CASCADIA WINDOWS & DOORS

BEYOND THE FRAME

How High-Performance Fenestration Expands Design Possibility

PRESENTED BY: AMBER MENGEDE – TECHNICAL BUSINESS DEVELOPMENT MANAGER
Email: amengede@cascadiawindows.com; Cell: 604-785-9615

Art Rutkin Elementary School
Tigard, OR

CASCADIAWINDOWS.COM

AGENDA

- Introduction to Cascadia Windows & Doors
- Overview of Building Performance in a Changing Climate
- Characteristics of High-Performance Fenestration
- Project Case Studies



INTRO TO CASCADIA WINDOWS & DOORS

BEYOND THE FRAME:
How High-Performance Fenestration Expands Design Possibility

The Courtenay
West Vancouver, BC

FIBERGLASS INNOVATION

COMMERCIAL | MULTI-FAMILY | RESIDENTIAL

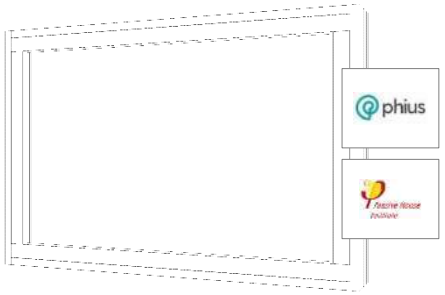
Windows & Window Wall
Fixed & Operable Windows
Storefront Glazing
Passive House (PHI & PHIUS) Windows & Doors
Swing & Sliding Patio Doors

THERMAL SPACER

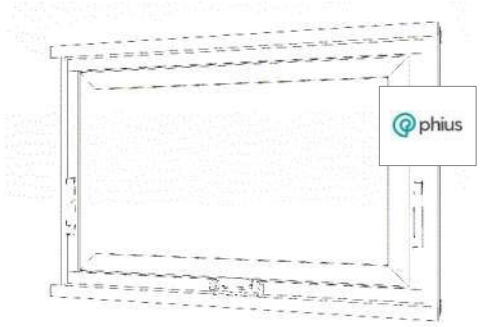
Exterior Cladding Assemblies
Low-sloped Roofs & Soffits



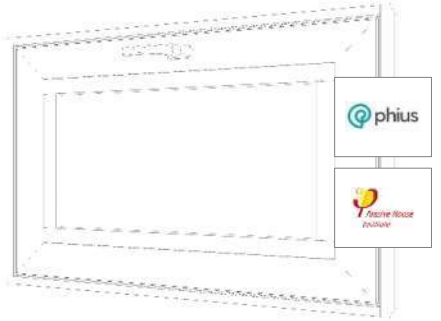
WINDOW PRODUCTS



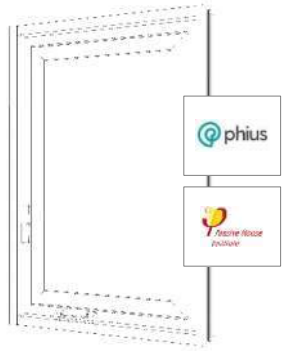
FIXED



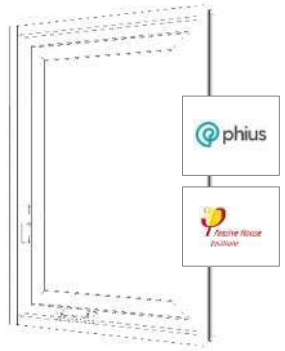
AWNING



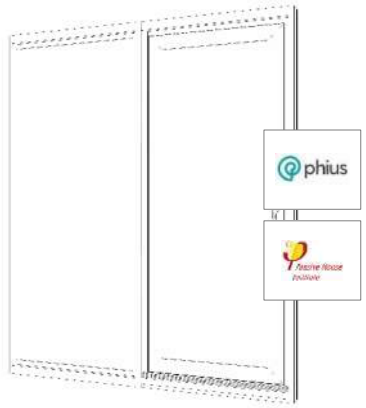
HOPPER



CASEMENT
INSWING & OUTSWING



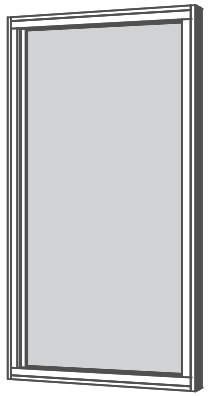
TILT & TURN



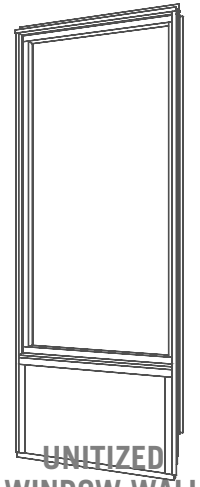
SLIDING DOORS
TILT / SLIDE & OUTSLIDE



SWING DOORS
TILT / SWING & OUTSWING



OPAQUE AREAS
GLASS & METAL PANELS



UNITIZED
WINDOW WALL

LEVERAGING HIGH-PERFORMANCE FIBERGLASS

HIGH PERFORMANCE. HIGH PRIORITY.

DOUBLE GLAZED
U – 0.20 – 0.26 btu/hr · ft^2 · F

TRIPLE GLAZED
U – 0.13 – 0.17 btu/hr · ft^2 · F

TRANSPARENT INSULATION
U – 0.07– 0.15 btu/hr · ft^2 · F

LOOKING TO GO BIG

DOUBLE GLAZED FIXED
Up to 60 ft^2

CASEMENT
36” x 84”

TILT & TURN
60” x 99”

AWING
48” x 84”
& 84” x 36”

LONG-TERM THINKING

Modelled lifespan
up to 80 years

Declare Red List Free

Full LCA & EPD

Wildfire Resistant
(SFM 12-7A-2 tested)

FIBERGLASS INNOVATION

COMMERCIAL | MULTI-FAMILY | RESIDENTIAL

Windows & Window Wall
Fixed & Operable Windows
Swing & Sliding Doors
Storefront Glazing
Passive House (PHI & PHIUS) Windows & Doors

THERMAL SPACER

Exterior Cladding Assemblies
Low-sloped Roofs & Soffits



Belmont Park Village
Elmont, NY



A CHANGING WORLD.
A CHANGING INDUSTRY.

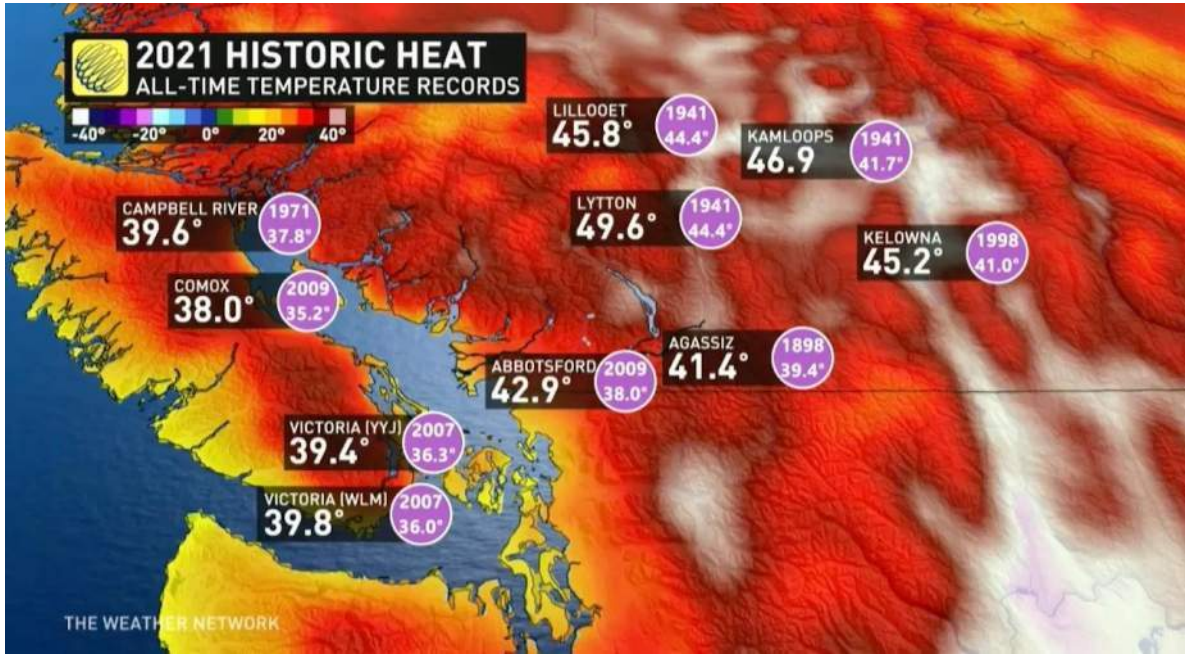
BEYOND THE FRAME:
How High-Performance Fenestration Expands Design Possibility

The Bush School – Upper School Building
Seattle, WA

THE NEW NORMAL

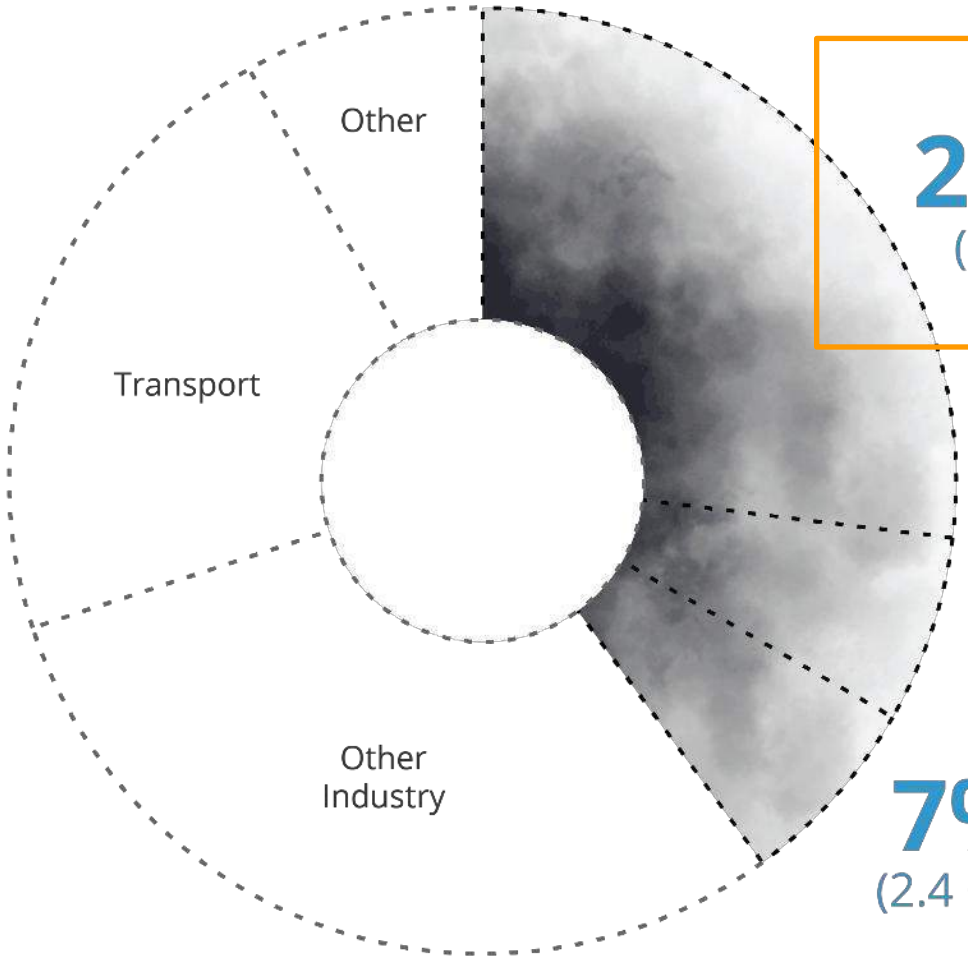


June 23, 2025



June 18, 2021

HOW DO OUR BUILDINGS FACTOR INTO THE CHANGING WORLD?



27% (9.9 GT) BUILDING OPERATIONS

6% (2.3 GT) BUILDING CONSTRUCTION INDUSTRY

7% (2.4 GT) OTHER CONSTRUCTION INDUSTRY

Annual Global CO_2 Emissions

© Architecture 2030. Data Source: IEA (2022), Buildings, IEA, Paris

WHERE IS THE BUILDING OPERATIONS ENERGY GOING?

