PrimeFab

PRIME Walls

PrimeWall

Low-TEDI Performance

Prefabricated Unitized Wall System for High-Performance Building Envelopes

A factory-built, large-format unitized wall system **designed to support low-TEDI, high-performance envelope strategies** — integrating structure, insulation, cladding, and glazing into a single crane-ready unit

Up to R-46	~12 lbs/sq ft	Patent Pending
EFFECTIVE R-VALUE	LIGHTWEIGHT SYSTEM	UNIQUE SYSTEM DESIGN

3. BEST-FIT APPLICATIONS

Where PrimeWall Performs

- Mid-rise and high-rise residential towers
- Mixed-use and ICI developments
- Mass timber and modular hybrid construction
- Deep energy retrofits of occupied buildings
- Projects targeting low-TEDI, Passive House, or BC Energy Step Code compliance
- Buildings subject to Toronto Green Standard or other municipal envelope requirements
- Projects requiring non-combustible envelope construction

4. SYSTEM OVERVIEW

Engineered for Performance

PrimeWall is a high-performance, large-format prefabricated wall system developed from decades of expertise in window wall and unitized curtainwall construction. Each panel is factory-assembled to tight tolerances and arrives on site crane-ready, integrating the complete building envelope — structure, insulation, weather barrier, glazing, and cladding — in a single installation sequence.

The system leverages a structural aluminum frame with polyamide-reinforced fiberglass thermal breaks, eliminating the thermal bridging risk inherent in conventional site-built or steel-stud assemblies. The result is a highly consistent, repeatable envelope that supports low-TEDI outcomes across a range of building types and performance targets.

PrimeWall is a patent-pending system. PrimeWall design, engineering, and drafting is managed by Triumph Glazing. PrimeFab is the assembler of the product. As part of the Triumph Group of Companies, the system draws 38+ years of vertically integrated building envelope expertise.

5. KEY PERFORMANCE ATTRIBUTES

Thermal, Airtightness & Structural

Thermal Performance

- Effective R-value up to R-46 with a lightweight insulated core
- Optional enhancements available for higher thermal performance
- Structural aluminum frame with polyamide/fibreglass thermal break — eliminates metal-to-metal conduction
- 10" mineral wool insulation in standard configuration
- Continuous insulation — no stud cavity bridging by structural framing

Airtightness

- Factory-applied vapour barrier and air control layer integral to panel assembly
- Airtightness and thermal standards exceed traditional site-built walls
- Validated under CSA A440.2 -Fenestration and Envelope Airtightness

Structural & Weight

- Approx. 12 lbs/sq ft — lightweight system reduces structural load
- Structural integrity without interior framing — no additional anchoring or cutouts required
- Drywall-ready interior finish

6. ASSEMBLY & COMPONENT OVERVIEW

What's In Each Panel

Each PrimeWall unit arrives factory-assembled and crane-ready. Core components are confirmed from sell sheet and product documentation:

PrimeWall assembly showing structural aluminum framing, hook-and-rail system, 10" insulation, high-performance windows, stone cladding, and ACM exterior cladding ****** Custom options and configurations also available******

Confirmed Components

- **Structural Frame:** Aluminum profiles with vapour barrier and insulation in cavity
- **Thermal Break:** Isobar polyamide-reinforced fibreglass thermal barrier layer
- **External Structure:** Aluminum profiles with reinforced substructures and thermal clips
- **Insulation:** 10" mineral wool (Roxul/Rockwool) in standard configuration
- **Hook & Rail System:** Factory-integrated attachment for cladding and system anchoring

Validated Testing Standards

- ASTM E330 — Structural Performance
- ASTM E283 — Air Infiltration
- ASTM E331 / E547 — Water Penetration (static and dynamic)
- AAMA 501.1 / 501.4 / 501.5 / 501.7 — Dynamic water, seismic, differential movement, anchoring
- CSA A440.2 — Fenestration & Envelope Airtightness

- **High-Performance Windows:** Pre-installed glazing; Reynaers Passive House-rated units available
- **Cladding Options:** Stone, ACM, UHPC, BIPV solar panels, porcelain, and others
- **Waterproofing:** Thermal clips, waterproof elements, and exterior insulation layer
- Non-combustible construction — aluminum framing and mineral wool insulation

7. LOW-TEDI DESIGN RELEVANCE

Understanding TEDI and How PrimeWall Supports Low-TEDI Targets

What is TEDI?

