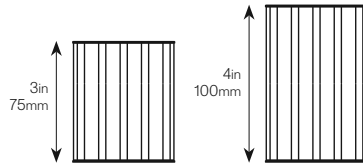
2. Core Structure

Aluminum honeycomb is a lightweight yet extremely strong core material made from thin sheets of aluminum formed into a hexagonal pattern. It provides excellent stiffness, high strength-to-weight ratio, and superior resistance to compression and shear, making it ideal for aerospace, architectural panels, and other structural applications.

2.1 Aluminum Honeycomb General Mechanical Data

	Imperial	Metric
Total Thickness	3 - 4 in	75 - 100 mm
Skin Thickness	0.03in	1mm
Weight	1.08lb/ft ²	5.28kg/m ²
Flexural Rigidity	1,450 (10 ⁹ N psi)	10.08 (10 ⁹ N mm ²)
Shear Rigidity	332 (10 ⁹ N psi)	2.29 (10 ⁹ N mm ²)
Tensile Strength	392 psi	2.70 MPa
Compressive Strength	31,328 psi	216 MPa
Compressive Elastic Modulus	203 psi	1.4 MPa
Shear Strength	2,465 psi	17 MPa

Thickness Options



2.2 Aluminum Honeycomb Mechanical Data - Skin

	Imperial	Metric
Thickness	0.02 - 0.04in	0.5 - 1in
Yield Strength (R _{p,0.2})	>11,603 psi	>80 N/mm ²
Ultimate Tensile Strength (R _m)	18,129<R _m <26,831psi	125<R _m <185 N/mm ²
Elongation (A)	>3%	
Alloy Type	5005	

2.3 Aluminum Honeycomb Mechanical Data - Core

	Imperial	Metric
Foil Thickness	0.02in	0.05mm
Yield Strength (R _{p,0.2})	0.002in	0.05mm
Ultimate Tensile Strength (R _m)	3.49lb/ft ³	56 kg/m ³
Elongation (A)	319 psi	2.2 MPa
Alloy Type	3005	

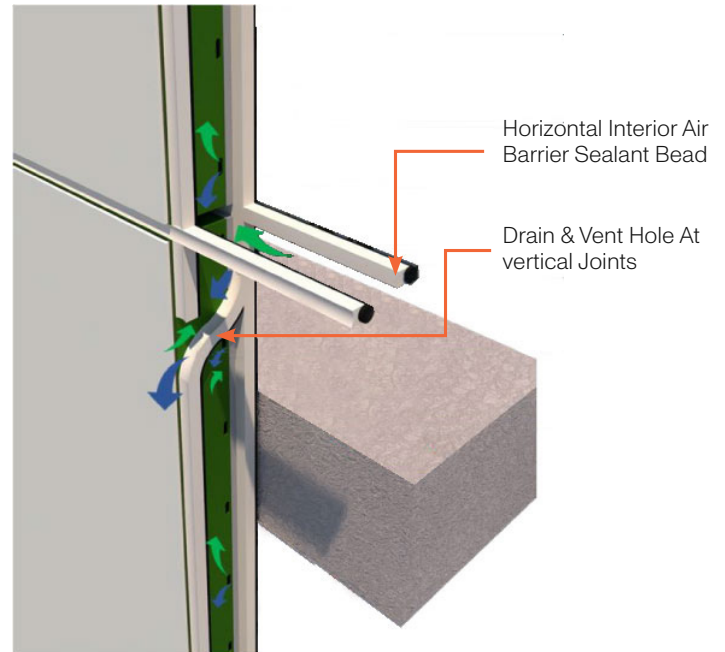
3. Ventilated Cavity

A ventilated cavity is the air gap designed behind the exterior cladding of a prefabricated wall system. It allows continuous airflow and moisture drainage, improving thermal performance, preventing condensation, and extending the durability of both the cladding and building envelope.

3.1 Ventilated Performance

- Air leakage (ASTM E283) at 300 Pa: ≤ 0.01–0.037 cfm/ft² (post-corrections; assembly dependent).
- Static water (ASTM E331): 720 Pa no uncontrolled interior leakage.
- Dynamic water (AAMA 501.1): Equivalent 720 Pa no uncontrolled interior leakage.