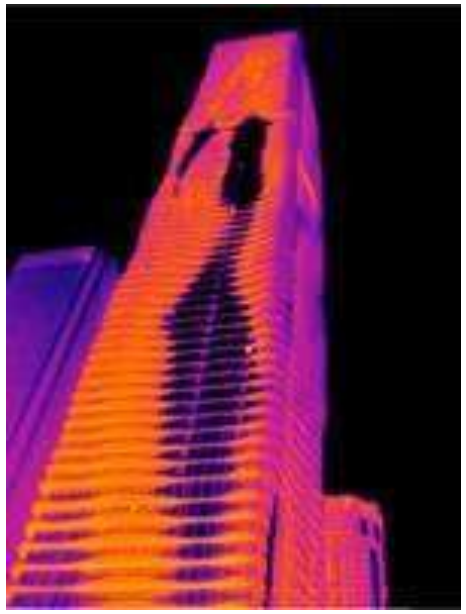
POOR WINDOW PERFORMANCE

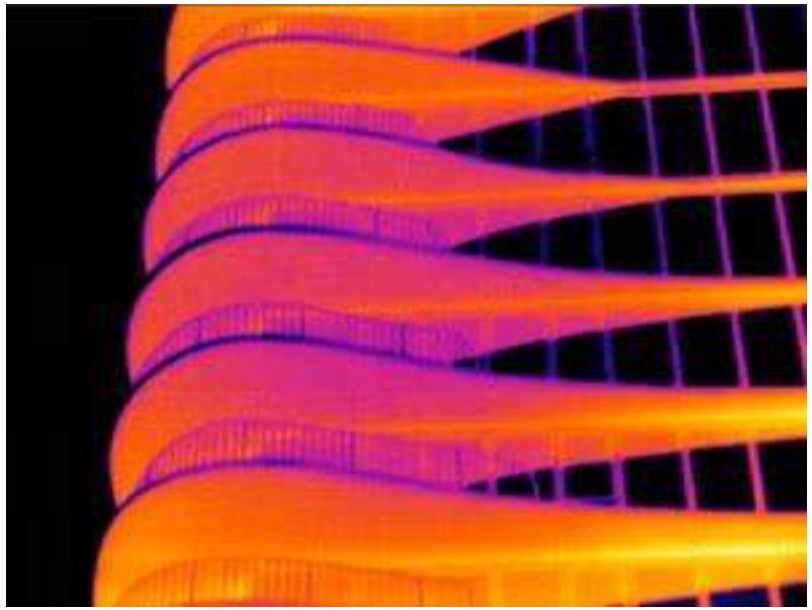




Images: homedit / Unsplash

POOR WALL PERFORMANCE







Images: Building Science Corporation / Unsplash



30% TO 50%

OF A BUILDING'S HEATING & COOLING ENERGY IS LOST THROUGH WINDOWS

BY IMPROVING THE WINDOW FRAME, YOU IMPROVE THE OVERALL PERFORMANCE OF THE ENTIRE WINDOW

Broeckx-Smith, S., Suh, S., 2019

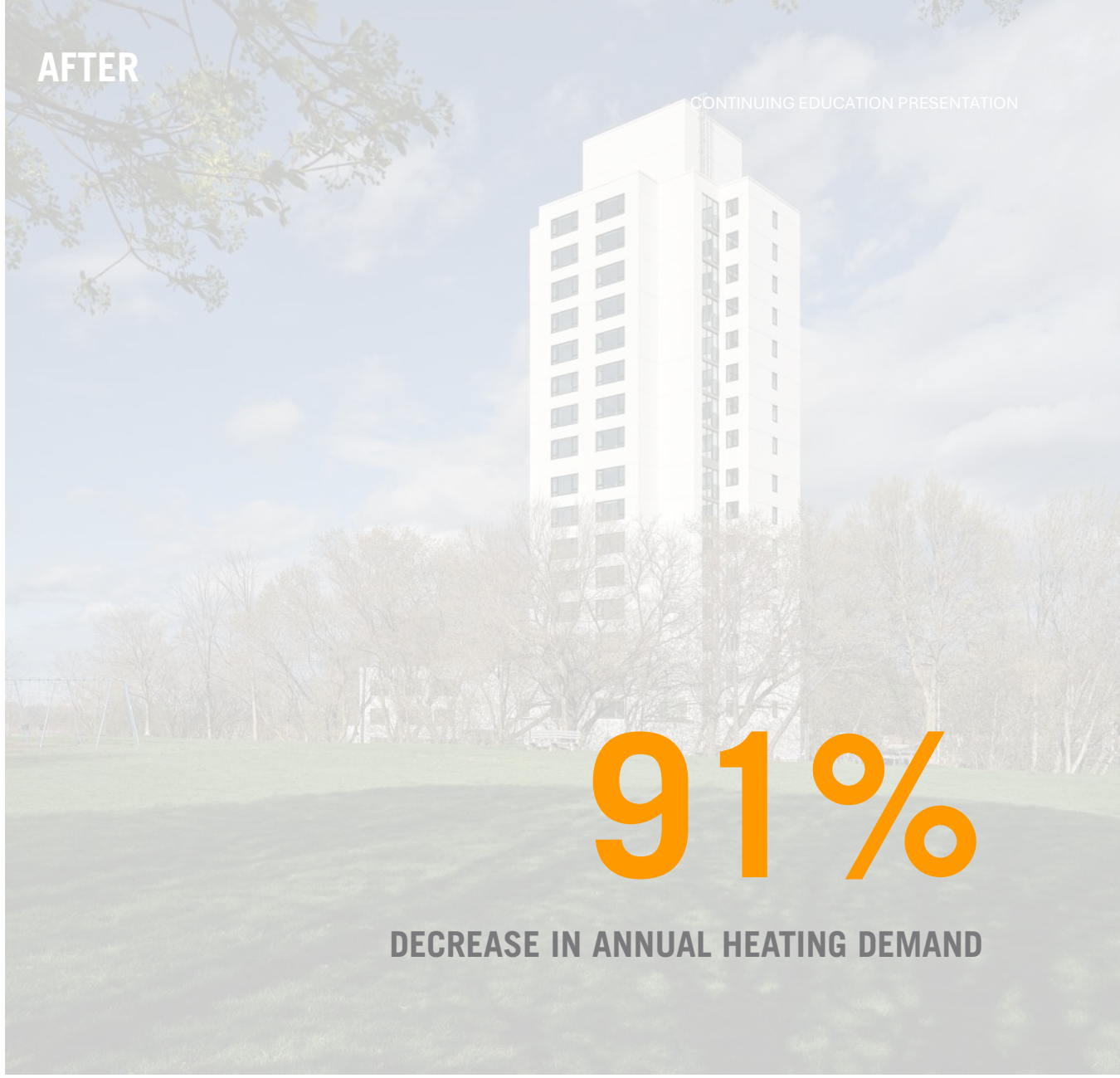
GUESS THE IMPACT TO THE BUILDINGS ANNUAL HEATING DEMAND





Images care of SAB Magazine / DoubleSpace

GUESS THE IMPACT



91%

DECREASE IN ANNUAL HEATING DEMAND

Images care of SAB Magazine / DoubleSpace

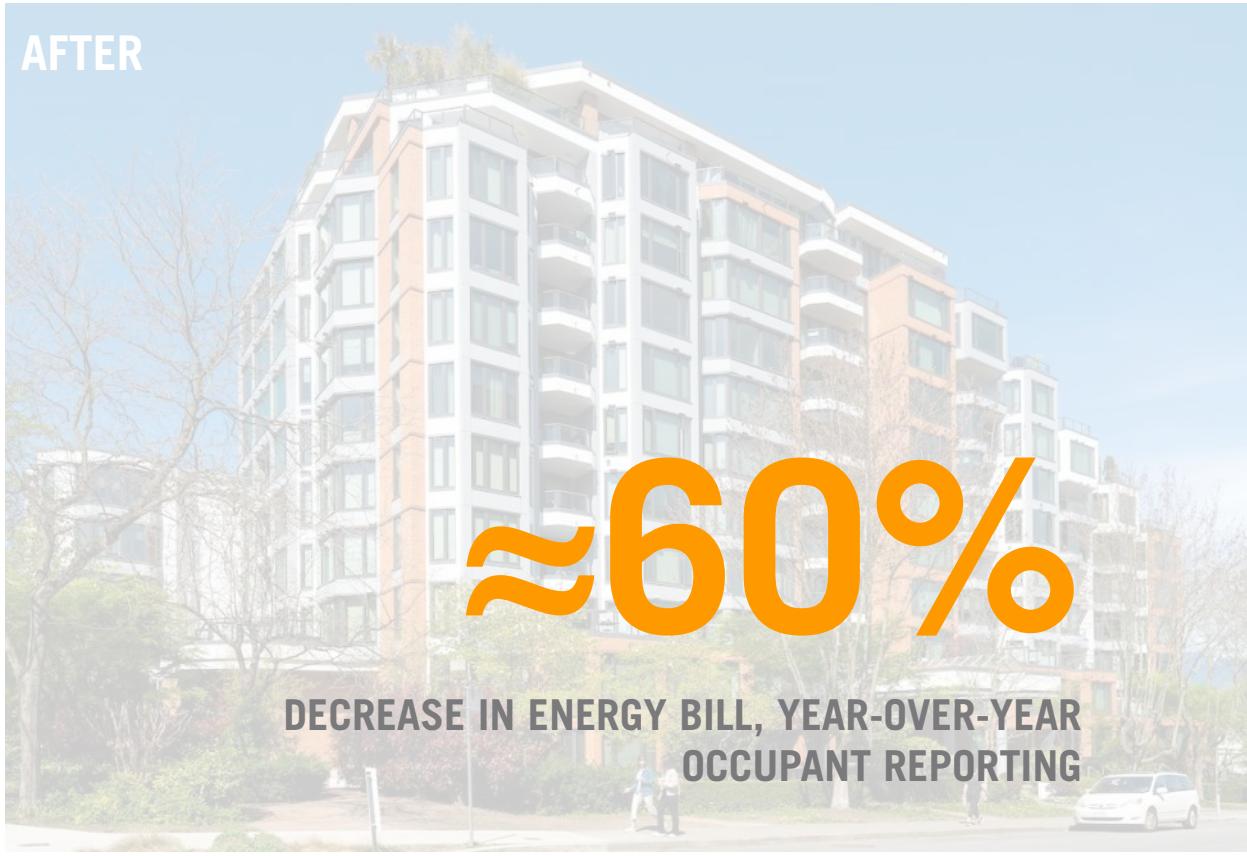
GUESS THE IMPACT





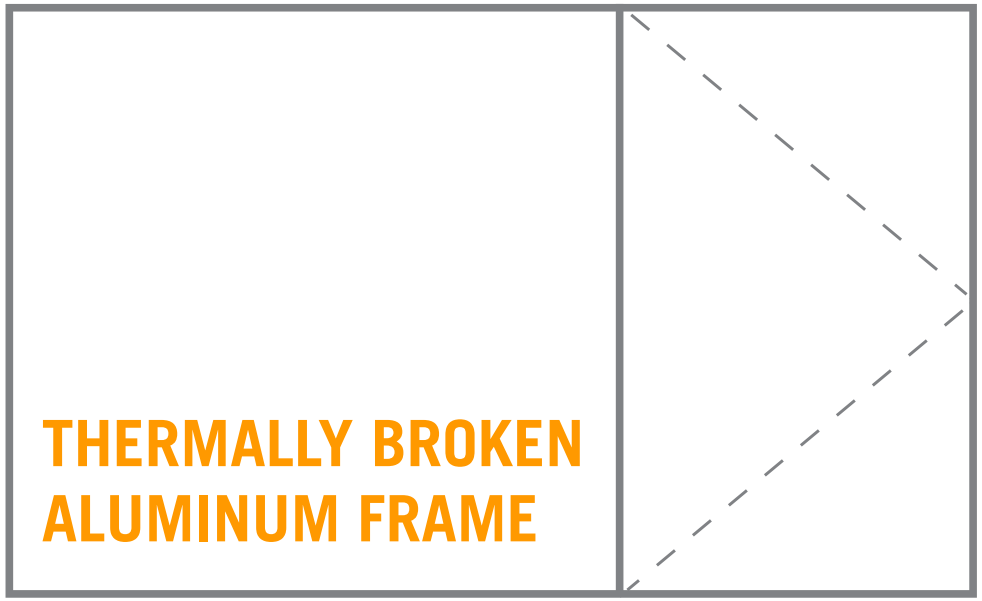
Images care of Cascadia Windows & Doors

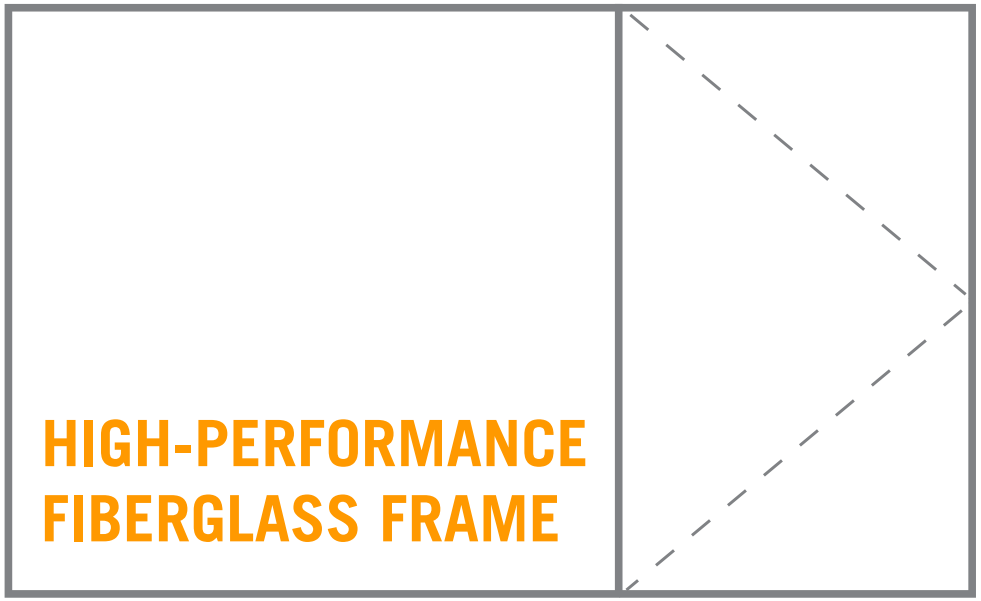
GUESS THE IMPACT



Images care of Cascadia Windows & Doors

GUESS THE IMPACT





GUESS THE IMPACT

THERMALLY BROKEN
ALUMINUM FRAME

0.5 Btu/h·ft²·F | 2.84 W/m²·K

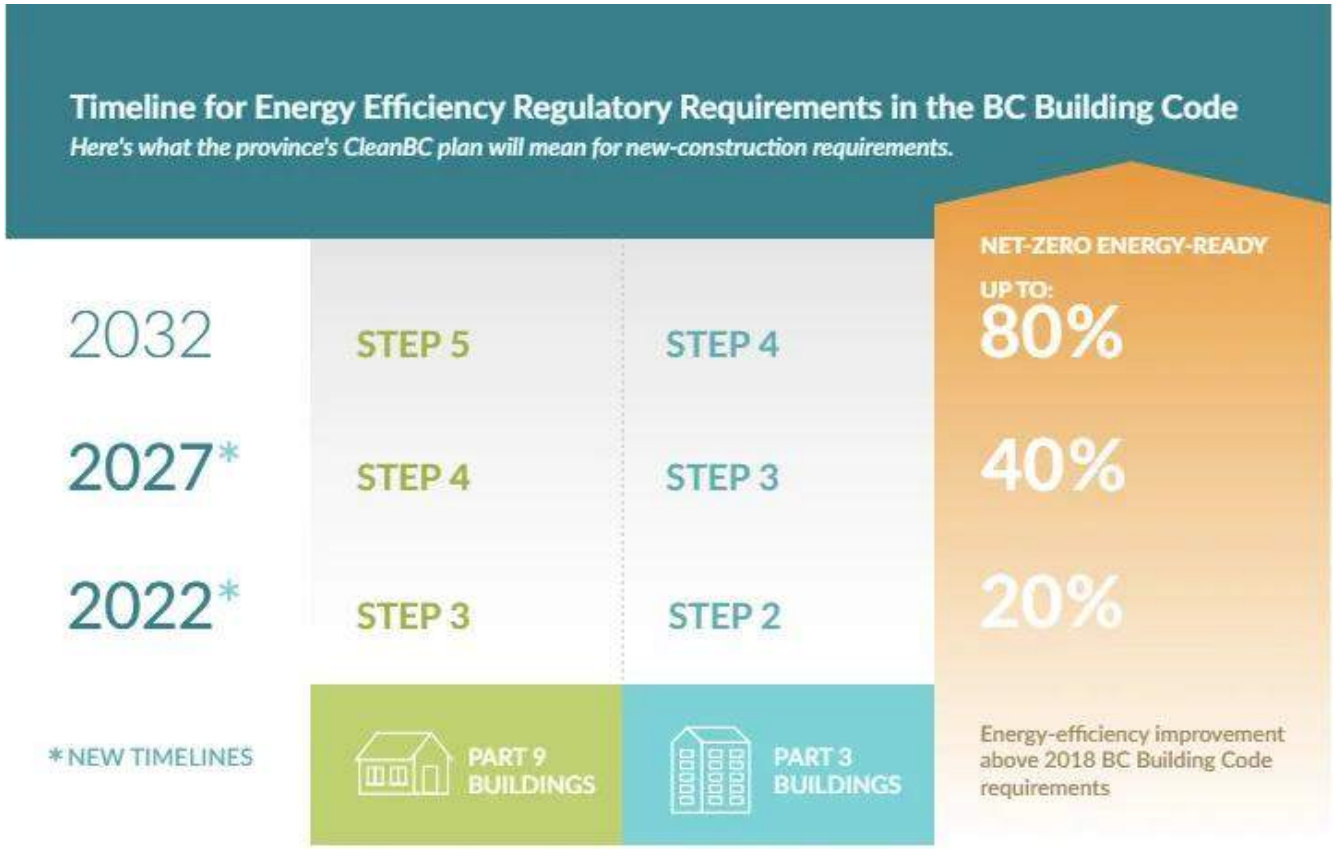
HIGH-PERFORMANCE
FIBERGLASS FRAME

DOUBLE

THE OVERALL THERMAL PERFORMANCE

0.24 Btu/h·ft²·F | 1.36 W/m²·K

REGULATORY RESPONSE



REGULATORY RESPONSE



BROWSE Bloomberg Law

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Environment & Energy

The Robert S. Fulton public housing development stands in New York City in 2020.
Photographer: Christopher Occhicone/Bloomberg via Getty Images

New York City Votes to Expand Landmark Building Emissions Law

Aug. 26, 2021, 12:39 PM

New York's City Council on Thursday approved a bill to include public housing in the city's landmark buildings emissions law.

Stephen Lee
Reporter

REGULATORY RESPONSE

Bloomberg Law

Environment & Energy

New York City Votes to
Emissions Law

Aug. 26, 2021, 12:39 PM

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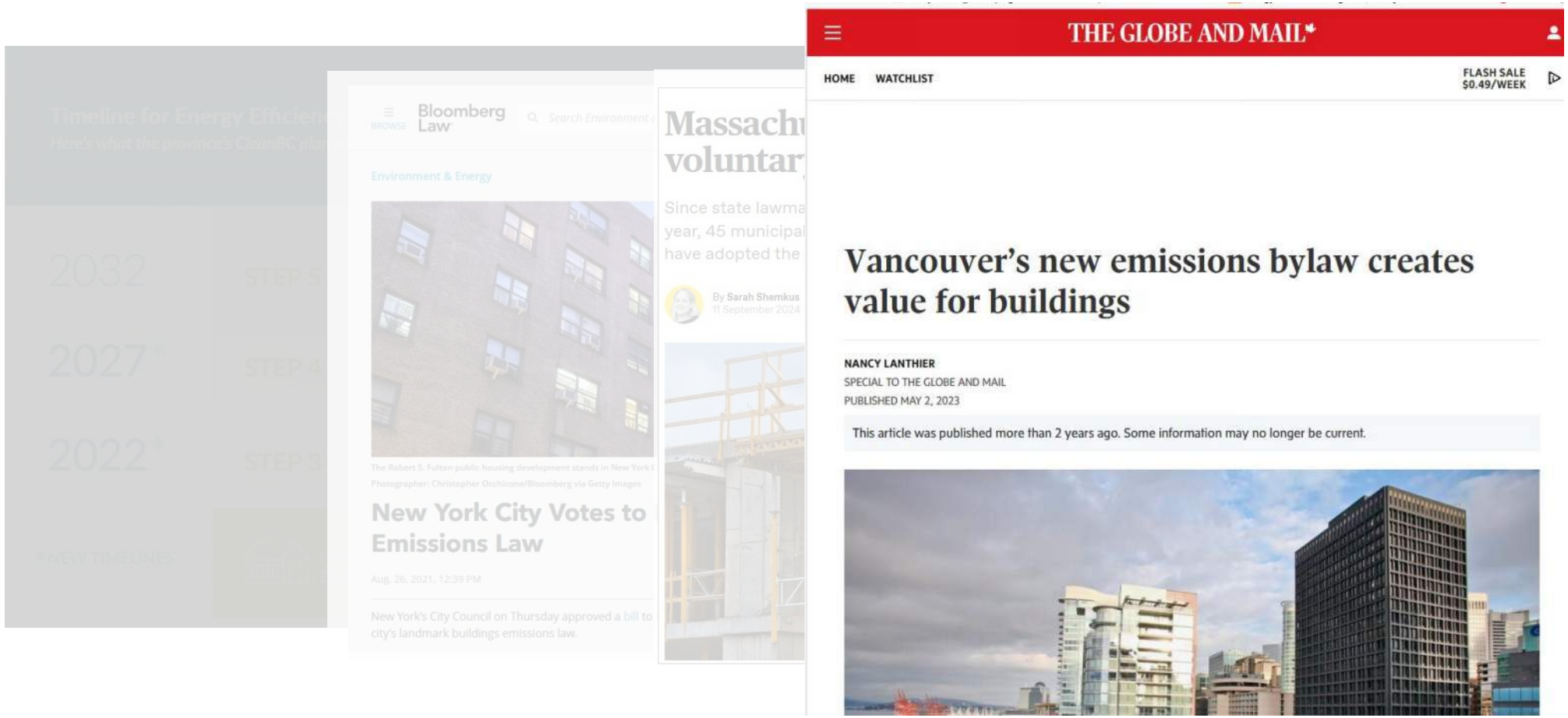
Massachusetts cities embrace voluntary green building codes

Since state lawmakers approved an optional stretch code early last year, 45 municipalities covering about 30% of the state's population have adopted the guidelines.

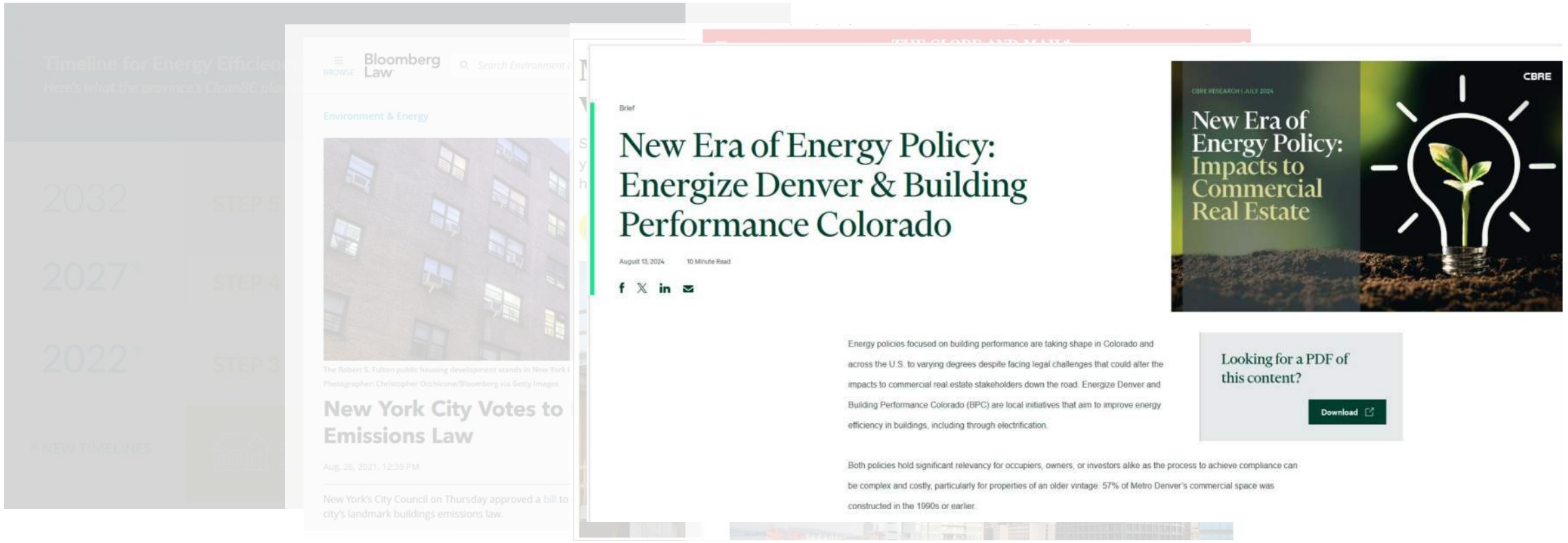
By **Sarah Shemkus**
11 September 2024



REGULATORY RESPONSE



REGULATORY RESPONSE



INCENTIVIZING PERFORMANCE



CITY of BOSTON

























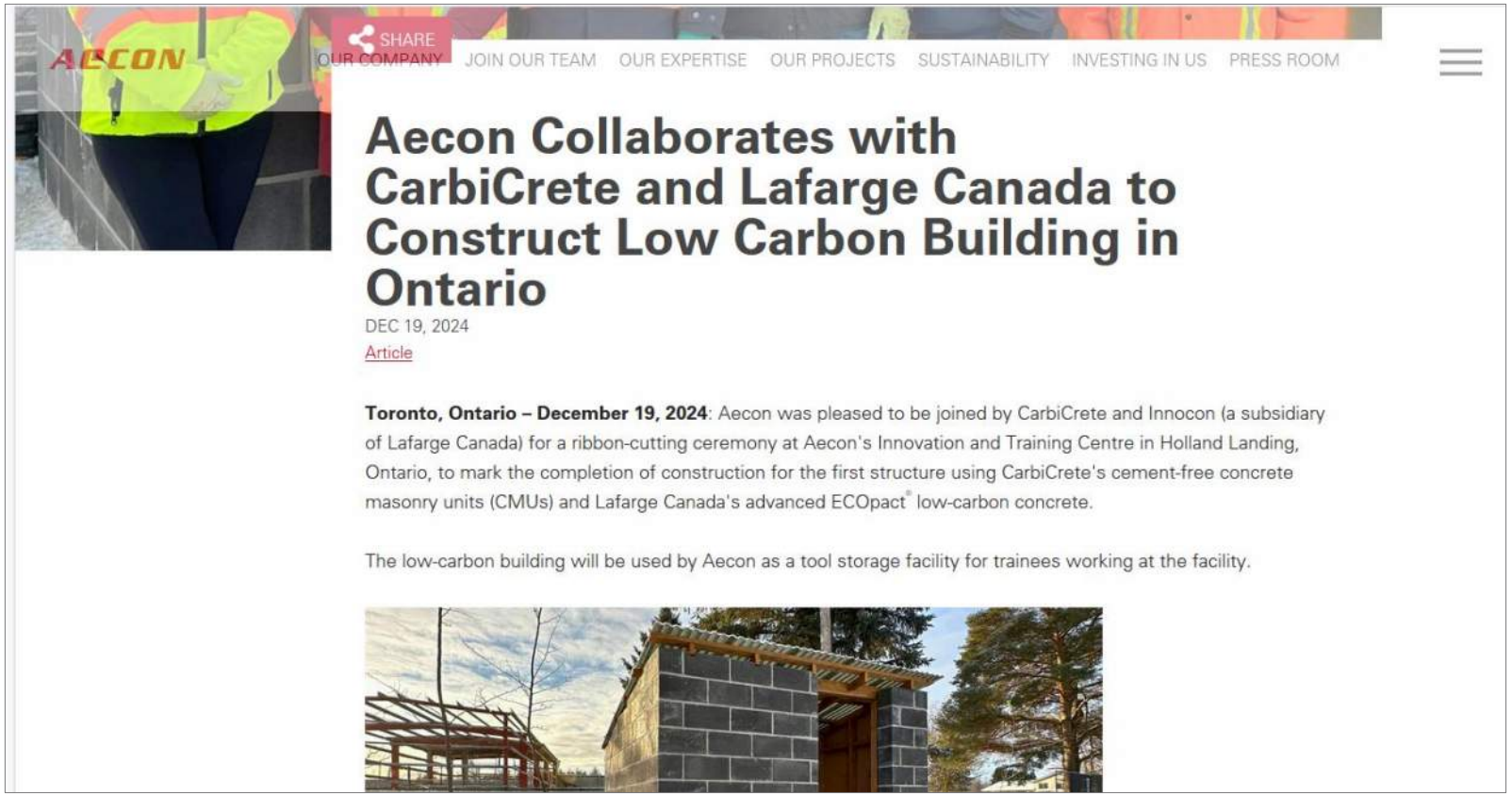








INDUSTRY RESPONSE



SHARE

OUR COMPANY JOIN OUR TEAM OUR EXPERTISE OUR PROJECTS SUSTAINABILITY INVESTING IN US PRESS ROOM

Aecon Collaborates with CarbiCrete and Lafarge Canada to Construct Low Carbon Building in Ontario

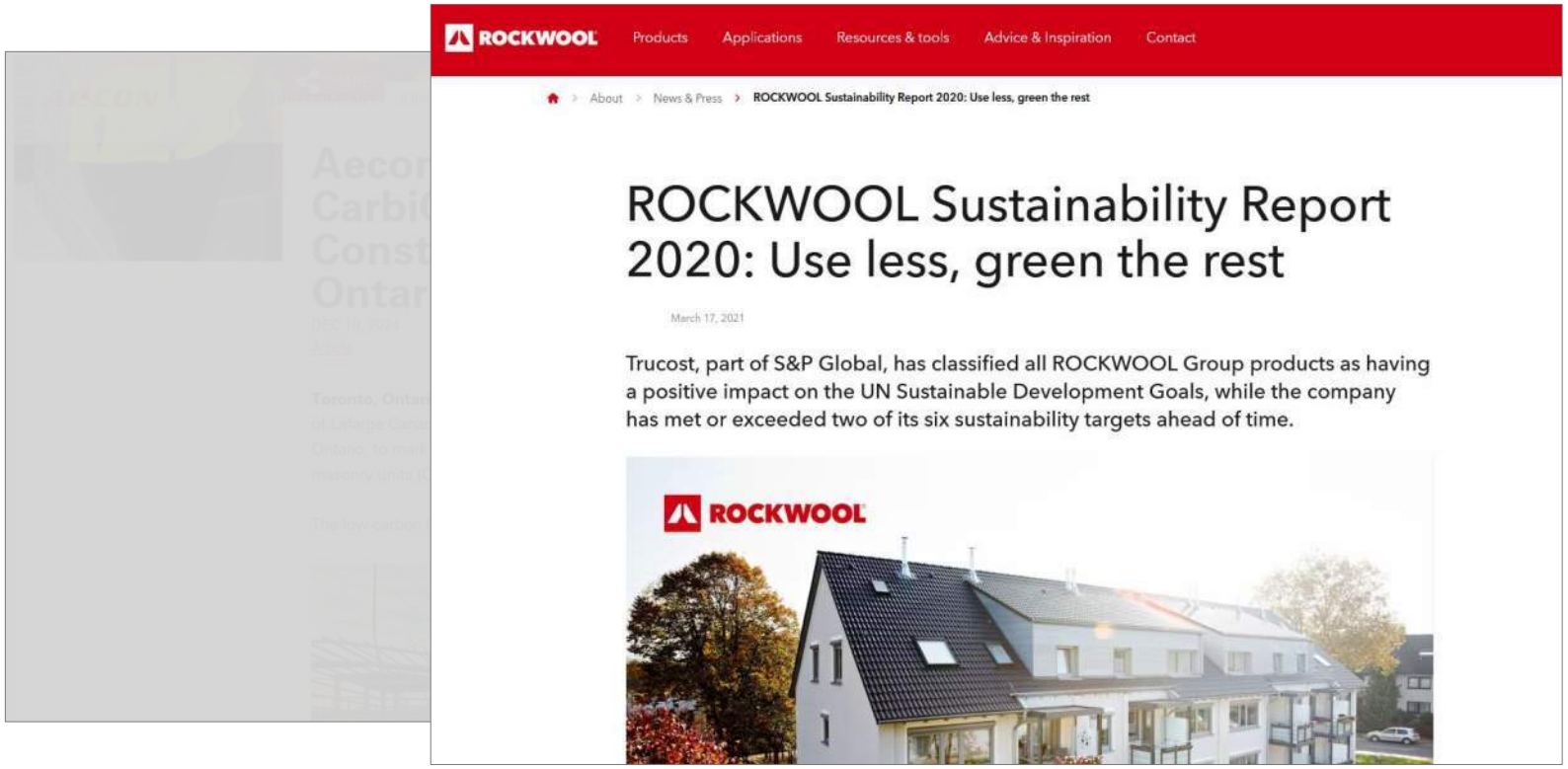
DEC 19, 2024

Article

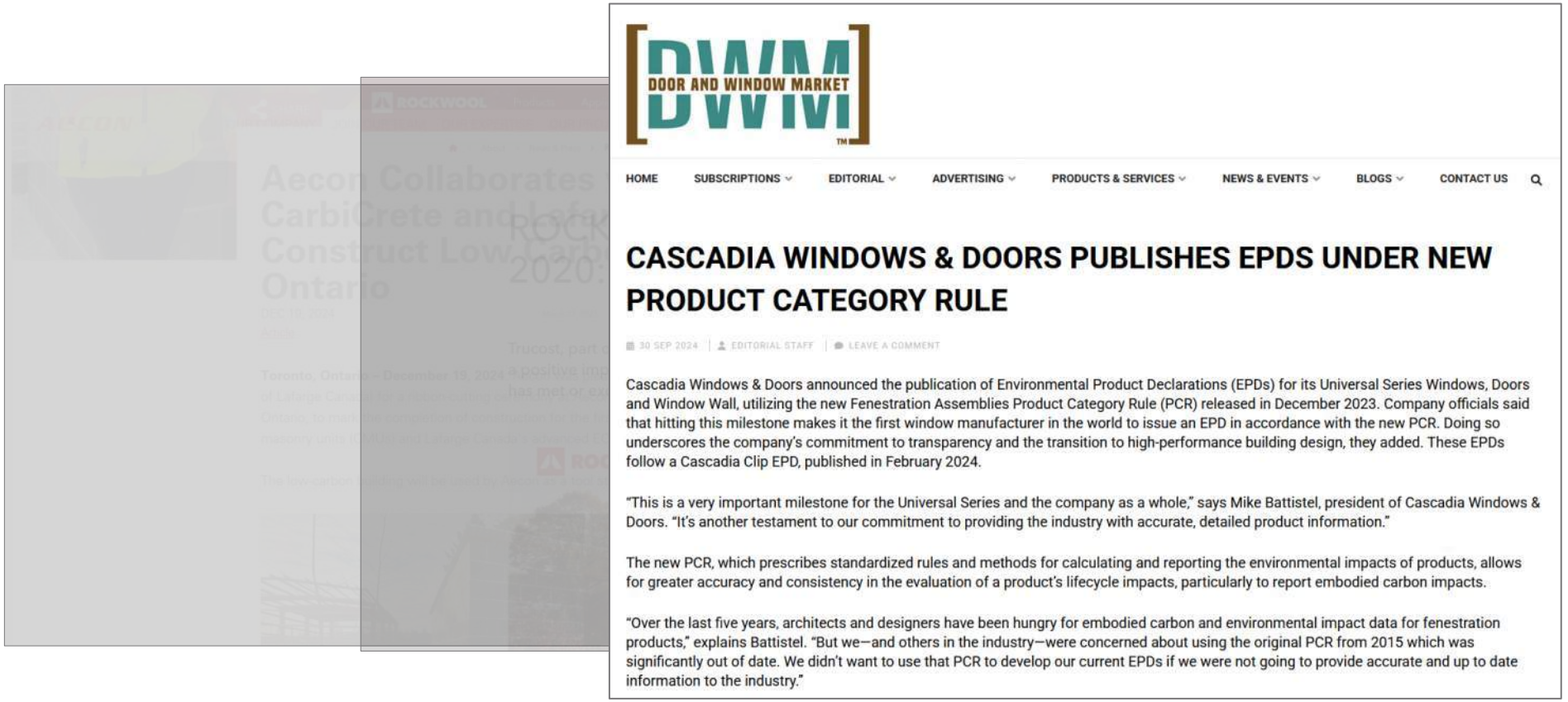
Toronto, Ontario – December 19, 2024: Aecon was pleased to be joined by CarbiCrete and Innocon (a subsidiary of Lafarge Canada) for a ribbon-cutting ceremony at Aecon's Innovation and Training Centre in Holland Landing, Ontario, to mark the completion of construction for the first structure using CarbiCrete's cement-free concrete masonry units (CMUs) and Lafarge Canada's advanced ECOpact® low-carbon concrete.