Thermal Energy Demand Intensity (TEDI) measures the total heating energy a building needs per square metre of floor area each year; expressed in kWh/m²/yr. It captures how effectively the building envelope resists heat loss, and is directly influenced by five factors:

Thermal Insulation	Elimination of Thermal Bridges	Airtightness	High-Performance Windows	Heat Recovery Ventilation
A well-insulated building envelope limits heat loss through walls, roofs, and floors. Higher continuous R-value = lower TEDI.	Metal-to-metal connections act as thermal shortcuts. Polyamide thermal breaks in PrimeWall's aluminum framing interrupt this pathway.	Uncontrolled air leakage through gaps is a major energy loss driver. Factory assembly minimizes leakage sources — improving predictability and reducing TEDI.	Glazing accounts for significant heat loss. Pre-installed high-performance windows (including Passive House-rated options) reduce this load.	Mechanical HRV systems recover heat from exhaust air, reducing ventilation-related energy demand. PrimeWall's envelope precision supports effective HRV integration.

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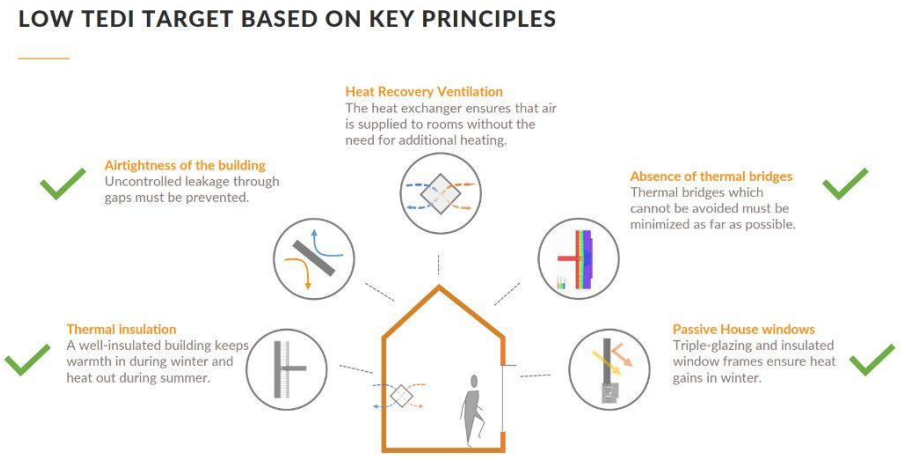

Low TEDI target based on key principles: thermal insulation, airtightness, absence of thermal bridges, high-performance windows, and heat recovery ventilation.

How PrimeWall Addresses TEDI Drivers

- **Continuous insulation:** No stud cavity thermal bridging — aluminum frame with polyamide thermal breaks
- **High effective R-value:** Up to R-46 in confirmed configuration
- **Factory airtightness:** Integral vapour barrier and AVB — consistent across every panel
- **Pre-installed glazing:** High-performance windows factory-fitted — reduces site variation in window-to-wall transitions
- **Code trajectory:** Designed to support projects targeting Toronto Green Standard, BC Energy Step Code, and Passive House benchmarks — thermal simulation inputs provided to the architect/consultant for project-specific TEDI modelling

TEDI in Emerging Building Codes

Increasing code stringency in Canada — including the Toronto Green Standard, BC Energy Step Code, and Passive House Institute targets — is placing tighter TEDI requirements on new construction and major retrofits. PrimeFab provides thermal simulation inputs that the architect or building consultant uses to determine overall TEDI performance.