Window interface performance is project-specific; panel joints are two-stage drained and demonstrated no uncontrolled interior leakage after corrective measures in representative PMU testing. Coordinate window perimeters for weep path compatibility and AVB continuity.

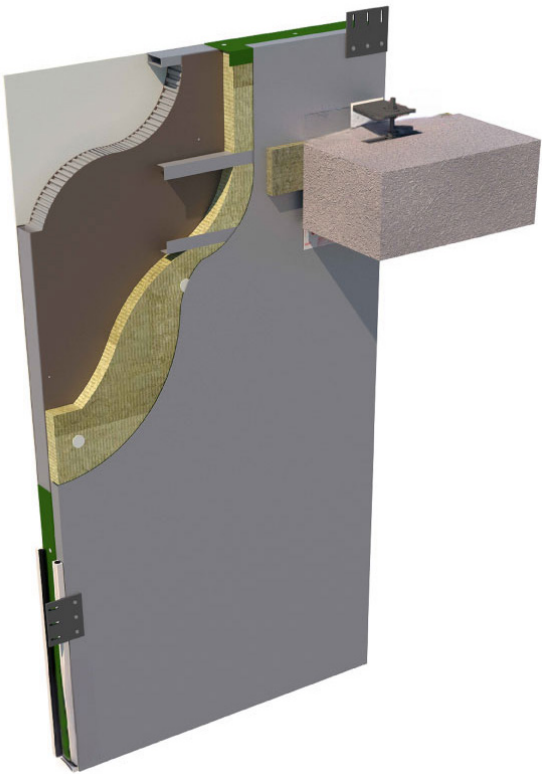
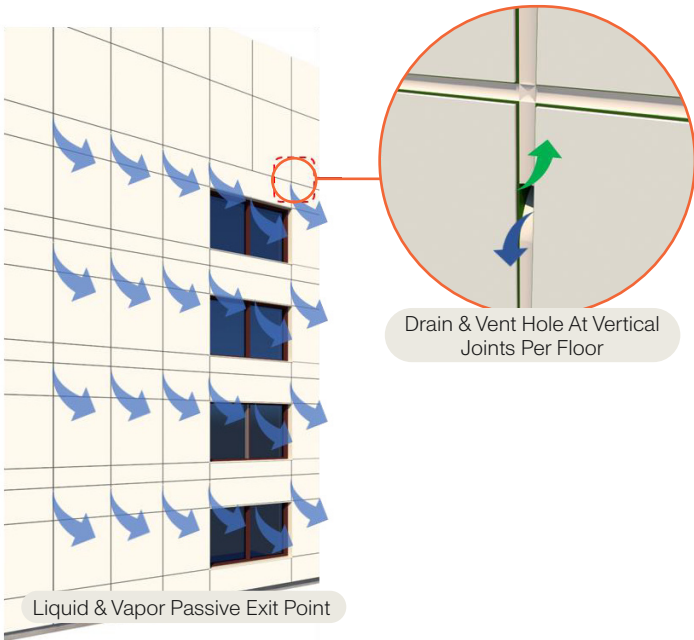


3.2 Structural & Movement Criteria

• Component	• Description
Design pressure (representative PMU)	±1.875/2.062 kPa at 100% DP; overload ±2.812/3.094 kPa at 150% DP; no component disengagement, breakage, or permanent set beyond criteria.
Deflection limits	Metal panels: L/60 (unless otherwise engineered). Honeycomb carriers/spans engineered per module geometry and finish weight.
Anchorage	Floor connections via cast-in anchor channels (T-bolts/plates) or top-mount brackets if embed tolerances require. Torque to spec; allow ±50 mm adj. (engineer to confirm).
Interstory drift & thermal movement	Panel joints as two-stage sealed movement joints; coordinate anchor shear/slip and joint width to accommodate drift (±15 mm typical, confirm project).