The low-carbon building will be used by Aecon as a tool storage facility for trainees working at the facility.

INDUSTRY RESPONSE



INDUSTRY RESPONSE



DWM
DOOR AND WINDOW MARKET

HOME SUBSCRIPTIONS EDITORIAL ADVERTISING PRODUCTS & SERVICES NEWS & EVENTS BLOGS CONTACT US

CASCADIA WINDOWS & DOORS PUBLISHES EPDS UNDER NEW PRODUCT CATEGORY RULE

30 SEP 2024 | EDITORIAL STAFF | LEAVE A COMMENT

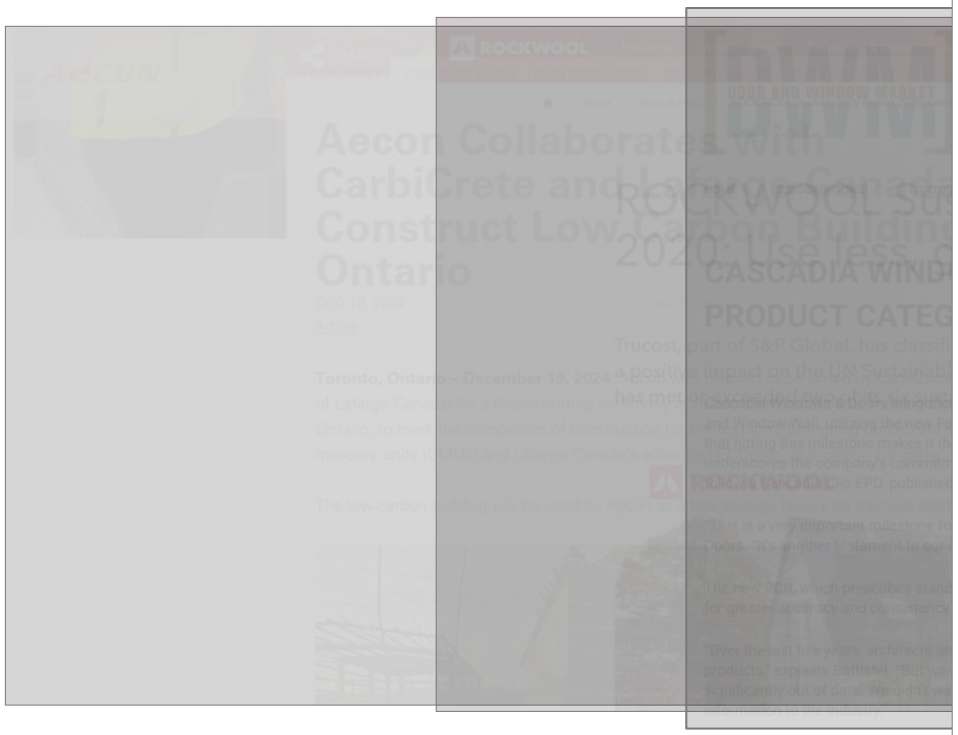
Cascadia Windows & Doors announced the publication of Environmental Product Declarations (EPDs) for its Universal Series Windows, Doors and Window Wall, utilizing the new Fenestration Assemblies Product Category Rule (PCR) released in December 2023. Company officials said that hitting this milestone makes it the first window manufacturer in the world to issue an EPD in accordance with the new PCR. Doing so underscores the company's commitment to transparency and the transition to high-performance building design, they added. These EPDs follow a Cascadia Clip EPD, published in February 2024.

"This is a very important milestone for the Universal Series and the company as a whole," says Mike Battistel, president of Cascadia Windows & Doors. "It's another testament to our commitment to providing the industry with accurate, detailed product information."

The new PCR, which prescribes standardized rules and methods for calculating and reporting the environmental impacts of products, allows for greater accuracy and consistency in the evaluation of a product's lifecycle impacts, particularly to report embodied carbon impacts.

"Over the last five years, architects and designers have been hungry for embodied carbon and environmental impact data for fenestration products," explains Battistel. "But we—and others in the industry—were concerned about using the original PCR from 2015 which was significantly out of date. We didn't want to use that PCR to develop our current EPDs if we were not going to provide accurate and up to date information to the industry."

INDUSTRY RESPONSE



ERG

Services Clients Projects About Jobs News Contact

ERG's EPD Ecosystem Quality Labeling Initiative

ERG will launch a coalition to continue the mission of the U.S. Environmental Protection Agency's Construction Material Opportunities to Reduce Emissions (C-MORE) program, specifically the program's efforts to improve the quality of EPDs. The coalition will establish a consistent and transparent reporting framework for construction material EPDs in support of efforts to scale the use of EPDs in procurement and policy.

Product- and facility-specific EPDs are being used in the construction sector to support procurement decisions based on a product's embodied carbon. Despite adherence to international and product category-specific standards governing EPD development, there are still concerns related to the transparency, comparability, and quality of EPDs. These concerns



UPDATING OUR VIEW OF WINDOWS

BEYOND THE FRAME:
How High-Performance Fenestration Expands Design Possibility

Parque Kirkland Apartments
Kirkland, WA

CHANGING HOW WE SEE WINDOWS

WHOLE-BUILDING APPROACH

Rethinking our approach to building design, performance, and operation

HIGH-PERFORMANCE WINDOWS

Leveraging high-performance windows to gain design flexibility

INTEGRATING COMPONENTS

Gaining additional performance through installation best-practices

WHOLE-BUILDING APPROACH

PREVIOUS ENERGY CODES



SEPARATE ASSEMBLY R-VALUES

NOW



ONE ENERGY USE LIMIT

CHANGING HOW WE SEE WINDOWS

WHOLE-BUILDING APPROACH

Rethinking our approach to building design, performance, and operation

HIGH-PERFORMANCE WINDOWS

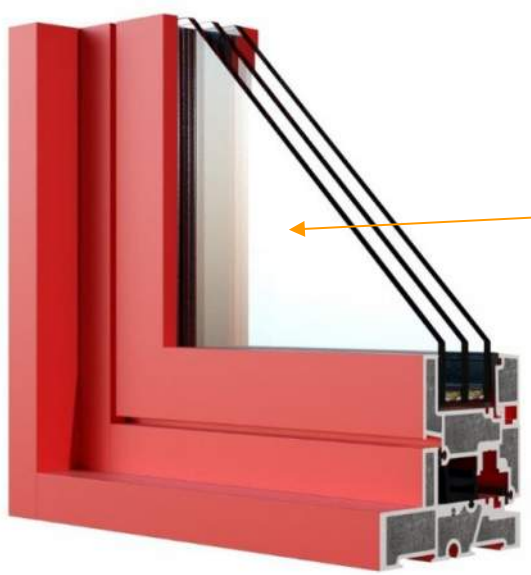
Leveraging high-performance windows to gain design flexibility

INTEGRATING COMPONENTS

Gaining additional performance through installation best-practices

HIGH-PERFORMANCE WINDOW STRATEGY

SUMMARY OF GOOD WINDOW DESIGN



TRIPLE PANE
(GAS-FILLED
& LOW E-COATINGS)

HIGH-PERFORMANCE WINDOW STRATEGY

SUMMARY OF GOOD WINDOW DESIGN

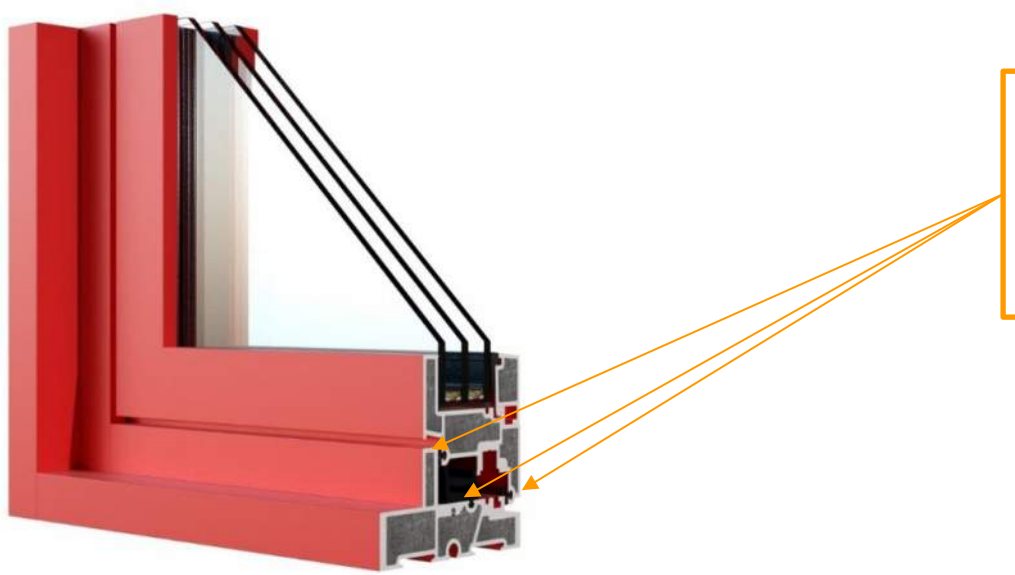


WARM
EDGE SPACERS

TRIPLE PANE
(GAS-FILLED
& LOW E-COATINGS)

HIGH-PERFORMANCE WINDOW STRATEGY

SUMMARY OF GOOD WINDOW DESIGN



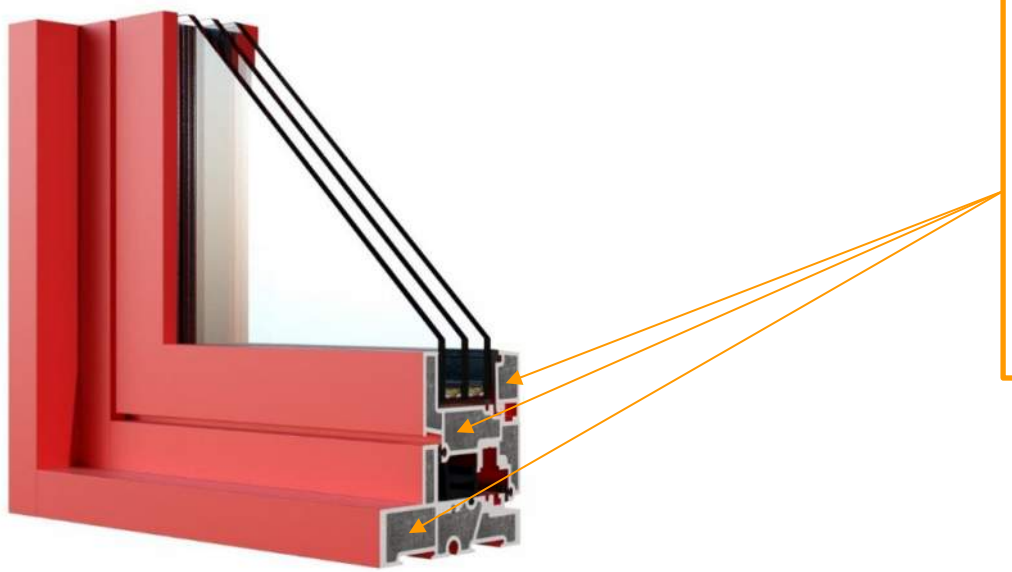
MULTIPLE GASKETS

TRIPLE PANE (GAS-FILLED & LOW E-COATINGS)

WARM EDGE SPACERS

HIGH-PERFORMANCE WINDOW STRATEGY

SUMMARY OF GOOD WINDOW DESIGN



INSULATED FRAME

LOW CONDUCTIVITY
&/OR THERMAL BREAKS

MULTI-CHAMBERED

THICK CHAMBER WALLS

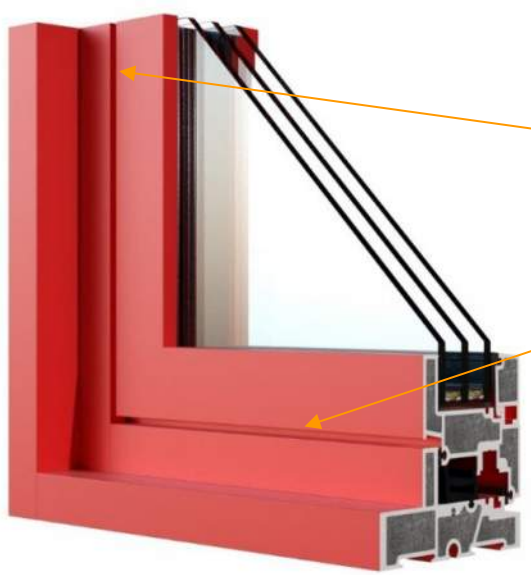
TRIPLE PANE
(GAS-FILLED
& LOW E-COATINGS)

WARM EDGE
SPACERS

MULTIPLE
GASKETS

HIGH-PERFORMANCE WINDOW STRATEGY

SUMMARY OF GOOD WINDOW DESIGN



MULTI-POINT LOCKING

TRIPLE PANE
(GAS-FILLED & LOW E-COATINGS)

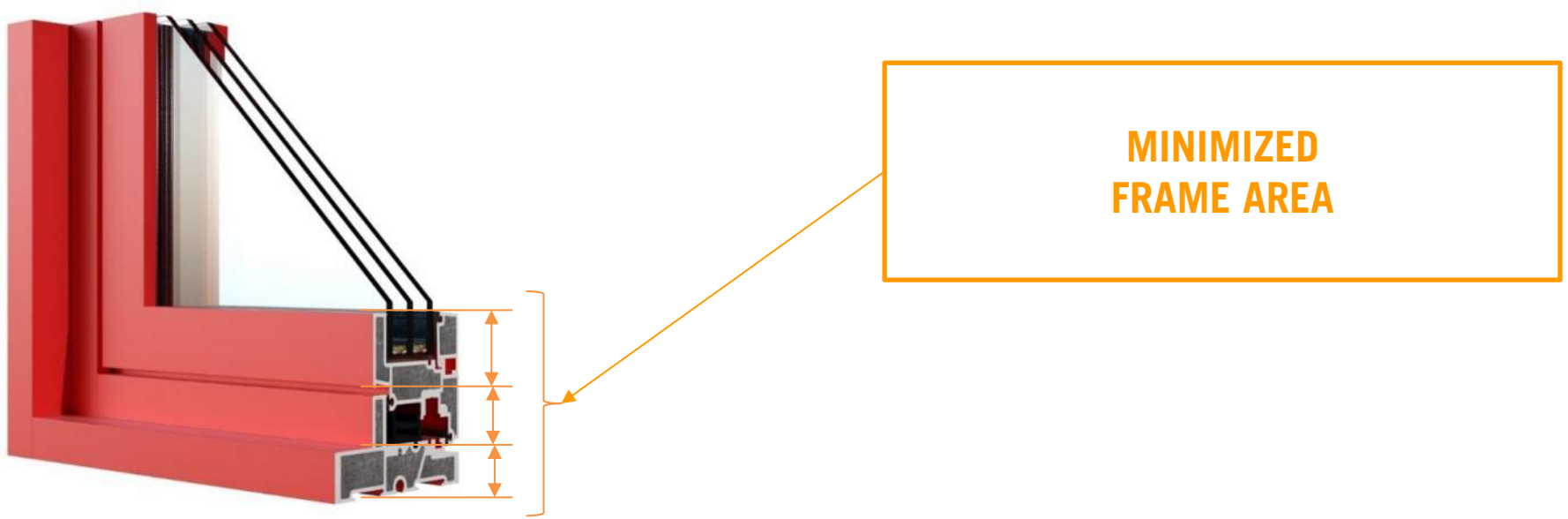
WARM EDGE SPACERS

MULTIPLE GASKETS

INSULATED FRAME
(LOW CONDUCTIVITY &/OR THERMAL BREAKS)

HIGH-PERFORMANCE WINDOW STRATEGY

SUMMARY OF GOOD WINDOW DESIGN



TRIPLE PANE
(GAS-FILLED
& LOW E-COATINGS)

WARM EDGE
SPACERS

MULTIPLE
GASKETS

INSULATED FRAME
(LOW CONDUCTIVITY
&/OR THERMAL BREAKS)

MULTI-POINT
LOCKING

MINIMIZED
FRAME AREA

MORE GLAZING AREA

ALUMINUM WINDOW WALL

40%

WINDOW-TO-WALL RATIO

TEDI - 35 kWh/m2
TEUI - 111 kWh/m2



FIBERGLASS WINDOW WALL

65%

WINDOW-TO-WALL RATIO

TEDI - 30 kWh/m2
TEUI - 109 kWh/m2



Images courtesy of Cascadia Windows & Doors

HIGH PERFORMANCE WINDOWS WILL LET YOU...

1. **INCREASE GLAZING AREA FOR MORE VIEWS AND LIGHT**
2. **REDUCE MECHANICAL SYSTEM PLACEMENT AND SIZE**
   - Smaller system
   - Less ductwork
   - Less floor space for central system (it's smaller)
3. **INCREASE USEABLE FLOOR SPACE IN SUITES**
4. **REDUCE INSULATION REQUIREMENTS ELSEWHERE**
   - Tricky details
   - Insulated concrete projections, etc.
   - Exterior insulation on wood frame
5. **INSTALLATION COST SAVINGS**
   - Compared to triple glazing in other frames

6. REDUCE FUTURE OPERATING COSTS

(DOLLARS + CARBON)

CHANGING HOW WE SEE WINDOWS

WHOLE-BUILDING APPROACH

Rethinking our approach to building design, performance, and operation

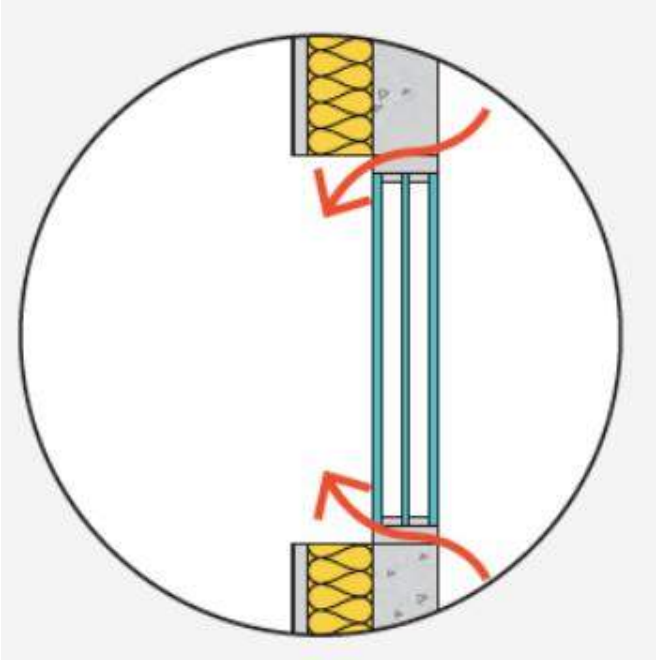
HIGH-PERFORMANCE WINDOWS

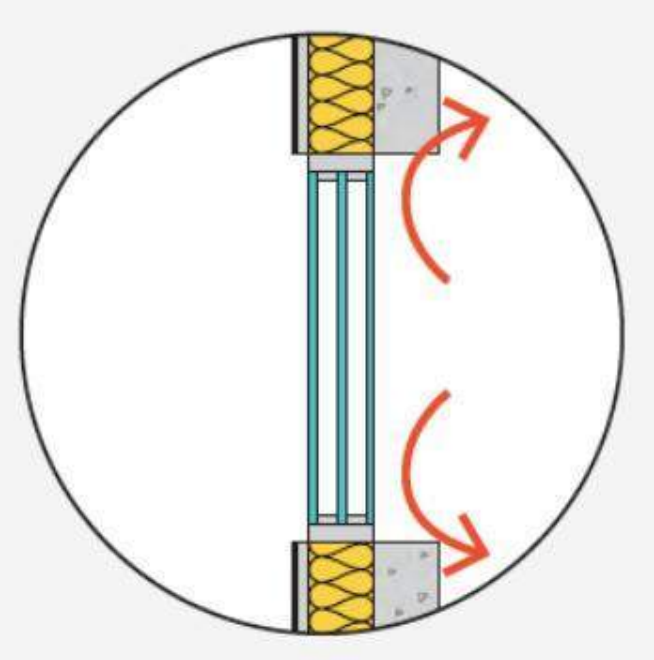
Leveraging high-performance windows to gain design flexibility

INTEGRATING COMPONENTS

Gaining additional performance through installation best-practices

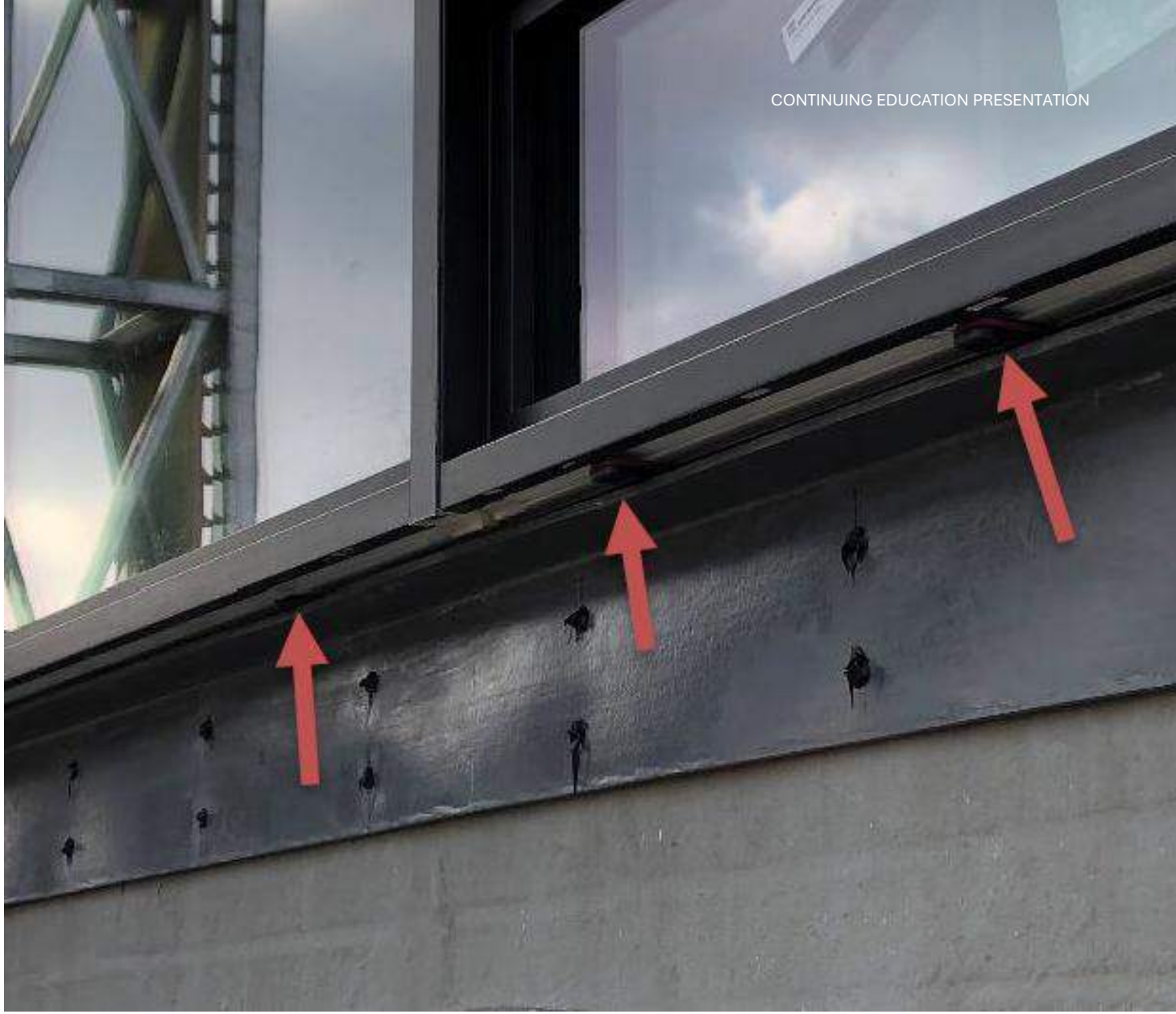
THE FUTURE OF INSTALLATION?