For architects and developers, this means that specifying PrimeWall supports a proactive path to compliance — reducing energy modeling uncertainty and simplifying the path to building permit approval under performance-based energy codes.

Note: TEDI requirements vary by jurisdiction, building type, and applicable code cycle. Project-specific compliance should be confirmed by the engineer of record

8. PROJECT OUTCOMES

What This Means on Your Project

Speed & Schedule Certainty

- Factory-assembled panels mean rapid, sequenced on-site installation — floor by floor
- Weather-independent manufacturing eliminates envelope-related schedule risk
- Streamlined path to occupancy and building envelope sign-off
- Reduced on-site labour and trade coordination complexity

Reduced Coordination Risk

- Single-source accountability for structure, insulation, cladding, and glazing
- Pre-installed windows eliminate glazing interface as a site coordination risk
- No interior framing required — reduces mechanical/electrical coordination scope
- Compatible with multiple cladding systems — architectural flexibility without performance trade-off

Envelope Quality & Consistency

Retrofit & Occupied Building Advantage

- Every panel built to identical factory tolerances — no site-to-site variation
- Integrated quality control: structural, thermal, airtightness, and weatherproofing in one sequence
- Minimizes field defects that compromise thermal continuity or long-term durability
- Reduces callbacks and warranty exposure over building lifecycle

Case Study: 444 Logan Ave., Toronto

A 22-storey occupied seniors' residence retrofit (WoodGreen Community Housing) using PrimeWall prefabricated unitized panels. 600 panels across 55,000 sq ft. Tenant-in-place delivery model.

- **R-20** opaque walls with 7" Roxul insulation
- **Cladding:** UHPC fluted concrete, BIPV solar panels, and high-performance glass
- **Glazing:** Integrated Reynaers Passive House-rated awnings and doors
- **Targeted U-value:** 0.25 · SHGC: 0.35

- Lightweight system (~12 lbs/sq ft) reduces structural demands — critical for retrofit over existing construction
- Prefabricated staging and crane installation minimizes site footprint and resident disruption
- Rapid panel installation reduces exposure time of occupied floors to exterior
- Suitable for tenant-in-place delivery models

Embodied Carbon & Sustainability

- Factory fabrication reduces material waste versus site-built assemblies
- Aluminum framing is recyclable; BIPV solar cladding option supports on-site energy generation
- Long-term lifecycle durability minimizes replacement frequency

9. TECHNICAL DATA

Performance & Specification Reference

PARAMETER	VALUE / RANGE	NOTES / STATUS
Effective R-Value	Up to R-46 (lightweight insulated core)	
Insulation	10" mineral wool (Roxul/Rockwool) — standard	*Optional enhancements for higher thermal performance*
Thermal Break	Polyamide-reinforced fibreglass (Isobar)	*Interrupts aluminum frame conduction pathway*
Structural Frame	Aluminum profiles — interior and exterior	*Vapour barrier and insulation in cavity*
Panel Weight	Approx. 12 lbs/sq ft	*Lightweight — reduces structural demands*
Window Performance	High-performance glazing pre-installed	*Passive House-rated units available*
Solar Heat Gain (Logan Case Study)	SHGC 0.35 · U-value 0.25	*444 Logan Ave. design targets*

Cladding Options	ACM, stone, UHPC, BIPV, porcelain, and others	*Variety of finish options available per architectural spec*
Panel Assembly	Drywall-ready; no interior framing required	*No additional anchoring or cutouts*
Fire / Non-Combustibility	Non-combustible construction	*Aluminum framing and mineral wool (Roxul/Rockwool) insulation*
Testing Standards	ASTM E330/E283/E331/E547; AAMA 501.1/4/5/7; CSA A440.2	*Independent laboratory validated*
Structural Attachment	Hook and rail system; face of slab or top of slab anchoring	*Project-specific engineering required*
System Status	Patent Pending	*PrimeFab / Triumph Group of Companies*