3.3 Air and Water Management: Control Strategy

- Two-stage jointing: Outer weather seal manages bulk rain; inner air seal acts as the pressure boundary. Vent/drain slots below vertical joints each floor relieve water and equalize pressure.
- AVB continuity: Factory-applied AVB on backpan; field-applied transition membranes at vertical/horizontal panel joints and to adjacent assemblies (slab edges, partitions, window/door perimeters). Smoke-seal tape/caulk at slab edges after firestop placement.
- Drainage/ventilation: Continuous 10 mm cavity behind carrier + CI with dedicated drains/vents (max ~300 mm spacing). Compartmentalization at floor levels.



• CladiFab System - Components Detail

4. Thermal Layer

The thermal layer is the continuous insulation built into the prefabricated wall system, designed to minimize heat transfer through the envelope. It enhances energy efficiency, improves occupant comfort, and helps meet stringent building code requirements for thermal performance.

Thermal transmittance depends on CI thickness, stud wall, and slab/anchor conditions. Representative steady-state values from analytical modeling per CSA Z5010:

- Clear field (no studs):
 - CI 50 mm (2") → $U \approx 0.83 \text{ W/m}^2\text{-K}$ ($R \approx 6.9 \text{ h-ft}^2\text{-}^\circ\text{F/Btu}$)
 - CI 75 mm (3") → $U \approx 0.55 \text{ W/m}^2\text{-K}$ ($R \approx 10.4 \text{ h-ft}^2\text{-}^\circ\text{F/Btu}$)
- Assembly incl. 92 mm steel studs + R 12 batt + gypsum:
 - o CI 50 mm (2") → $U \approx 0.41 \text{ W/m}^2\text{-K}$ ($R \approx 13.9$)
 - o CI 75 mm (3") → $U \approx 0.35 \text{ W/m}^2\text{-K}$ ($R \approx 16.2$)
- Linear thermal bridge at slab (embedded anchor + connectors):
 - Representative $\Psi \approx 0.22\text{--}0.52 \text{ W/m-K}$ depending on CI thickness and stud condition.

The aluminum honeycomb provides structural performance with negligible insulating value ($k_{\text{eff}} \approx 3.64 \text{ W/m-K}$). Energy models should include clear-field U, slab edge Ψ , frame Ψ (if applicable), and point χ (nominally negligible for this system).