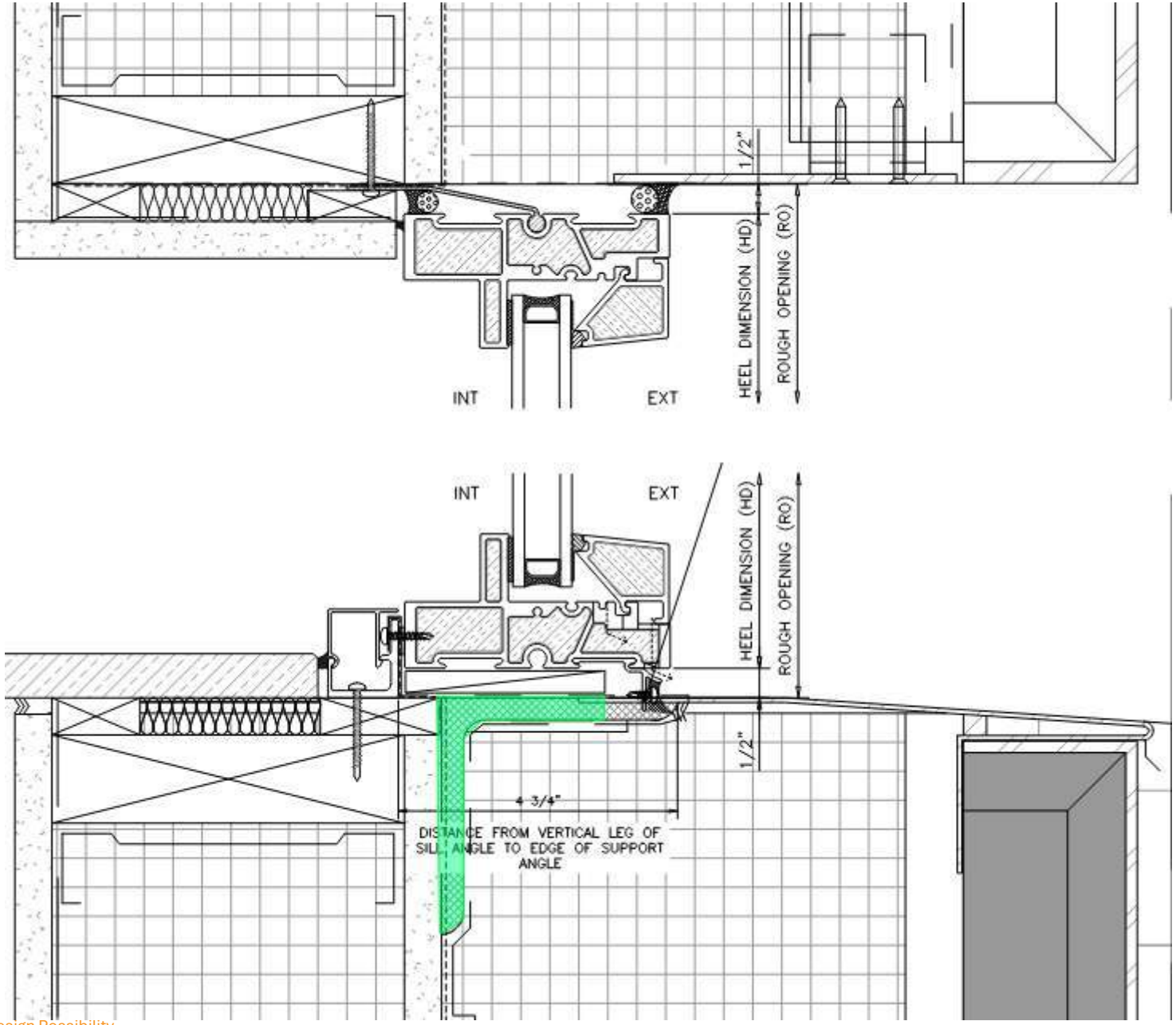


Images courtesy of UBC Sustainability Scholars Program

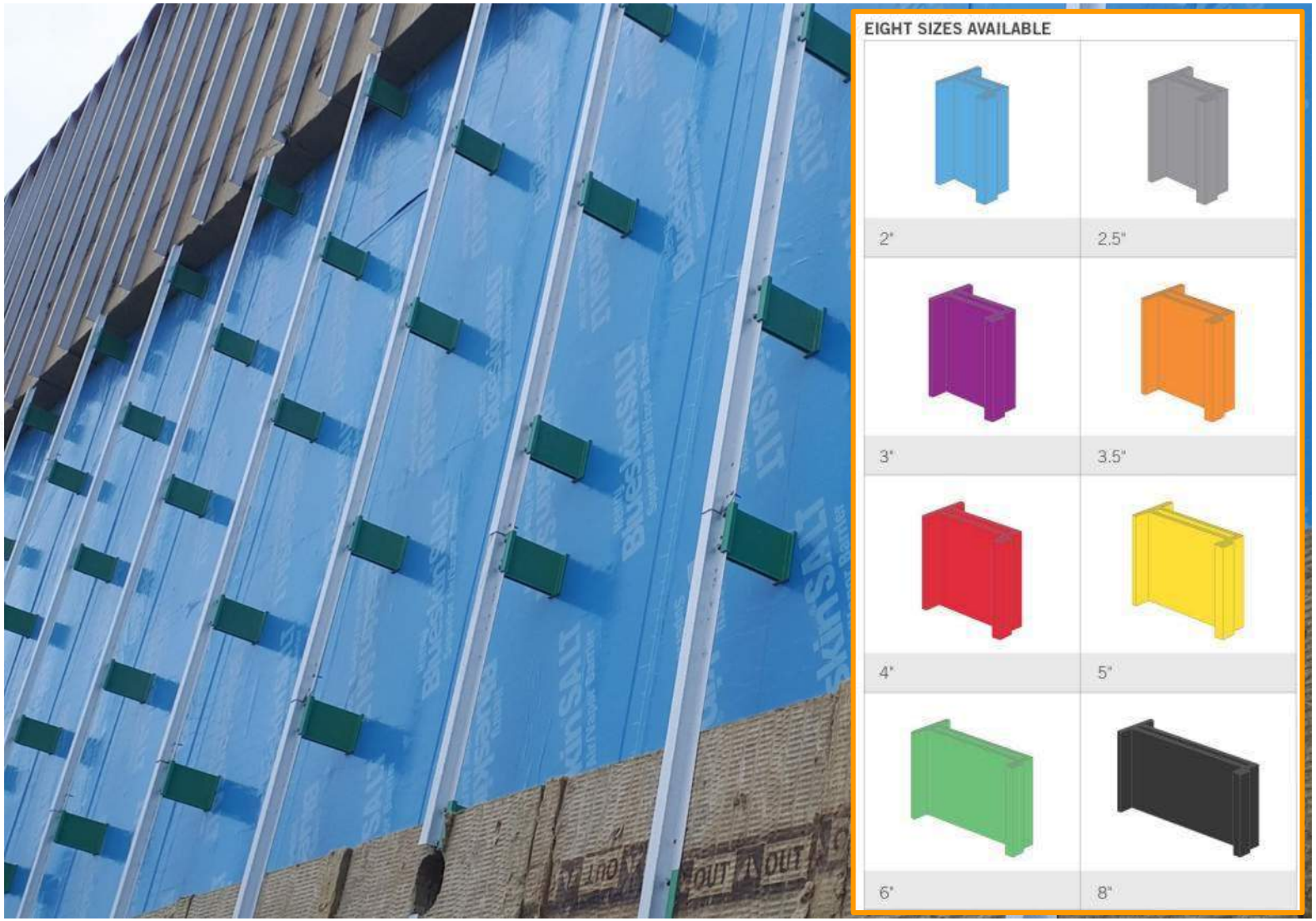




Images courtesy of Intuitive / ERA Architects


1/2"
HEEL DIMENSION (HD)
ROUGH OPENING (RO)
INT
EXT
INT
EXT
HEEL DIMENSION (HD)
ROUGH OPENING (RO)
1/2"
4-3/4"
DISTANCE FROM VERTICAL LEG OF SILL ANGLE TO EDGE OF SUPPORT ANGLE

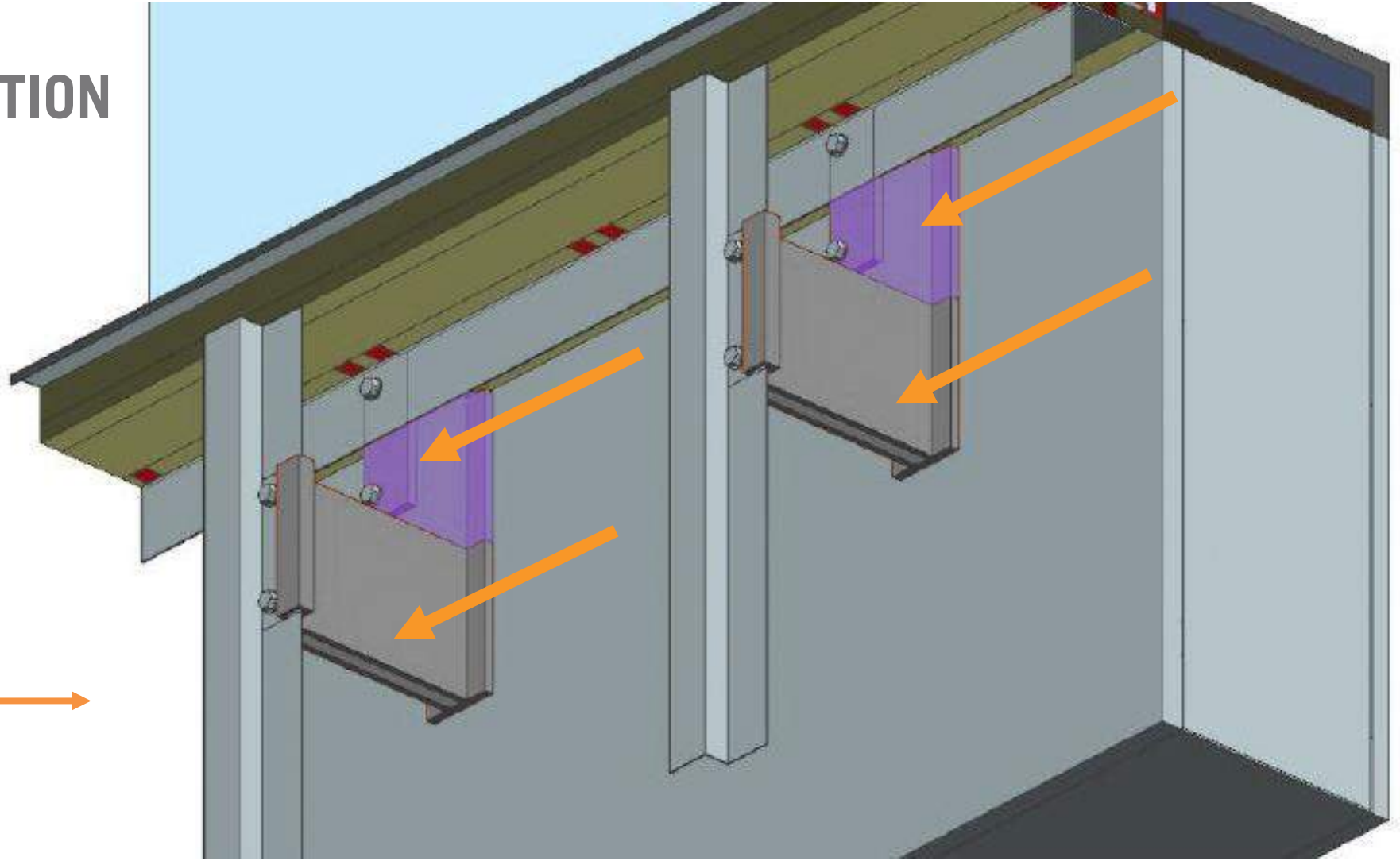




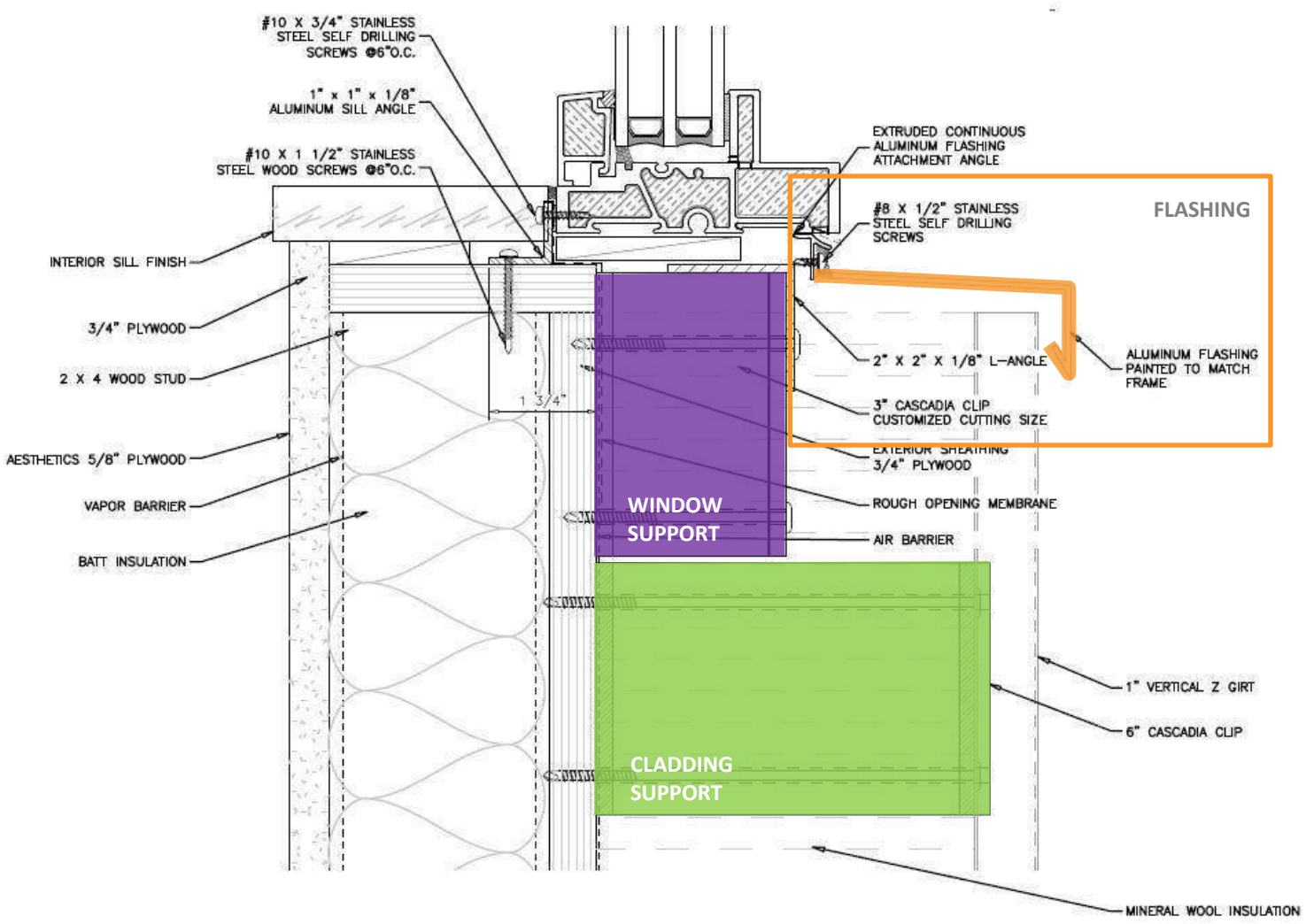
Images courtesy of Morrison Hershfield / Stantec

