

# Architectural Guide







**RESIDENTIAL PROJECT**

John Duerksen Architecture, Creative Spaces, Click Pro

Series 458 Fixed with Custom Mullions in Black with Cardinal Triple Pane  
272/180 Argon and Narrow Perimeter



# Why Fiberglass?

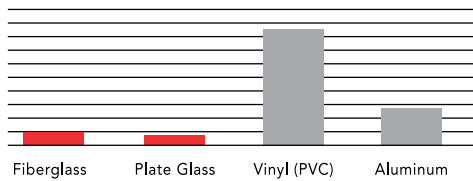


## The glass on glass advantage

Pultruded fiberglass is an engineered material that is created through a process where strands of glass and glass matting are pulled through a heated die. The glass is bonded with resin as it passes through a die at extremely high temperatures. The result is a very strong, stable, insulating material well-suited to windows and doors. Fiberglass lineals are painted with an architectural coating to add any colour to the finished product.

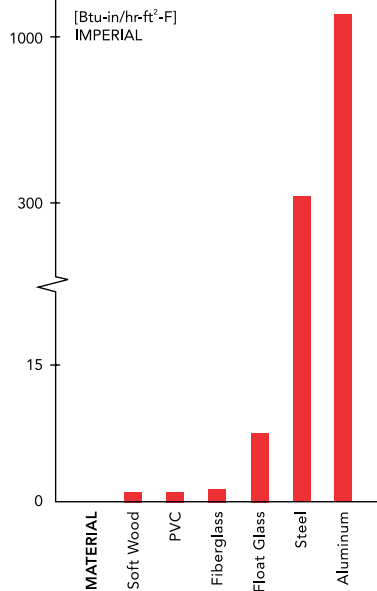
### The Difference: Expansion & Contraction Rates

Chart shows comparative expansion and contraction rates of materials as compared to glass



Expansion values in In/In/F  
Values shown are expected industry values

### Conductivity Comparison





## Consider the advantages of Pultruded Fiberglass

### Stability

Pultruded fiberglass has a very low rate of expansion and contraction, especially in comparison to vinyl, or PVC (polyvinyl chloride). A more stable frame material maintains the seal through seasonal temperature fluctuations, due to the reduced relative movement between the frame and the glass.

### Environmental considerations

Fiberglass features the lowest embodied energy (low energy consumption in lineal production) particularly when compared to aluminum, which is extremely energy intensive. Fiberglass also provides one of the longest estimated life expectancies compared to other alternatives.

### Strength

A well-engineered fiberglass window demonstrates vastly superior strength characteristics when compared to other windows, like PVC. Fiberglass supports large insulating glass units, allowing you to create a stunning wall of glass.

### Energy efficiency

Pultruded fiberglass materials have MUCH lower conductivity than materials such as aluminum. Insulated frame and sash components reduce the conductivity, allowing for the creation of some of the most energy efficient details in the world.

### Low maintenance

Fiberglass is an extremely stable material that does not rot or require regular maintenance like wood.

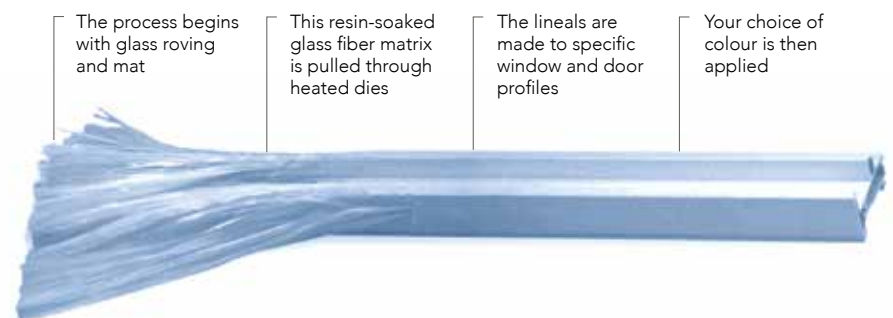
### Any colour, inside and out

Architectural coatings (AAMA 623 and 624, with 625 in development) can be applied on the interior and exterior.

### Durability

Fiberglass is an extremely stable material predicted to last about 40% longer\* than PVC windows.

*\*Study from the University of British Columbia, "Life cycle assessment case study of North American residential windows" by James Salazar.*



# FiberWall™ Series

FiberWall™ was created in response to the design requirements of architects and engineers. They wanted bigger assemblies, and better thermal performance.

FiberWall™ has 3 different standard frame depths:

- Series 328 (3 1/4")
- Series 458 (4 5/8")
- Series 658 (6 5/8")

These assemblies can be easily mullered together, and easily reinforced where necessary. Series 328 is used in punched openings, while Series 658 can be used as a substitute for curtain wall, up to about 20' in height when appropriately engineered. Regardless of series, they always look the same from the exterior and interior view; the only change is the depth.