4.1 Acoustics (Design Guidance)

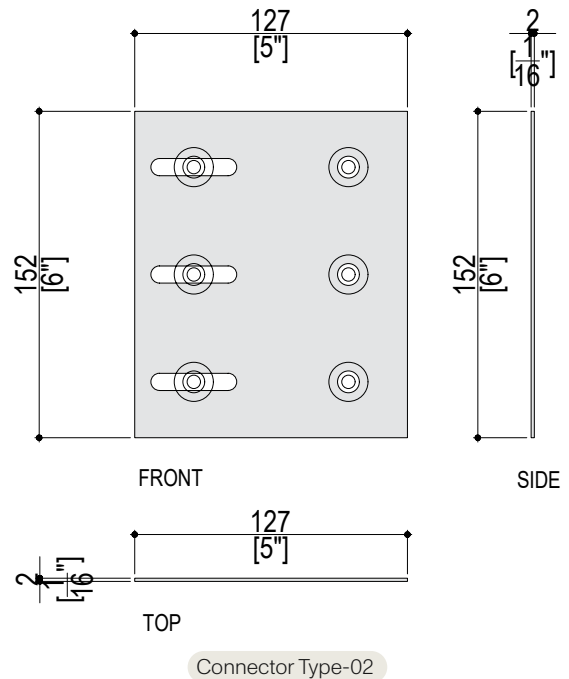
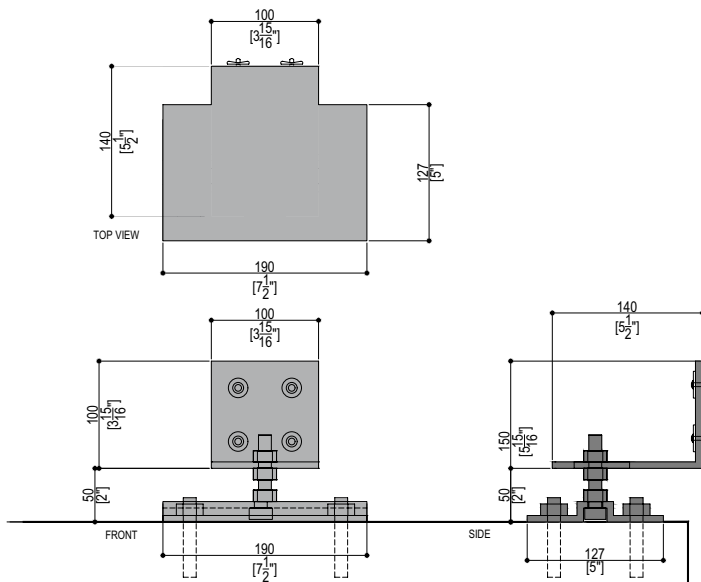
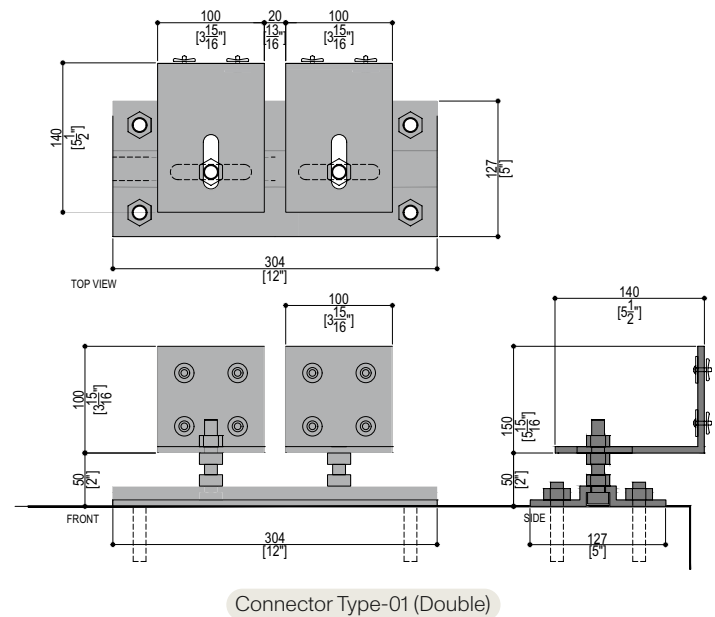
- System STC/OITC: Project-specific and dependent on interior framing, insulation, and glazing ratio. The aluminum honeycomb carrier has low mass; airborne sound attenuation is primarily governed by interior wall build-up (stud gauge/spacing, sheathing layers) and glazing. Provide target STC/OITC and test requirements (e.g., ASTM E90/E413, ASTM E1332) for project assemblies.
- Joints & flanking: Maintain continuity of interior air seal; treat panel-to-panel and panel-to-structure junctions to avoid flanking paths. Coordinate head-of-slab fire/smoke sealant to also serve as an acoustical break where required.

5. Edge Closure

The edge closure, made from a non-conductive perforated FRP angle bar, seals and protects the perimeter of the prefabricated wall panel. It prevents thermal bridging, allows secure fastening, and provides a durable, corrosion-resistant finish that maintains system integrity while supporting ventilation and drainage.

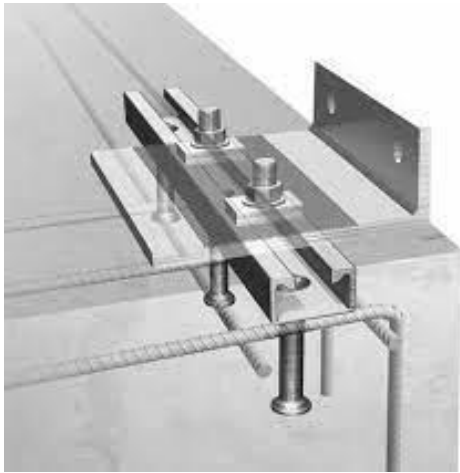
6. Connectors

Connectors are engineered fastening components that secure prefabricated wall panels to the structural frame, ensuring load transfer, alignment, and in-plane movement tolerance while accommodating thermal and seismic performance requirements.