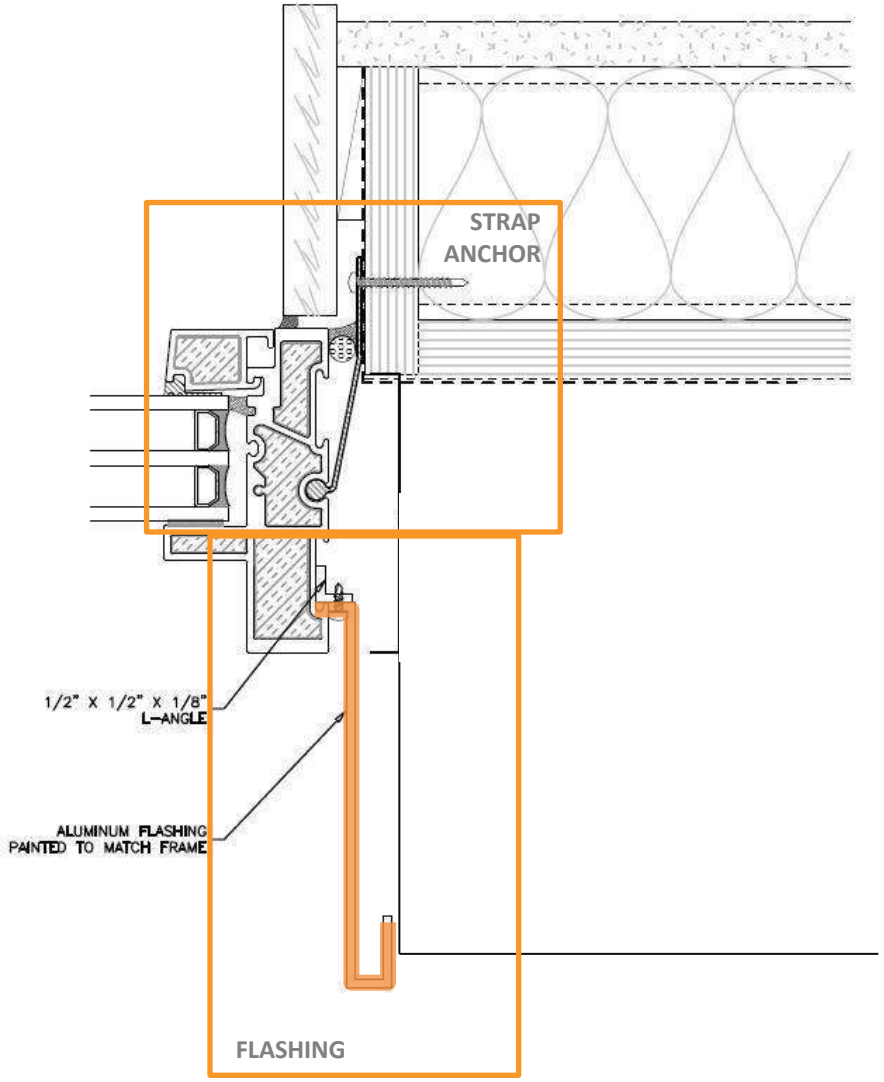
PRODUCT INNOVATION





Images courtesy of ERA Architects, Morrison Hershfield / Stantec





Images courtesy of Cascadia Windows & Doors

GLADSTONE VILLAGE SOCIAL HOUSING

Ottawa, ON





Images courtesy of Skyrise Cities

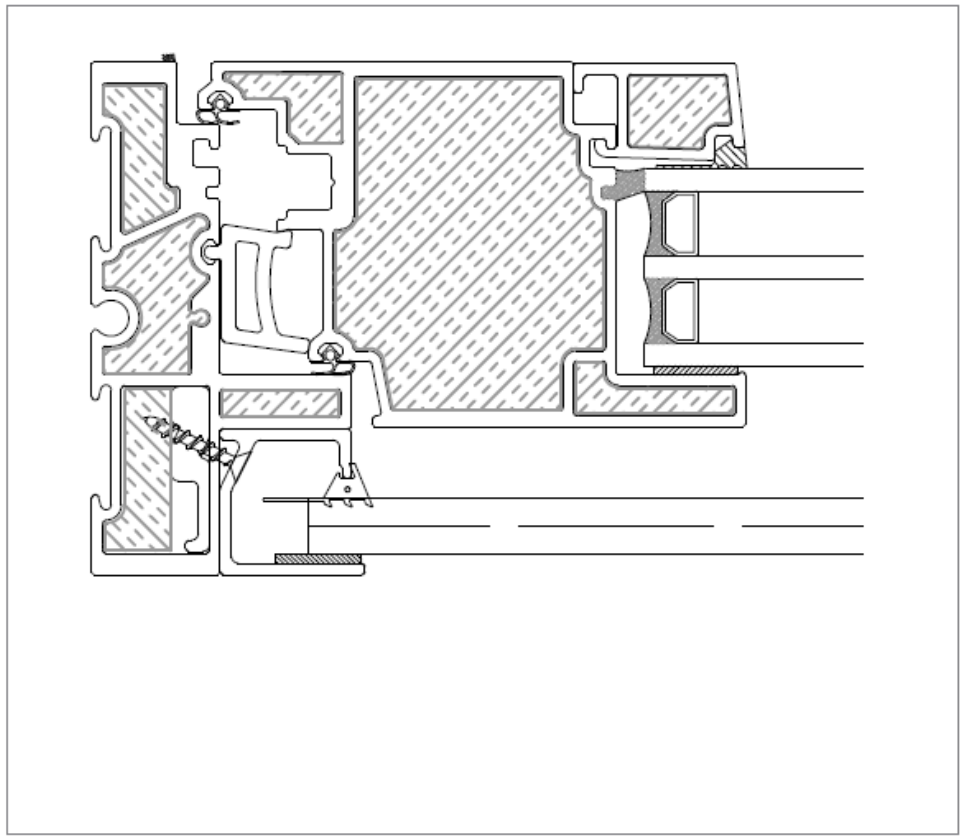
GLADSTONE VILLAGE SOCIAL HOUSING

Ottawa, ON

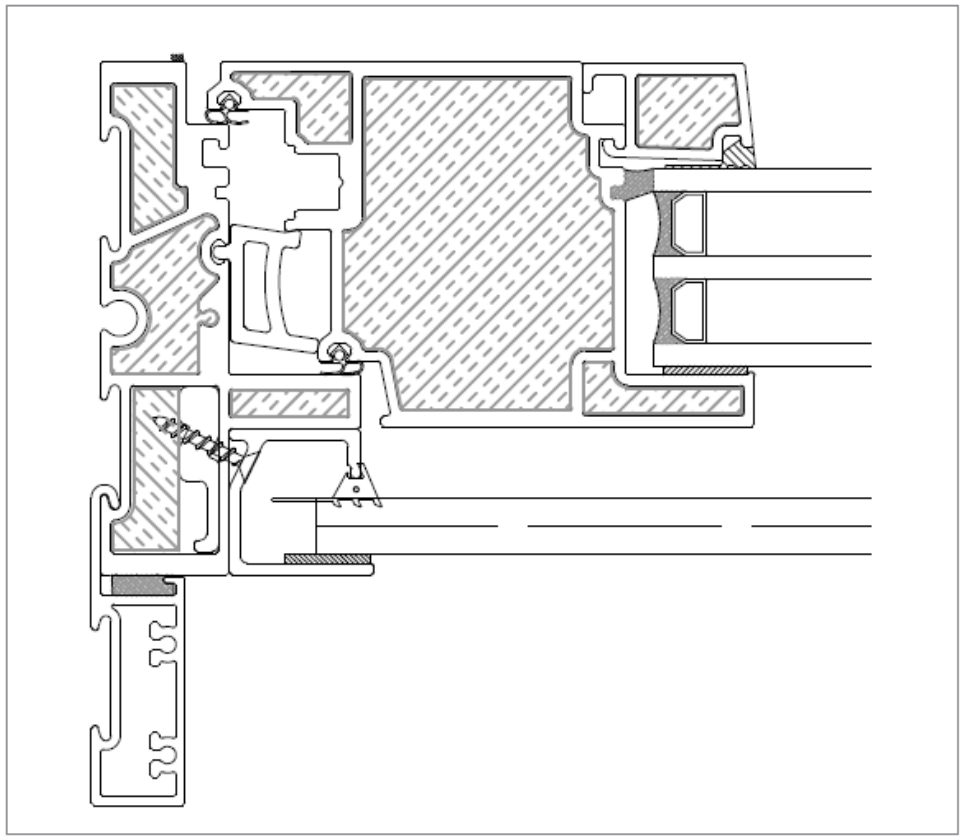


Images courtesy of Cascadia Windows & Doors

INTEGRATED COMPONENTS



JULIET BALCONY - WINDOW APPLICATION DETAIL

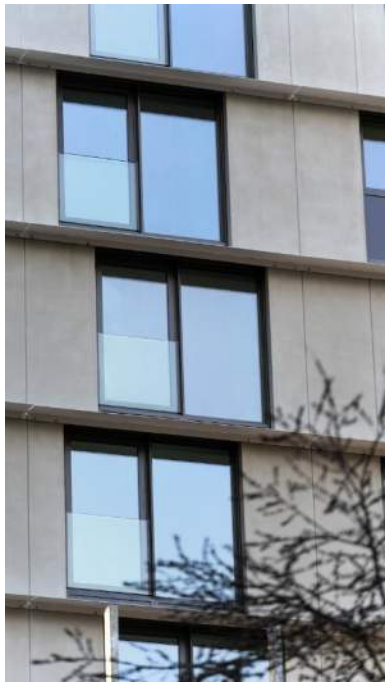


JULIET BALCONY - WINDOW WALL APPLICATION DETAIL

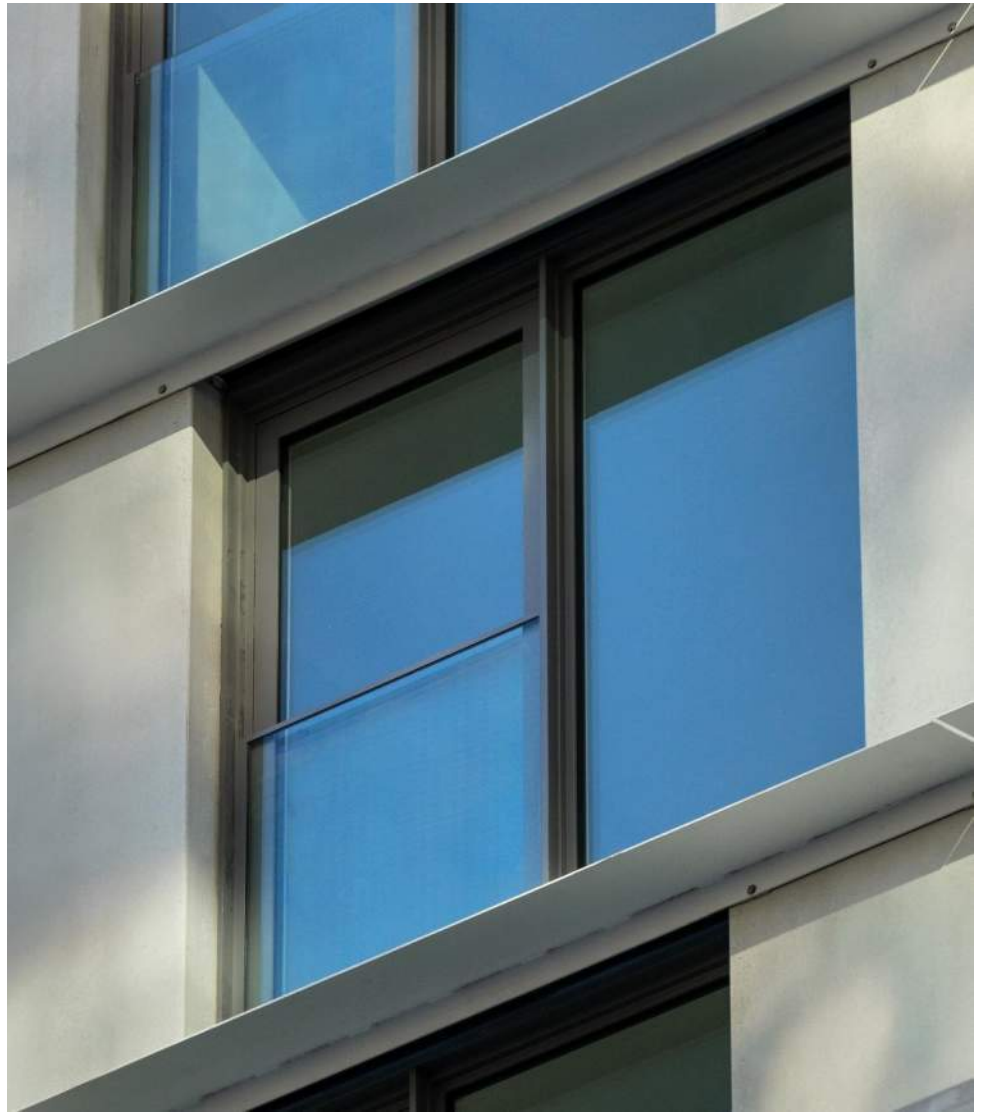
Images courtesy of Cascadia Windows & Doors

COAL HARBOUR PASSIVE HOUSE

Vancouver, BC

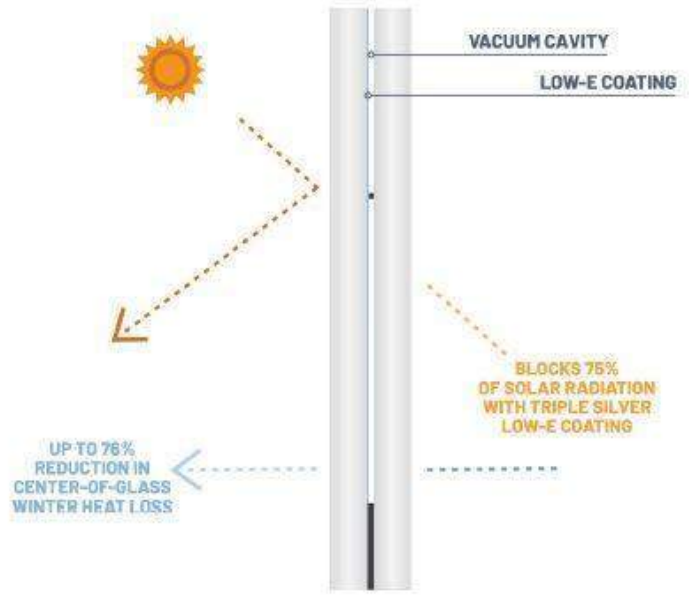




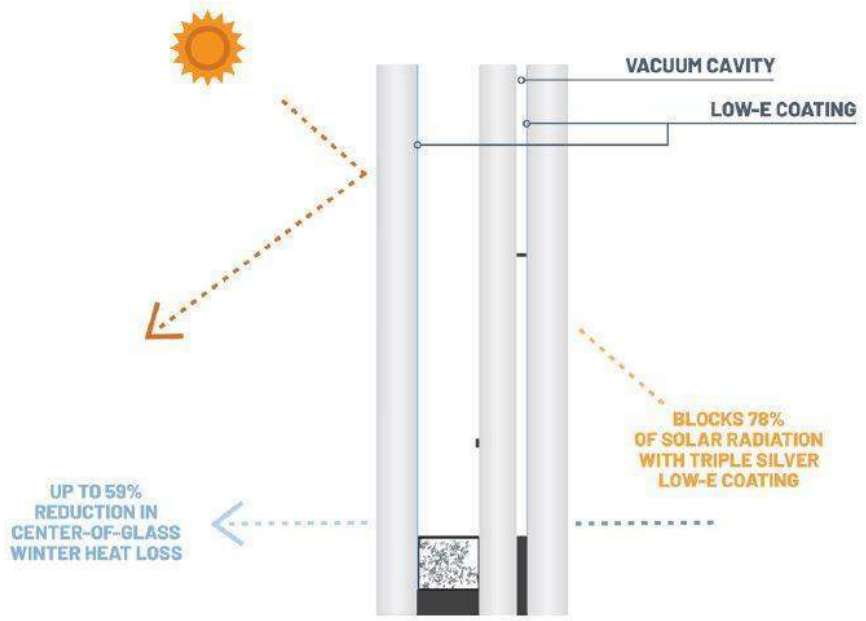


GLASS INNOVATION

VACUUM INSULATING GLASS (VIG)



VIG UNIT



IGU + VIG UNIT

Images courtesy of LuxWall

GLASS-ONLY REPLACEMENT (VIG)

TYPICAL WINDOW R-VALUE

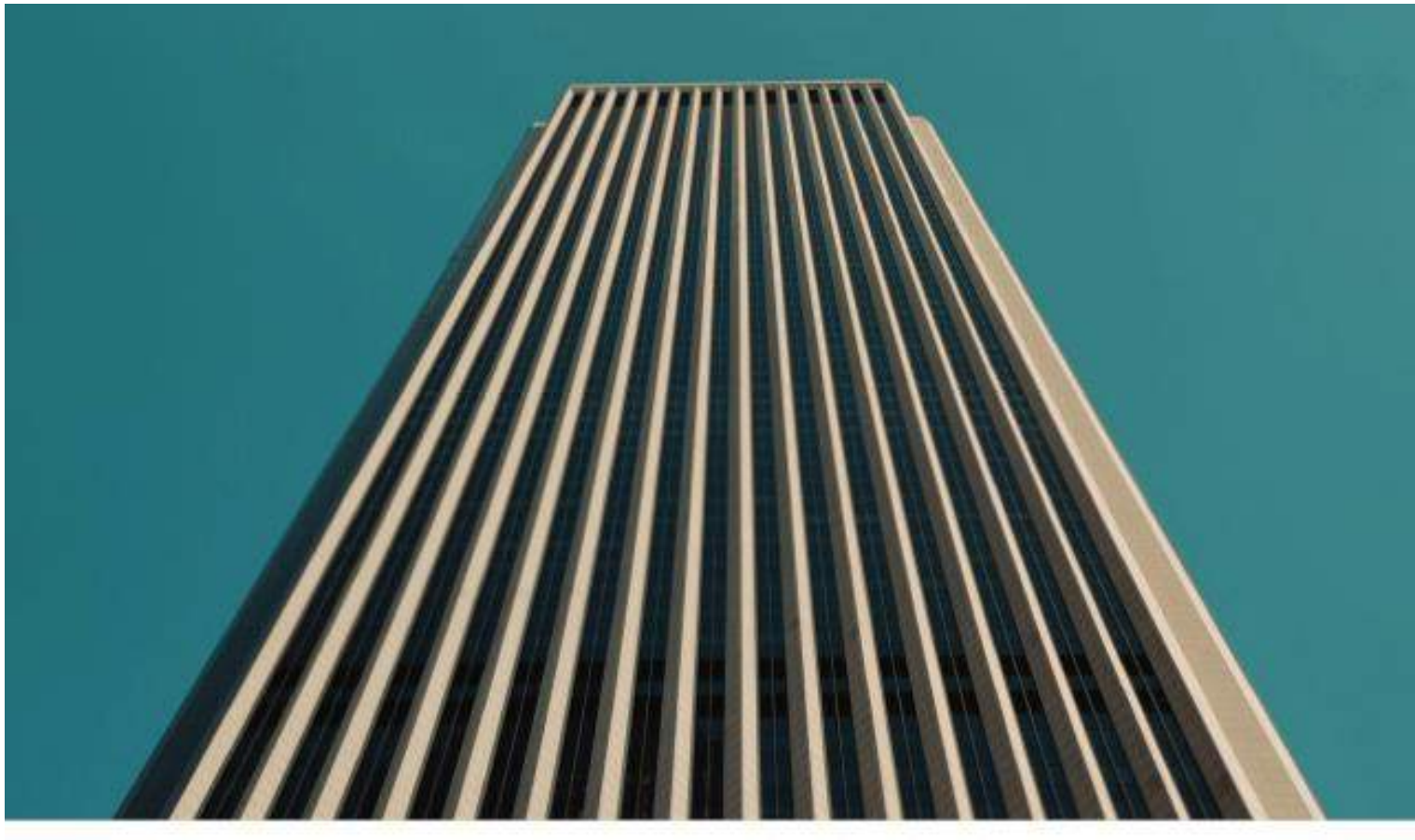
R-1 – R-2

EXISTING IGU

PROJECTED VIG WINDOW R-VALUE

R-3 – R-4

SINGLE PANE VACUUM INSULATED GLASS (VIG)



Images courtesy of LuxWall

FIBERGLASS WINDOWS + VIG

CURRENT FIBERGLASS R-VALUE

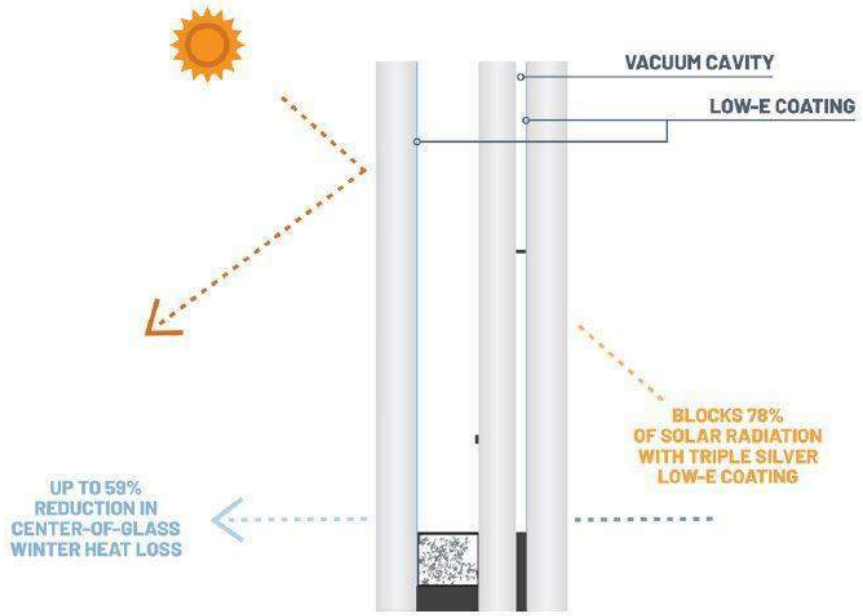
R-7.1

STANDARD TRIPLE GLAZED IGU

PROJECTED FIBERGLASS R-VALUE

R-11

VACUUM INSULATED GLASS (VIG) UNIT





Images courtesy of LuxWall



A WINDOW INTO DESIGN FLEXIBILITY

BEYOND THE FRAME:
How High-Performance Fenestration Expands Design Possibility

Portland State University - Vanport Building
Portland, OR

ART RUTKIN ELEMENTARY SCHOOL

Tigard, OR



ENGINEER/DESIGNER
Bora Architecture

CONTRACTOR
P&C Construction

OWNER
Tigard-Tualatin School District

Images courtesy of Cascadia Windows & Doors

ART RUTKIN ELEMENTARY SCHOOL





Images courtesy of Cascadia Windows & Doors

ART RUTKIN ELEMENTARY SCHOOL

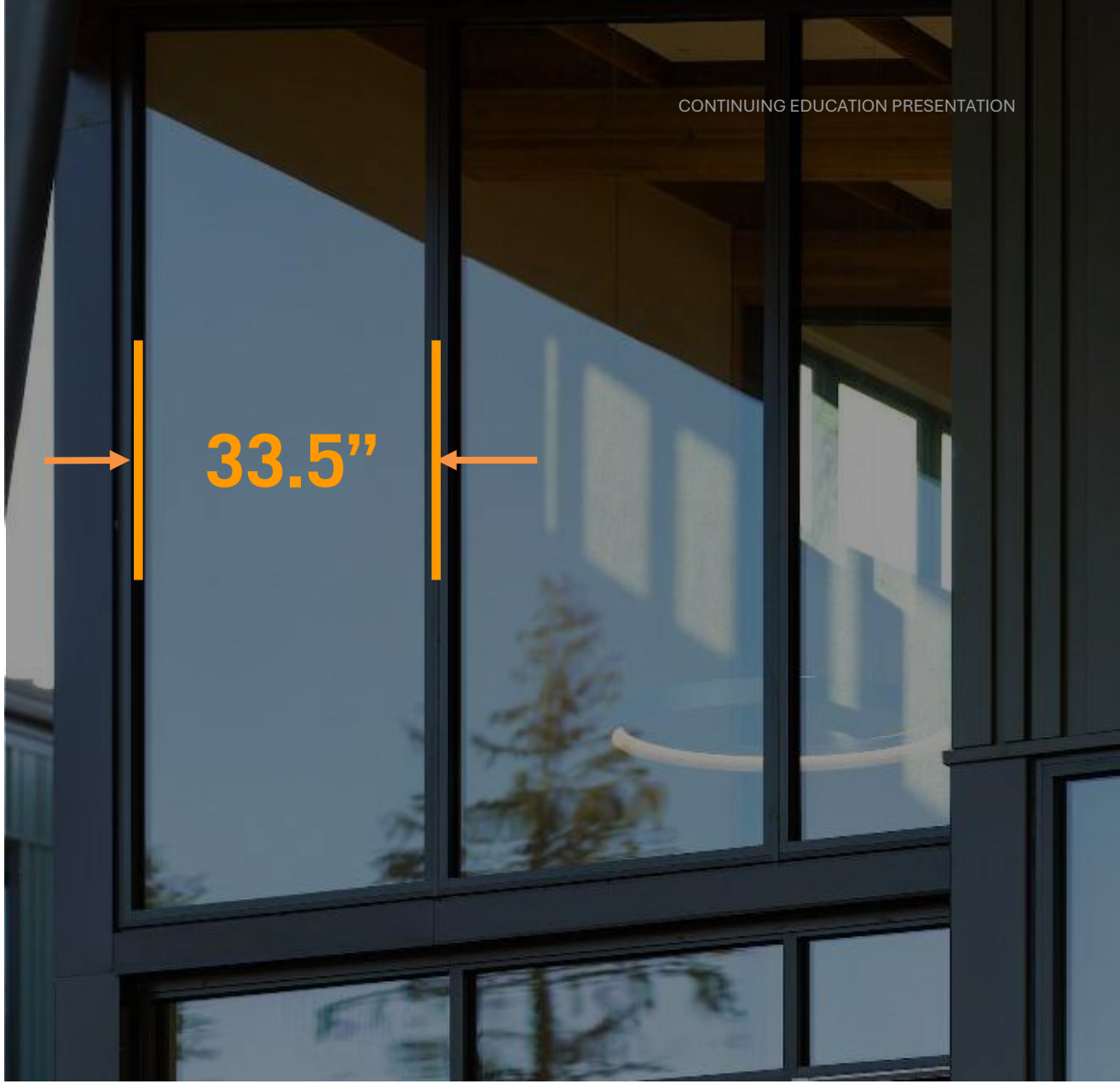




Images courtesy of Cascadia Windows & Doors

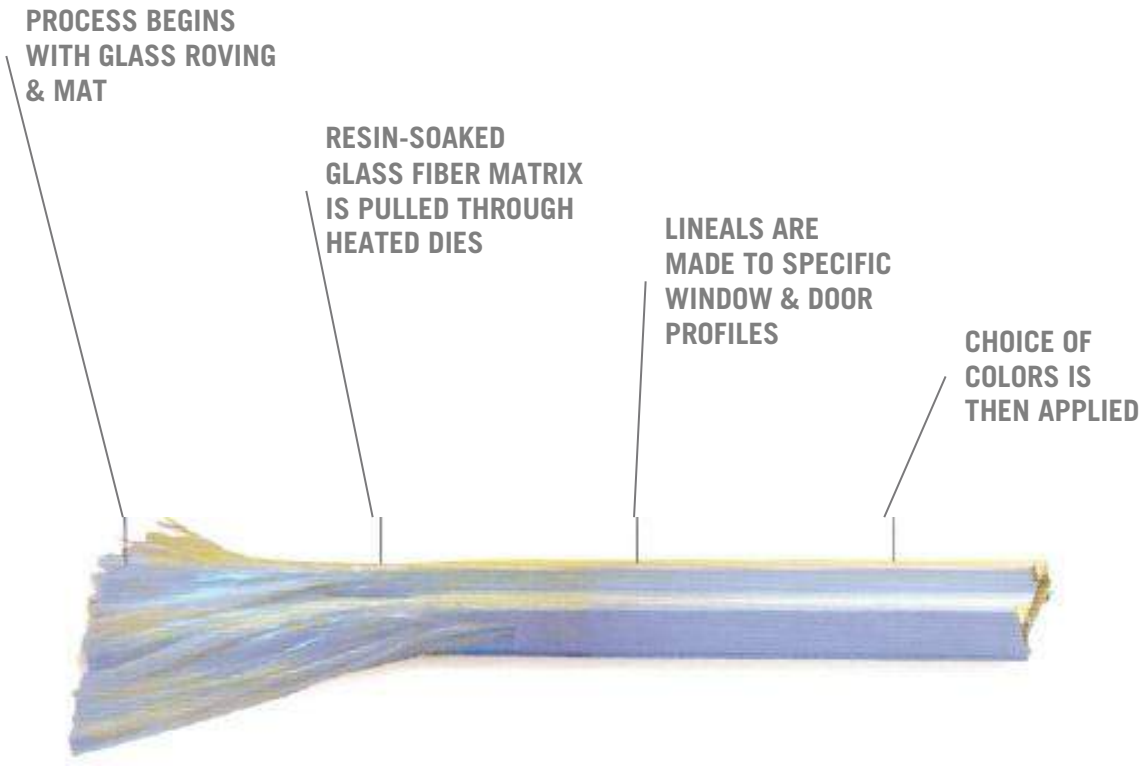
ART RUTKIN ELEMENTARY SCHOOL

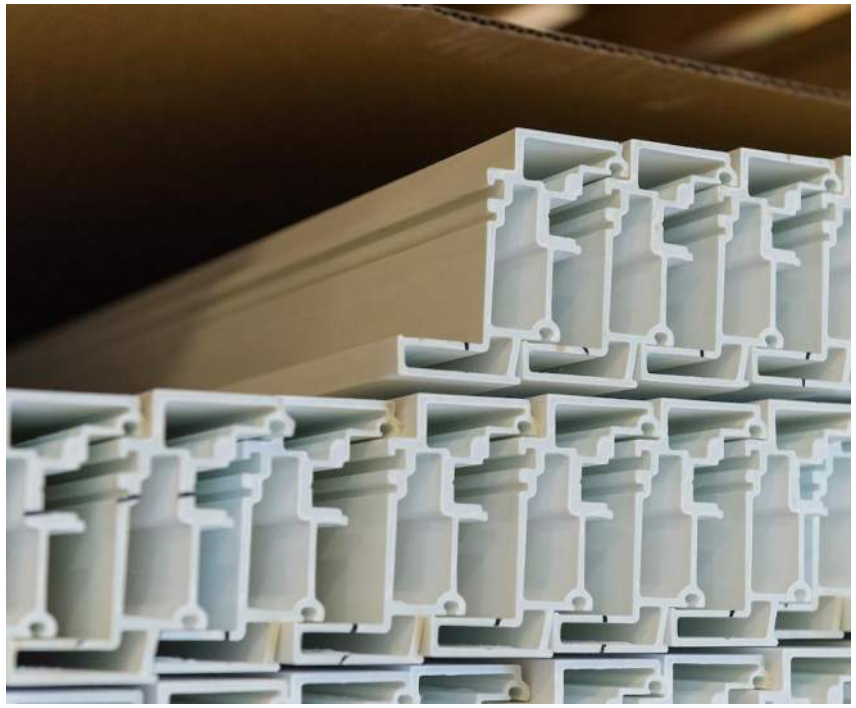




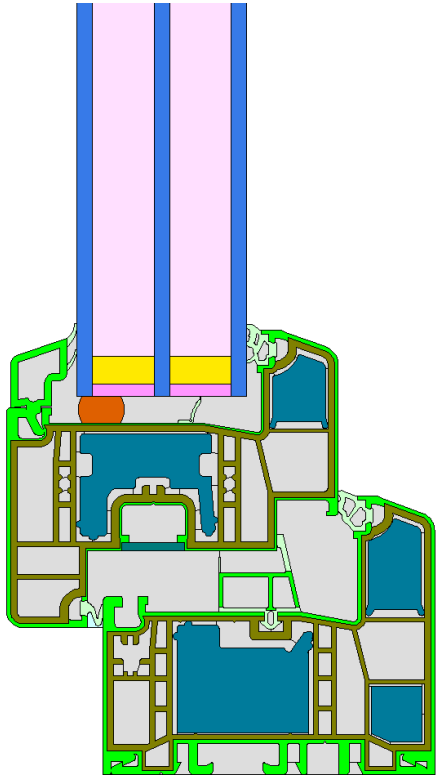
Images courtesy of Cascadia Windows & Doors

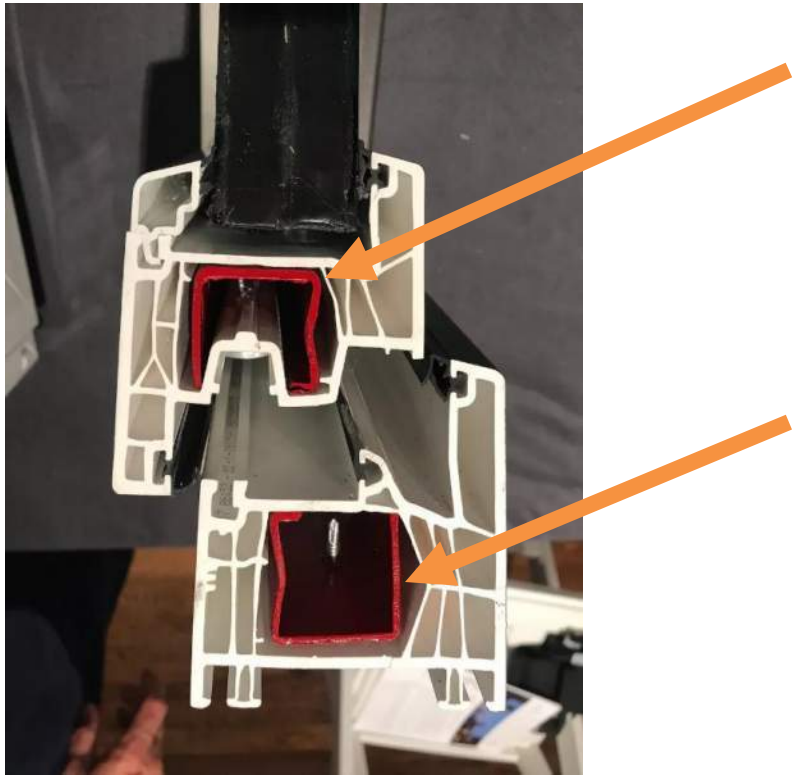
MANUFACTURING PROCESS





VINYL WINDOW – INTERNAL STEEL REINFORCING





PACIFIC PROMENADE ENVELOPE REHABILITATION

Vancouver, BC

ENGINEER/DESIGNER
Sense Engineering

CONTRACTOR
DuraSeal

OWNER
Strata



Images courtesy of Cascadia Windows & Doors

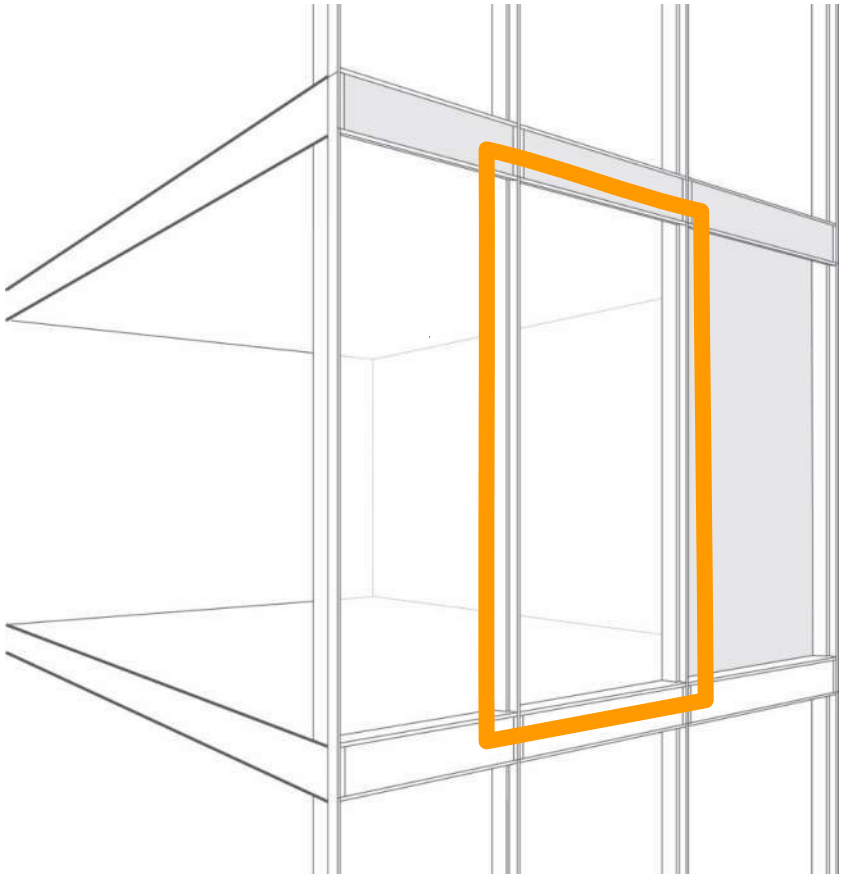
PACIFIC PROMENADE





Images courtesy of Cascadia Windows & Doors

WINDOW WALL



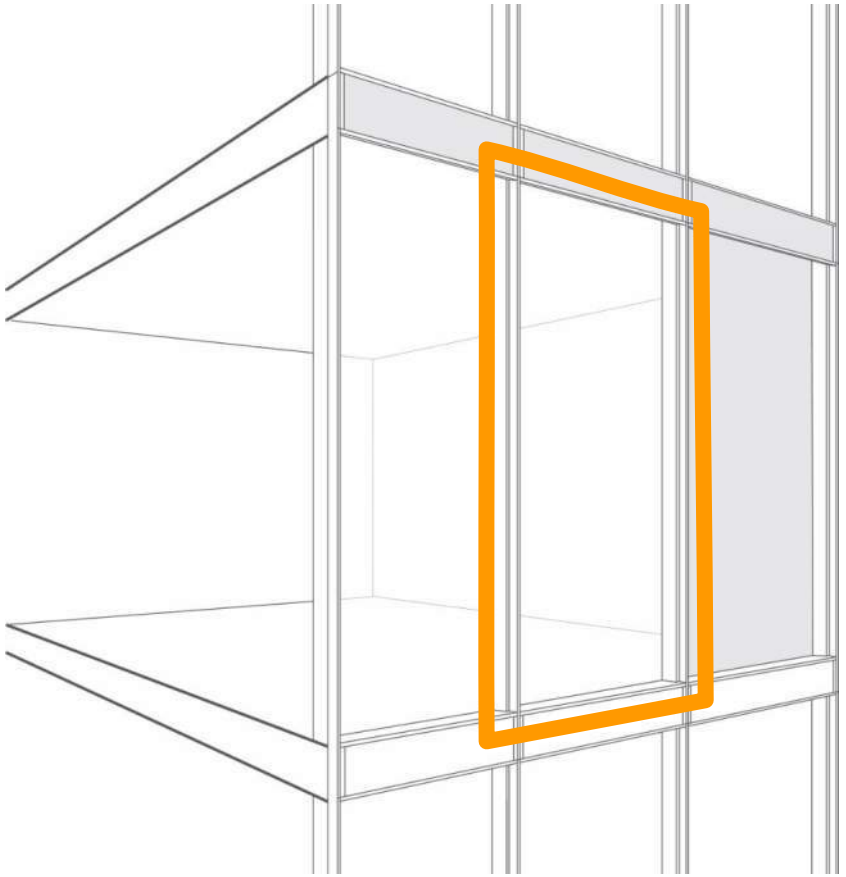
VISION GLASS

R-4.1

0.24 Btu/h·ft²·F | 1.36 W/m²·K

DOUBLE-GLAZED HIGH-PERFORMANCE FIBERGLASS FRAME

WINDOW WALL



VISION GLASS

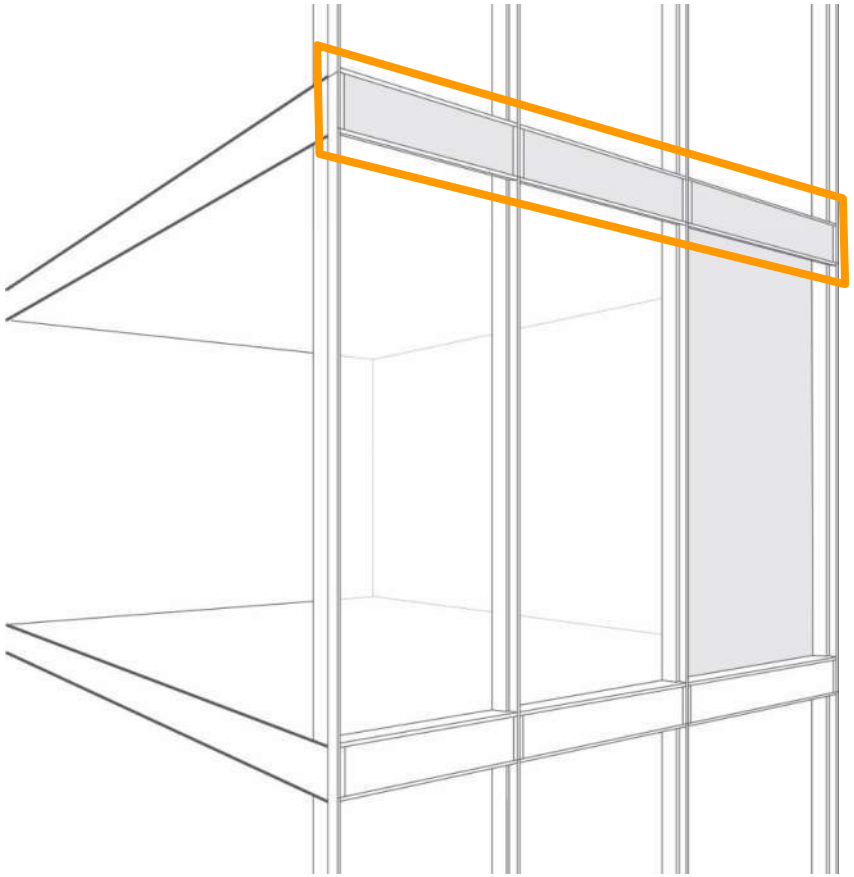
R-7.1

STANDARD TRIPLE GLAZING

R-7.7

PREMIUM TRIPLE GLAZING

WINDOW WALL

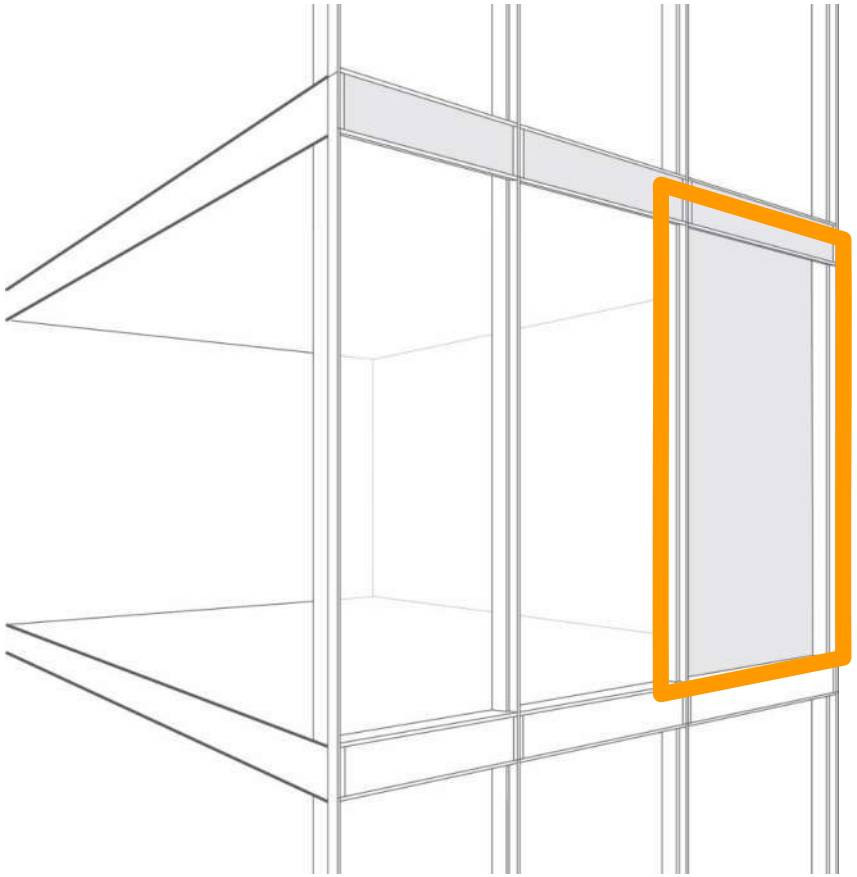


OPAQUE AREAS

R-8.1

SLAB BYPASS

WINDOW WALL



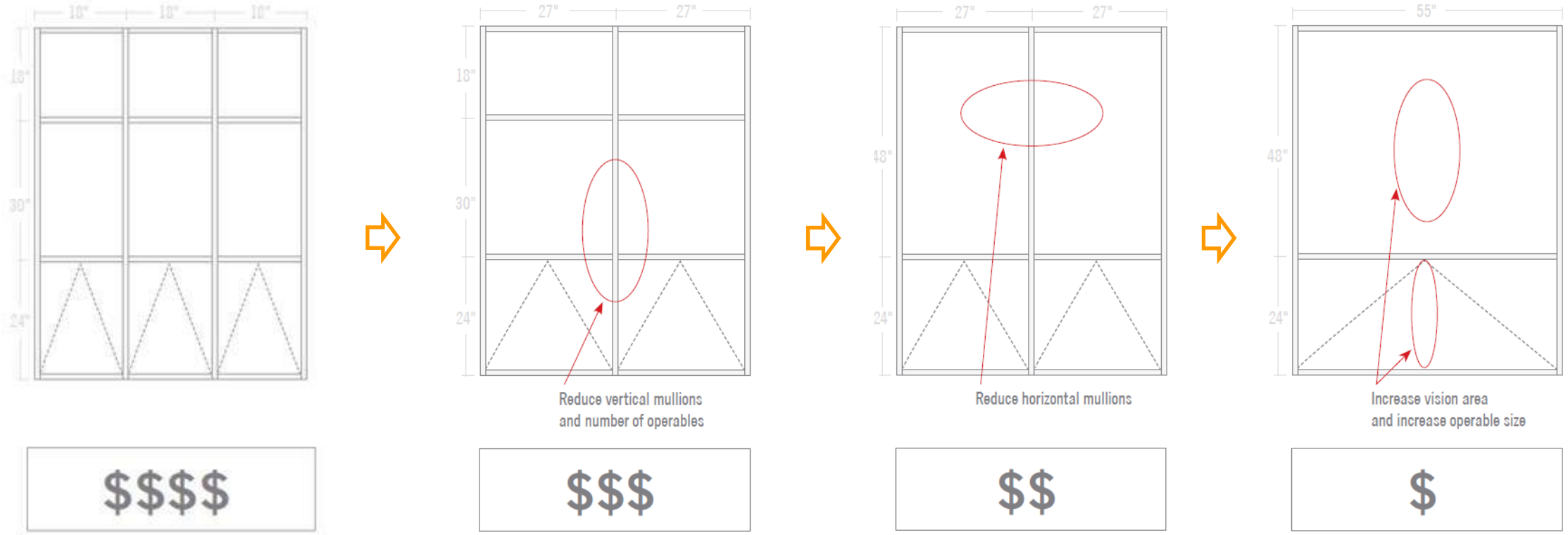
OPAQUE AREAS

R-16.2

METAL BACKPAN

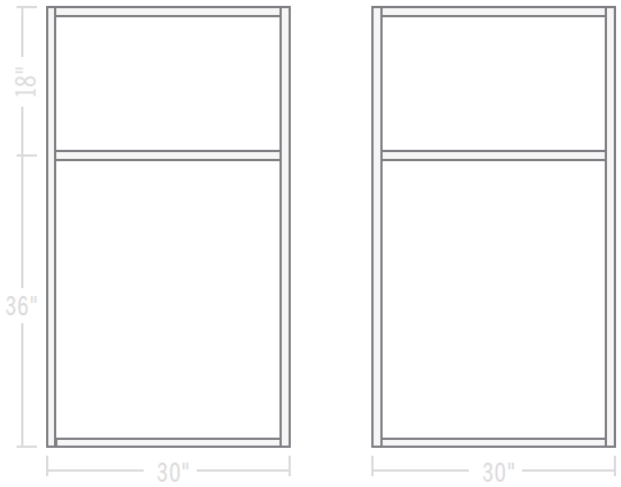
OPTIMIZING WINDOWS

Reduce Mullions

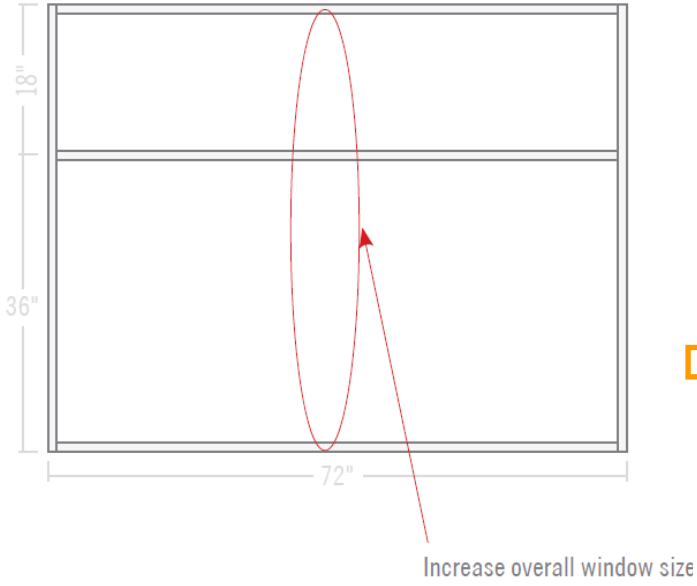


OPTIMIZING WINDOWS

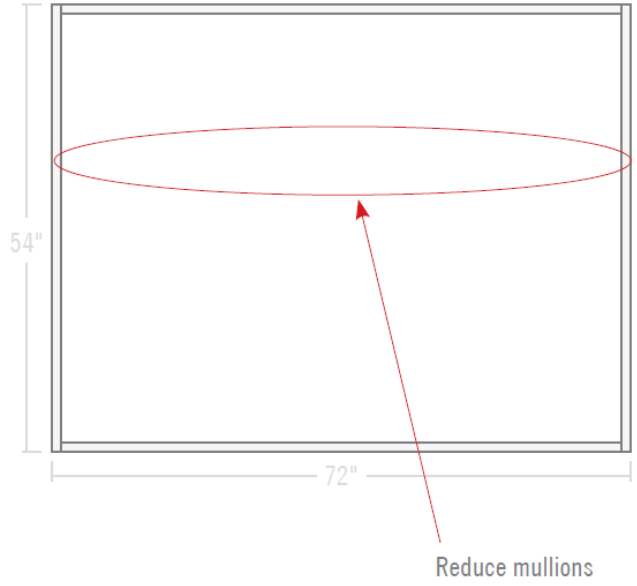
Increase Window Size



$$$$ / FT²



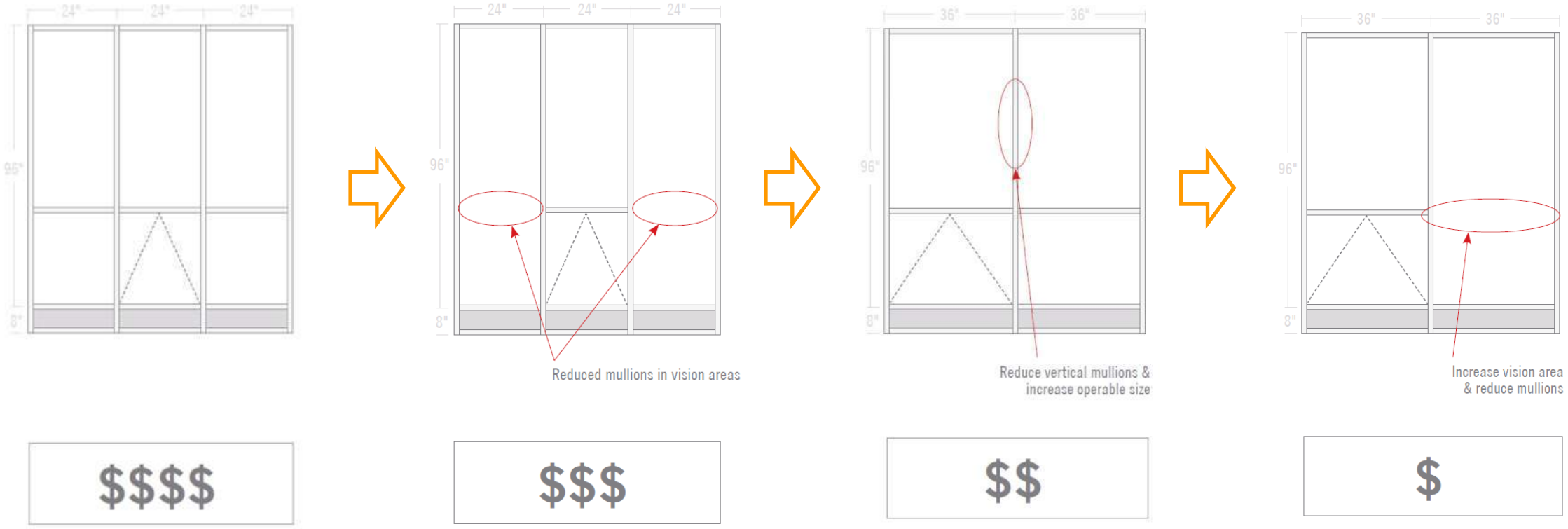
$$$ / FT²



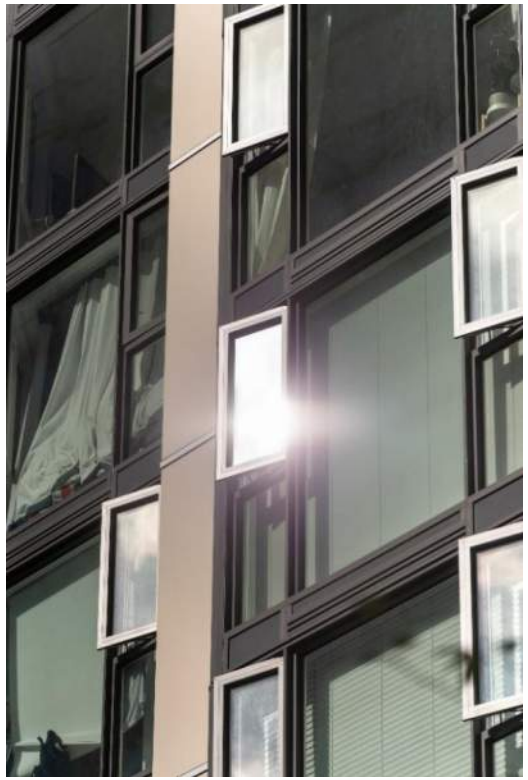
$$ / FT²

OPTIMIZING WINDOWS

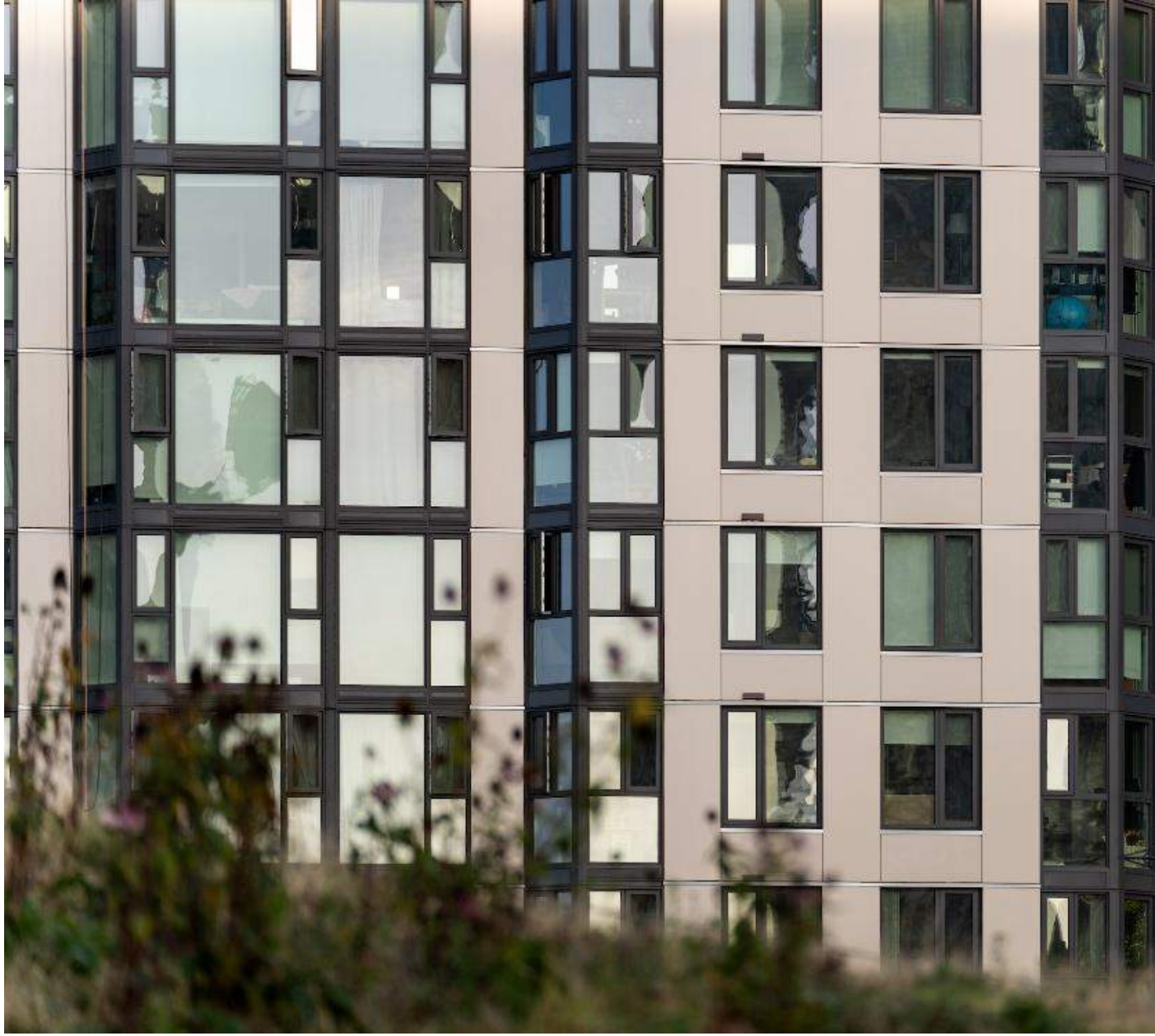
Window Wall



PACIFIC PROMENADE







Images courtesy of Cascadia Windows & Doors

PACIFIC PROMENADE