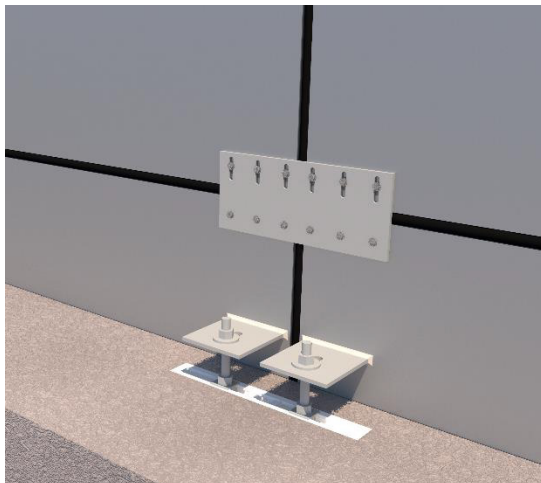


Installation & QA/QC

- **Anchorage & tolerances:** Cast-in anchor channels coordinated off gridlines; brackets allow $\pm$ tolerances; torque-tighten per manufacturer; confirm embed deviations—use top-mount connectors where needed.
- **Field testing:** Recommend on-site AAMA 501.2 water spray at representative areas and ASTM E1105 for fenestration perimeters; verify air leakage with whole-building testing where specified.



- **Sequence:** Set starter flashings; install modules floor-by-floor; engage anchors; plumb/level; interconnect panels; complete AVB transitions; install firestop/smoke seals; apply two-stage joint sealants with defined drain/vent locations; complete finishes.



Technical Support

- **Design Assistance:** Available for project-specific requirements
- **Installation Training:** Comprehensive training programs available
- **Quality Control:** Factory-controlled manufacturing environment
- **Warranty:** Comprehensive warranty coverage available

- **Sealants:** Exterior weather sealant (UV-stable silicone or project specified); interior air sealant compatible with AVB; use appropriate backer rod; provide weeps just below vertical joints each floor and at sill flashings.

Testing And Certifications



Testing And Certifications Details

Fire Performance & Life Safety (System-Level)

- Specific fire ratings depend on complete wall assembly (including fire-stopping at floor lines and partitions) and jurisdictional requirements.
- **Exterior wall flame propagation:** System assemblies have been evaluated to **CAN/ULC S134** on representative builds (acceptance requires **max 3.5 m flame spread above opening and limited heat flux** at level above). Provide project-specific tested assembly listing/reference.
 - **Material reaction to fire (component scope):** Aluminum honeycomb carrier and finishes evaluated under **CAN/ULC S135** (cone calorimeter) with **low peak HRR** and **low TSP** characteristics for the evaluated specimen.
 - **Compartmentation & firestopping:** Continuous mineral wool fire-stops at floor lines; smoke seals applied post AVB installation to complete separation at slab bypass. Maintain AVB continuity without creating concealed vertical chimneys; compartmentalize cavity at each floor.
 - **NFPA 285 / CAN S134 applicability:** For U.S. projects, confirm NFPA 285 compliance path if required; for Canada, provide S134-tested configuration and ensure detailing matches the tested assembly.

• Test Name	• Rating Result
ASTM E119	1-hour fire resistance (compatible)
CAN/ULC-S101	15-minute rating - PASSED
CAN/ULC-S134	Flame spread <2m, Heat flux <14.4 kW/m ² - PASSED
CAN/ULC-S114	Non-combustible - PASSED
ULC-S135	Cone calorimeter - PASSED NBCC 3.1.5.1
ASTM E84	Flame Spread Index: 0, Smoke Developed: 0
NFPA 285	Compliant

Smoke And Flame Spread (ASTM E84)