INSURANCE DISCOUNT OFFERED FOR EXTENSIVE WATER TESTING

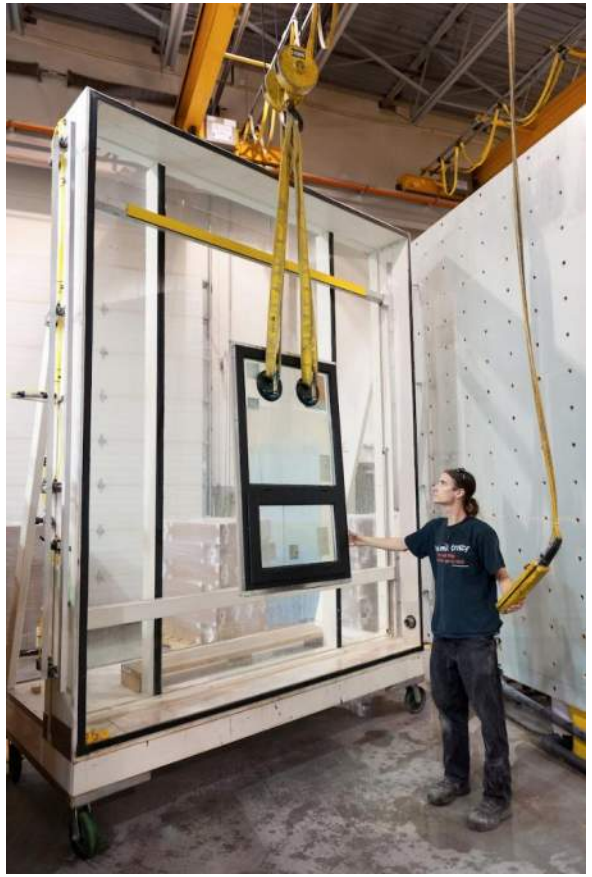
7
ONSITE WATER TESTS COMPLETED

≈20
PRODUCTS TESTED

PASSED

PACIFIC PROMENADE





WHAT IS COMMERCIAL GRADE?

- Large format (full height)
- Withstand high +/- pressure loads with low air leakage
- Withstand wind driven rain with no water leaks
- Withstand extreme temperature ranges (resist condensation)
- Withstand building movement, large deflections during service life as well as seismic event
- Extreme hardware durability
- Suitable for non-combustible projects
- **All of this and maintain air and water tightness, operability and thermal performance!**



Images courtesy of Cascadia Windows & Doors

THESIS HEAD OFFICE

Portland, OR

ARCHITECT
Lever Architecture

CONTRACTOR
Swinerton

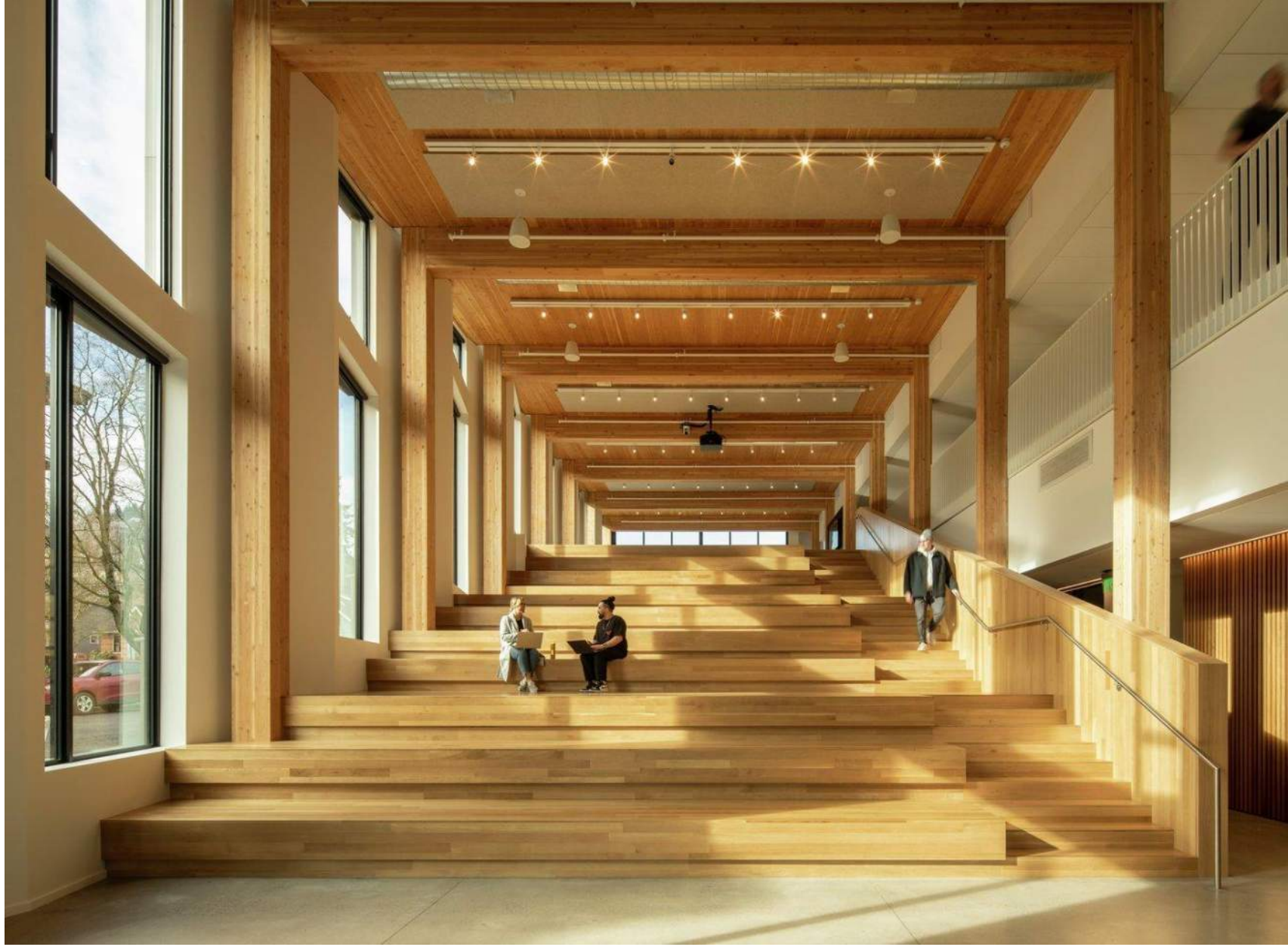
OWNER
Thesis



Images courtesy of Cascadia Windows & Doors

THESIS HEAD OFFICE



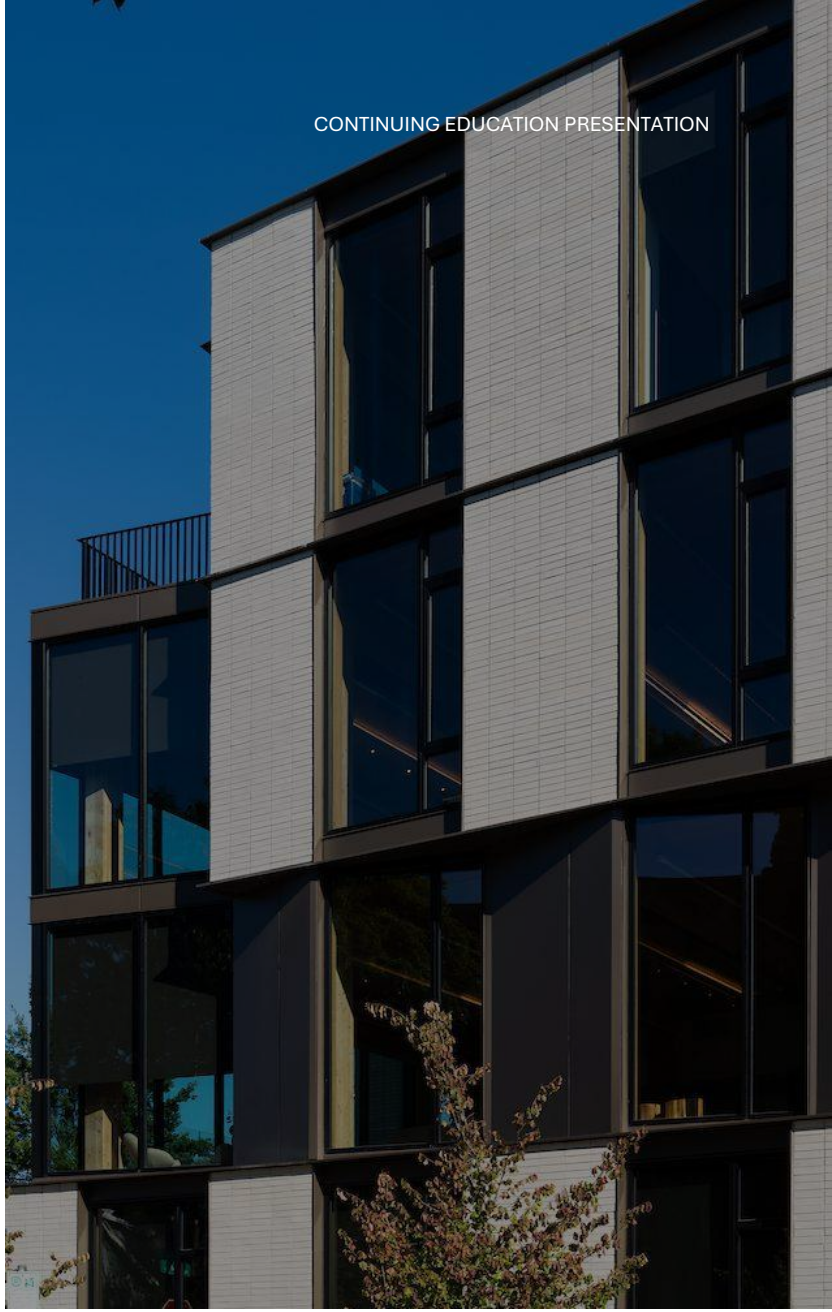


Images courtesy of Lever Architecture

THESIS HEAD OFFICE







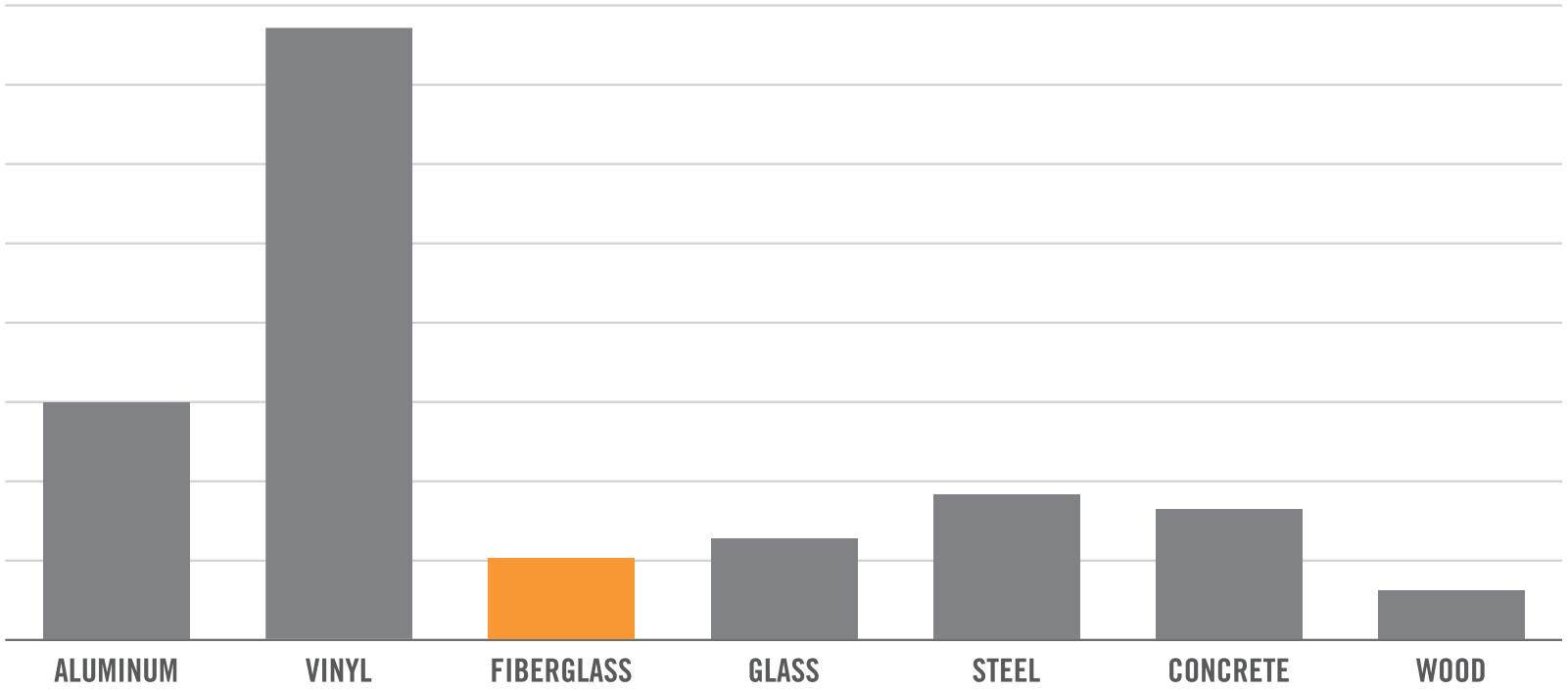
Images courtesy of Cascadia Windows & Doors

THESIS HEAD OFFICE



Images courtesy of Cascadia Windows & Doors

LONGEVITY & DURABILITY



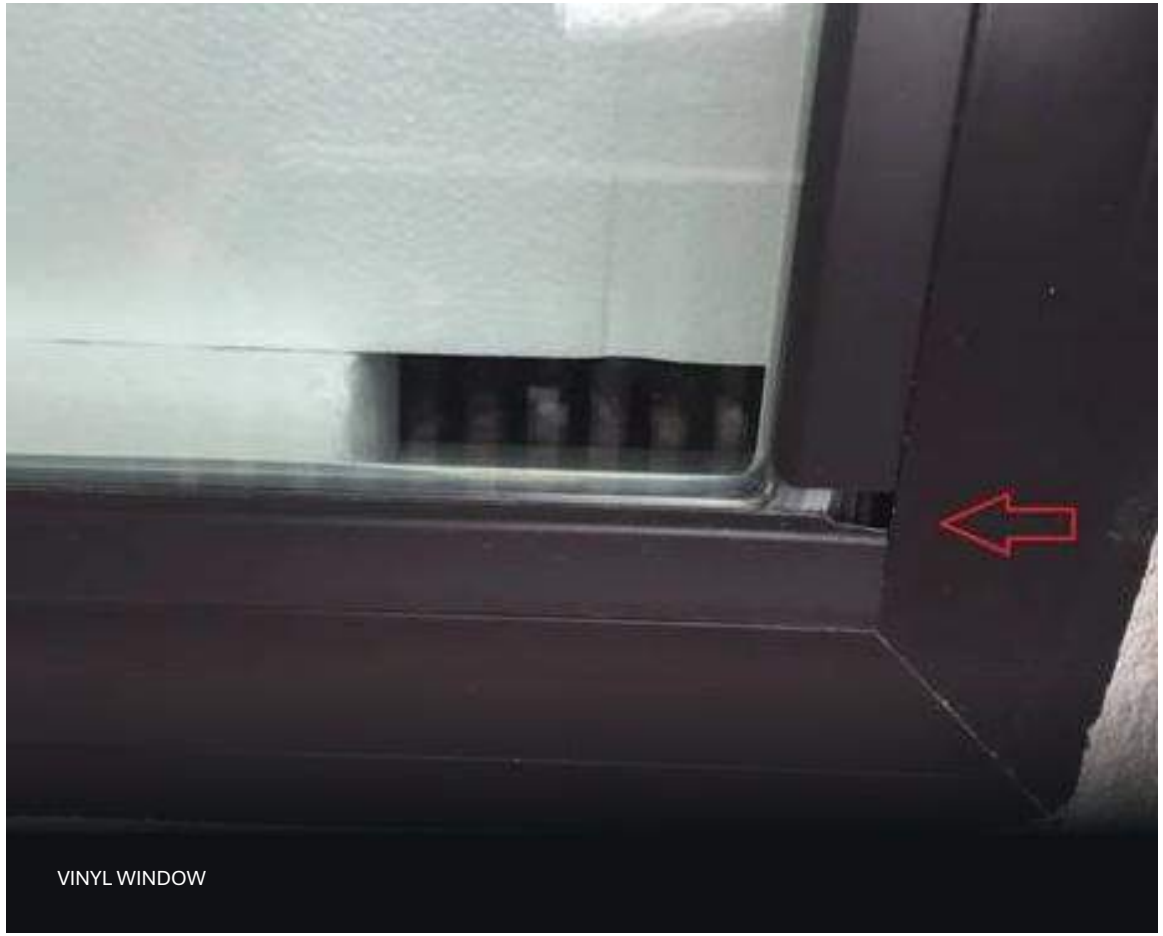
COEFFICIENT OF THERMAL EXPANSION

POOR LONGEVITY & DURABILITY

ABOVE ≈160ºF DARK VINYL CAN PLASTICIZE

(DIRECT SUNLIGHT + AMBIENT TEMPERATURE)