	Rating
Cladify Cladifab System (Pre-fab Wall System)	Class A

Structural & Performance

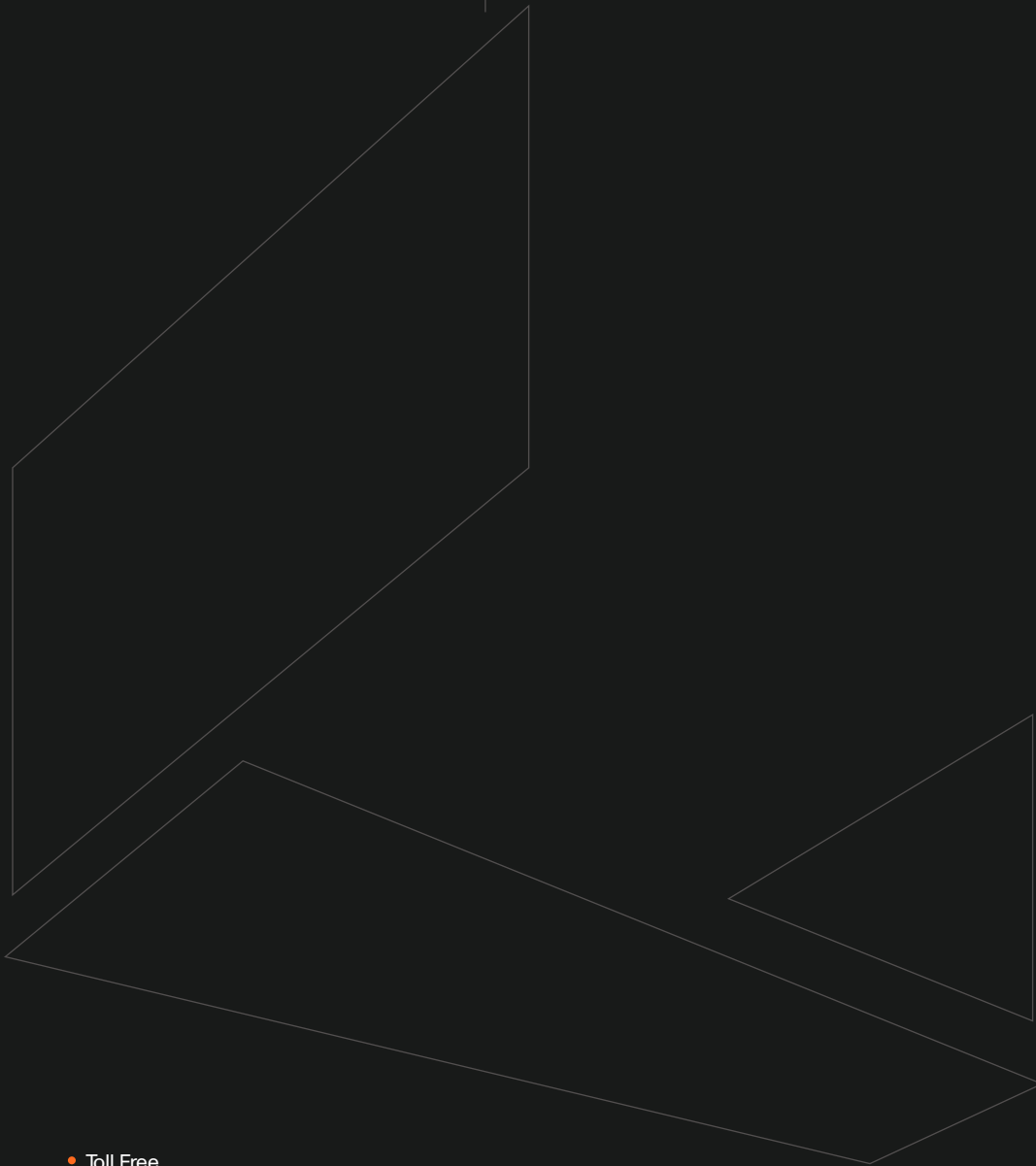
- ASTM C297 (Flatwise Tensile Strength)
- ASTM C393 (Flexural Strength)
- ASTM E330 (Structural Performance)
- ASTM E283, ASTM E331 (Air & Water infiltration)

Durability

- ASTM B117-16 (Salt Spray)
- ASTM G154 (UV Exposure)
- Corrosion-resistant with coatings

Sound Transmission Coefficient (ASTM E90)

	STC Rating
Cladify Cladifab System (Pre-fab Wall System)	52



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