PERMANENT DEFORMATION



VINYL WINDOW



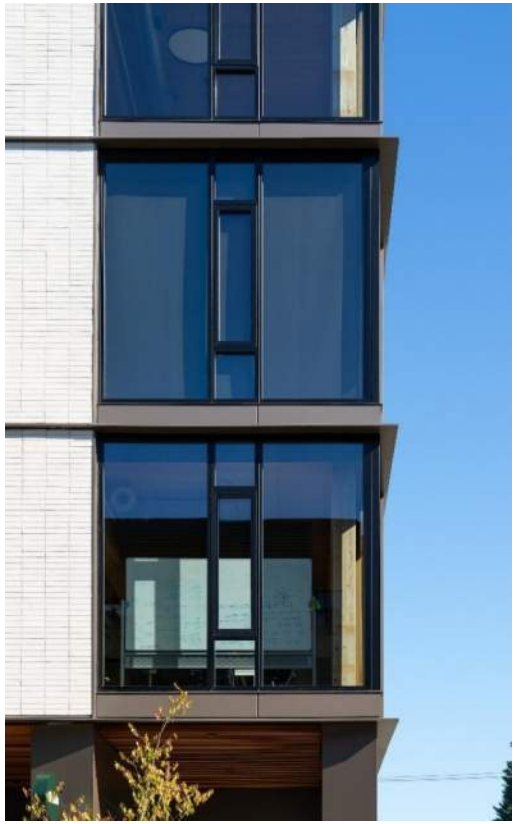
IMPACTS OF SHORT LIFESPANS

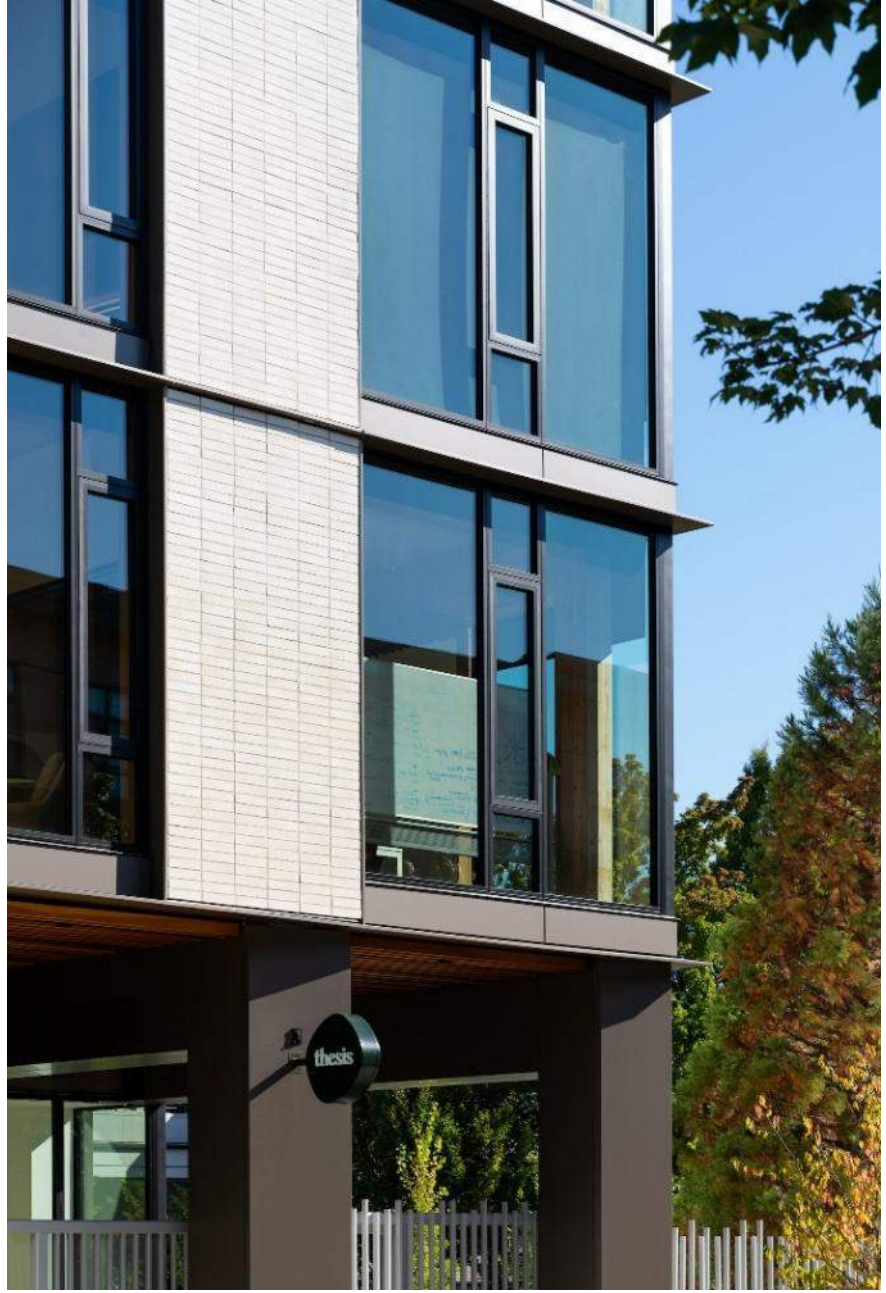


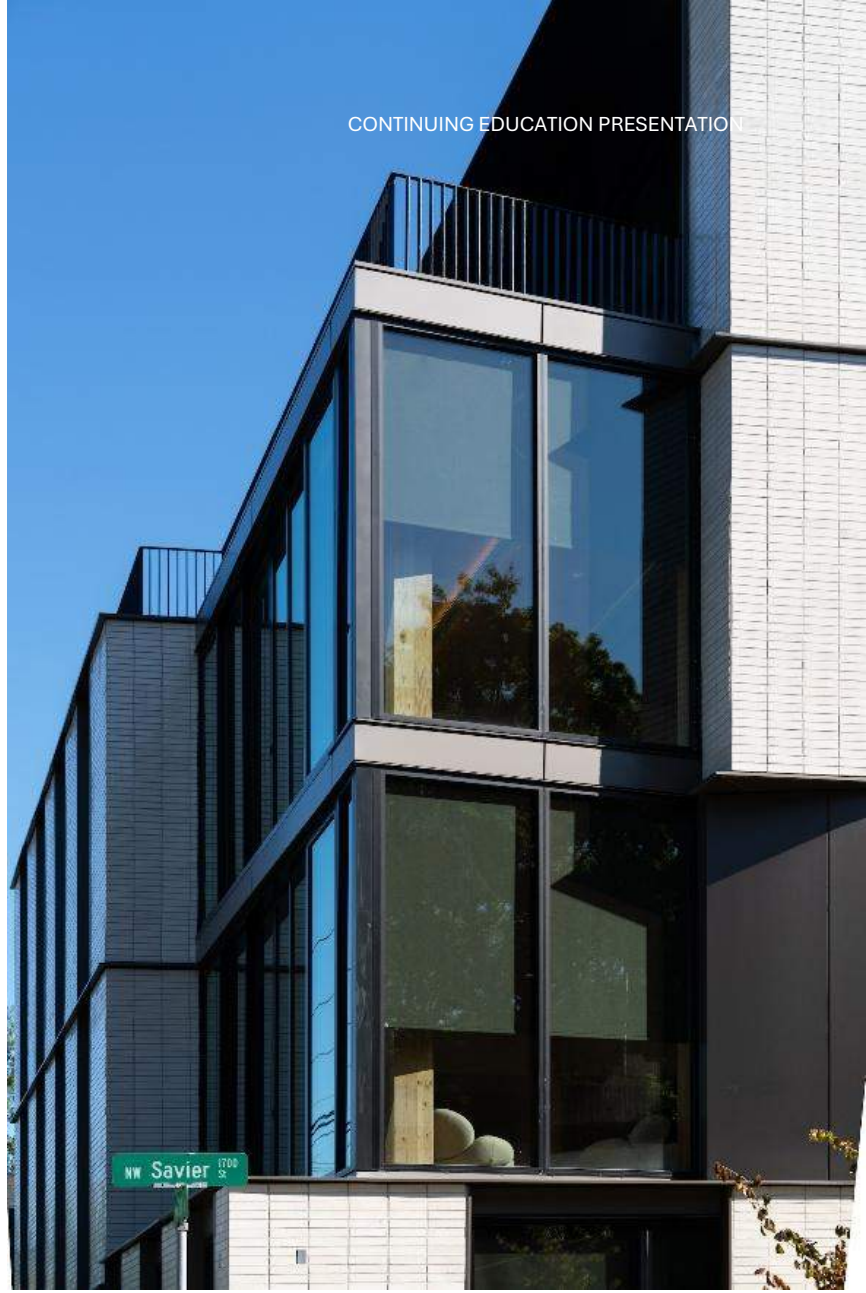




THESIS HEAD OFFICE



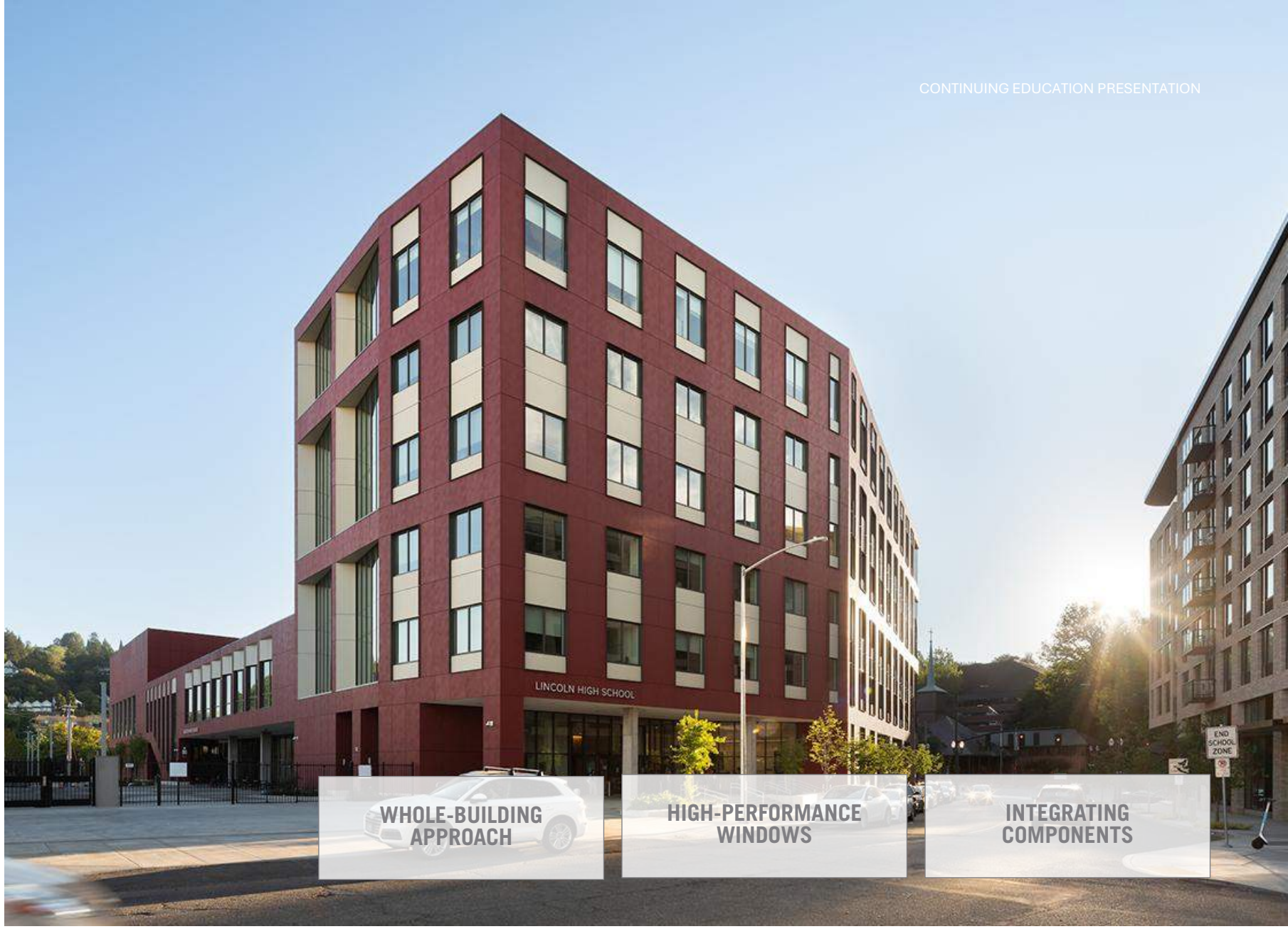




Images courtesy of Cascadia Windows & Doors

LINCOLN HIGH SCHOOL

Portland, OR



ARCHITECT
Bora Architects

CONTRACTOR
Hoffman Construction

OWNER
Lincoln High School

Images courtesy of Cascadia Windows & Doors

LINCOLN HIGH SCHOOL





Images courtesy of Cascadia Windows & Doors

LINCOLN HIGH SCHOOL





Images courtesy of Cascadia Windows & Doors

FRAME TYPES - LIFESPAN

VINYL / UPVC



PHOTO CREDIT: EUROLINE WINDOWS

ALUMINUM



PHOTO CREDIT: GLO EUROPEAN WINDOWS

FIBERGLASS



PHOTO CREDIT: CASCADIA WINDOWS & DOORS

FRAME TYPES - LIFESPAN

VINYL / UPVC



10-30
YEARS

APPLICATIONS
Residential
Multi-Family

PHOTO CREDIT: EUROLINE WINDOWS

ALUMINUM



30-45
YEARS

APPLICATIONS
Residential
Multi-Family
Commercial
High-Rise

PHOTO CREDIT: GLO EUROPEAN WINDOWS

FIBERGLASS

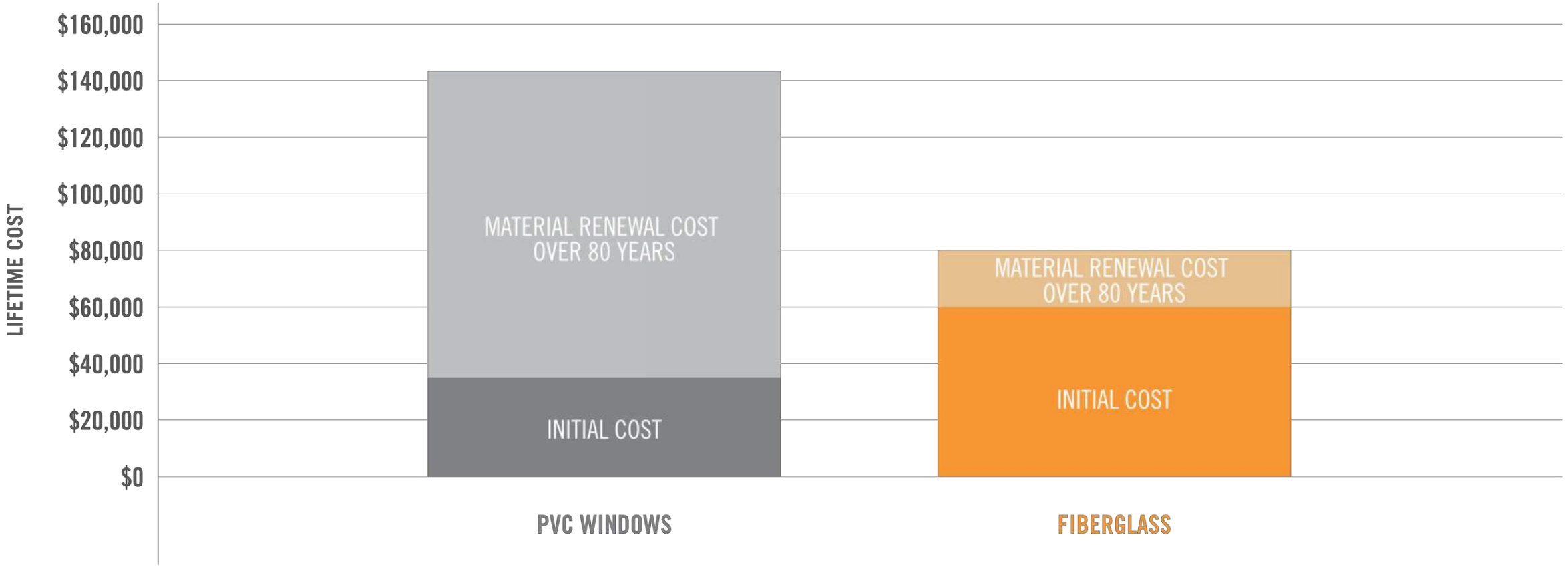


50-80
YEARS

APPLICATIONS
Residential
Multi-Family
Commercial
High-Rise

PHOTO CREDIT: CASCADIA WINDOWS & DOORS

FRAME TYPES - LIFESPAN

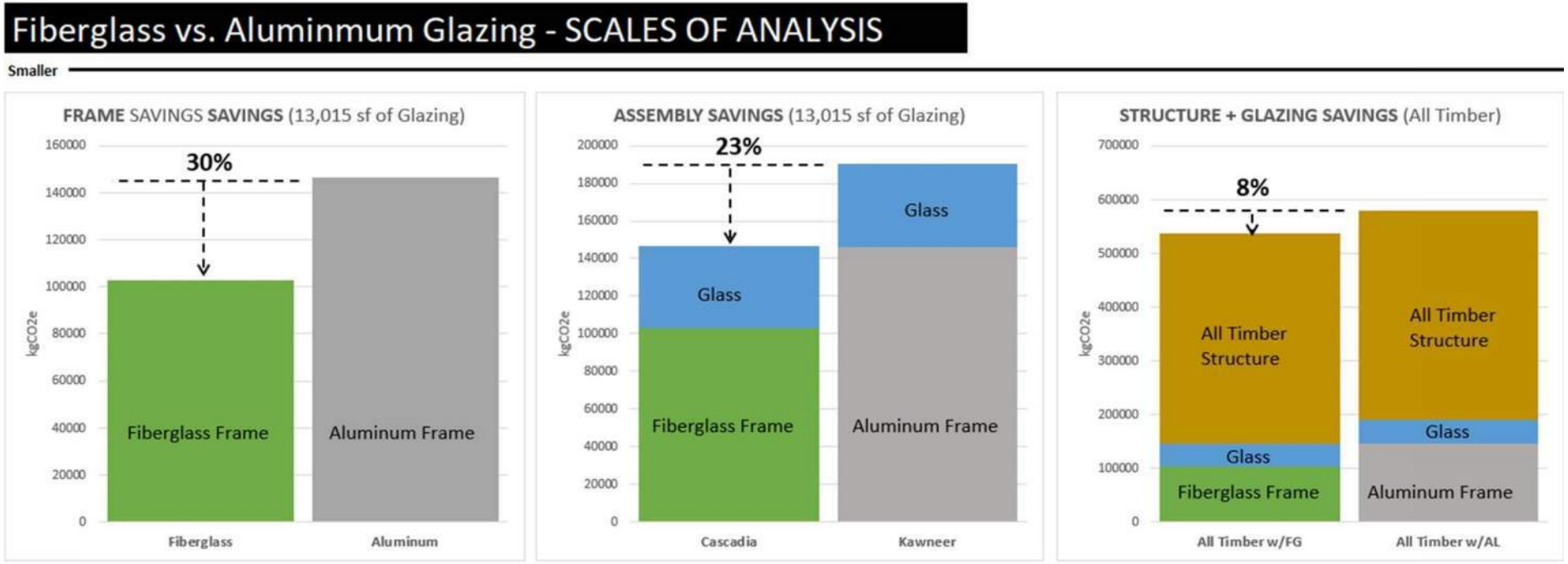


LIFECYCLE COMPARISON



VITALMETRICS (IERS LLC.)

CALCULATING EMBODIED CARBON



Key assumptions:

Fiberglass data based on study: "Research on the impacts of Innovative Fenestration Materials on the Embodied and Operating Carbon of Buildings." PDF link: https://sustain.ubc.ca/sites/default/files/2022-018_Research%20on%20the%20impacts%20of%20Innovative%20Fenestration%20Materials_Zargar.pdf

Aluminum frame based on Kawneer Fixed & Ribbon Aluminum Windows EPD. This is in liue of comparing against Kawneer storefront product EPD --- this EPD better matched up with the window size and frame ratio from the Cascadia study - EPD link:

All-Timber Structure and Hybrid Timber Structure cases from KPFF study sent on 10/5. Athena LCA study, Cradle to Grave, structure only, includes biogenic carbon

Glazing comparisons are Cradle to Gate, A1-A3 only with no replacement cycles

Images courtesy - Confidential

IMPORTANT FACTORS ABOUT EPD DATA

ASK FOR DATA

Embodied carbon data is becoming a key performance metric informing product selection.

CHECK THE PCR

Different manufacturers used different Product Category Rules (PCR) (i.e. declared units, ISO standards, etc).

CHECK THE DATE

Environmental Product Declarations (EPDs) are valid for 5-years, then must be renewed.

CONFIRM STAGE

Different manufacturers use different Lifecycle Stages for Environmental Product Declarations (EPDs).

LINCOLN HIGH SCHOOL







Images courtesy of Cascadia Windows & Doors

CHIPPENDALE ROAD

West Vancouver, BC



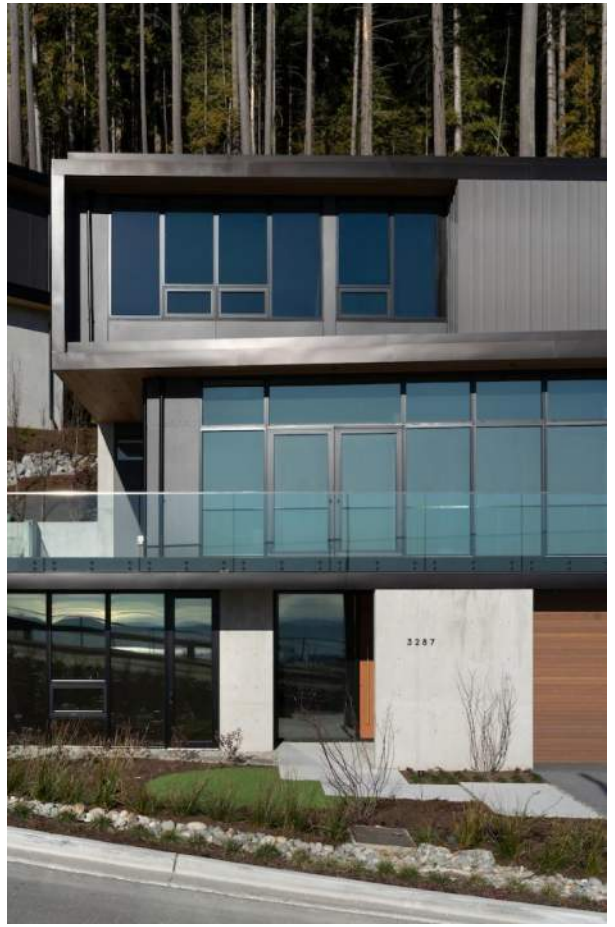
ARCHITECT
BattersbyHowat Architects

CONTRACTOR
Beedie

Images courtesy of Cascadia Windows & Doors

CHIPPENDALE ROAD







Images courtesy of Cascadia Windows & Doors

CHIPPENDALE ROAD



Images courtesy of Cascadia Windows & Doors

CHIPPENDALE ROAD





Images courtesy of Cascadia Windows & Doors

CHIPPENDALE ROAD





Images courtesy of Cascadia Windows & Doors

WINDOW FRAMES

	STRENGTH	THERMAL PERFORMANCE	LONGEVITY	LOW CARBON IMPACT	WILDFIRE RESISTANCE
ALUMINUM	✓	✗	✓	✗	✓
VINYL / PVC	✗	✓	✗	✗	✗
FIBERGLASS	✓	✓	✓	✓	✓







BEYOND THE FRAME:
How High-Performance Fenestration Expands Design Possibility

Images courtesy of Cascadia Windows & Doors



KEY TAKEAWAYS

BEYOND THE FRAME:
How High-Performance Fenestration Expands Design Possibility

Art Rutkin Elementary School
Tigard, OR

KEY TAKEAWAYS

WINDOWS HAVE HUGE IMPACT

Type + Location + Installation

Often the weakest link in a building's envelope, a little extra attention on windows can have large overall impact

LONGEVITY & DURABILITY DRIVES VALUE

Service Life + Material Choice

Window performance isn't just about energy—it's about how long the system lasts. Material selection directly determines replacement cycles, risk, and long-term building performance.

BUILDING-LIFE THINKING CHANGES OUTCOMES

60+ Years vs Year 1

Designing for a 60-year building life means evaluating window systems beyond installation, factoring in replacement cycles and operating costs upfront, as short-term savings often lead to higher renewal costs, risk, and disruption.

CASCADIA WINDOWS & DOORS



QUESTIONS?

CONTACT AMBER MENGEDE – TECHNICAL BUSINESS DEVELOPMENT MANAGER

- Email: amengede@cascadiawindows.com
- Cell: 604-785-9615

BUILDING CODE UPDATE PAVES THE WAY FOR BETTER BUILDINGS

2020 NBC (PUBLISHED MARCH 2022) UPDATED SECTION 3.1.5.4.(5)

- Enables the use of more energy-efficient windows in the Canadian construction industry

BEFORE UPDATE – 3.1.5.4.(5):

- Each window in an exterior wall face is an individual unit separated by noncombustible wall construction from every other opening in the wall
- Windows in exterior wall in contiguous stories are separated by not less than 1M of noncombustible construction
- The aggregate area of openings in an exterior wall face of a fire compartment is not more than 40% of the area of the wall face

AFTER UPDATE – 3.1.5.4.(5):

- Combustible window sashes and frames are permitted in a building required to be of noncombustible construction, provided they are vertically non-contiguous between storeys.

NBC 2020 NOW ADOPTED IN MANY PROVINCES ACROSS CANADA.