RESIDENTIAL PROJECT  
EDMONTON, AB

Series 658 Fixed in Silver Mist with  
Cardinal Triple Pane 366/180 Argon  
and Narrow Perimeter

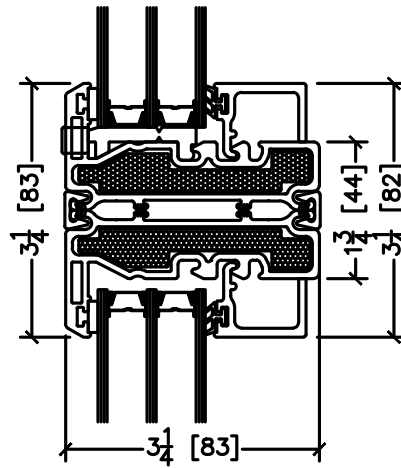
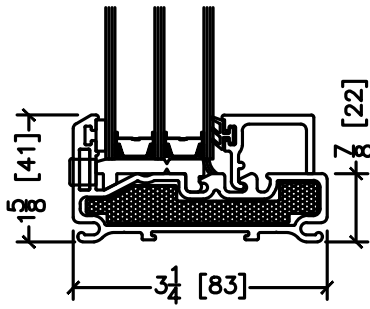
**Greater depth = Larger sizes**

**Greater depth = Higher wind loading capabilities**



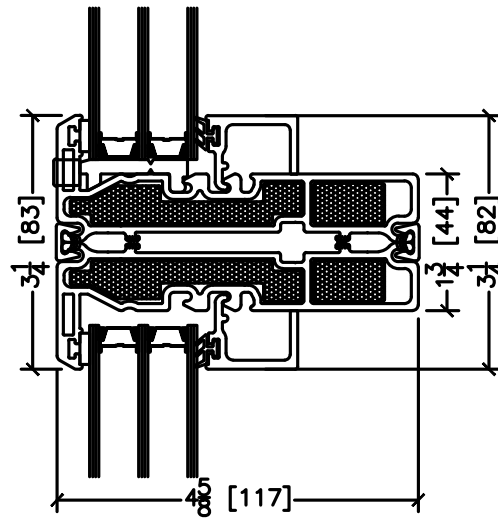
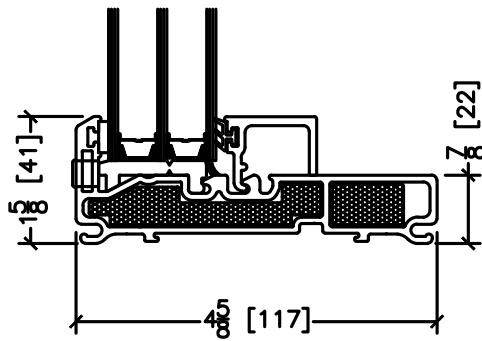
# Series 328

[PDF ↗](#) [DWG ↗](#)



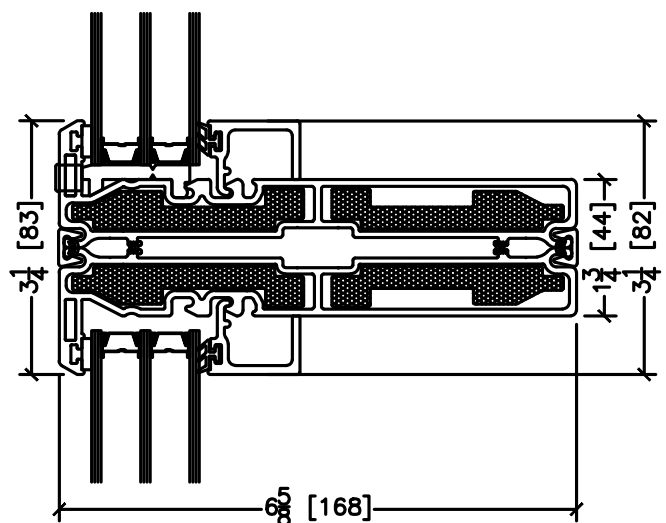
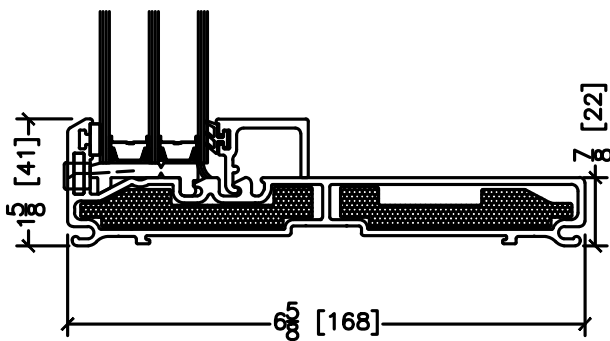
# Series 458

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# Series 658

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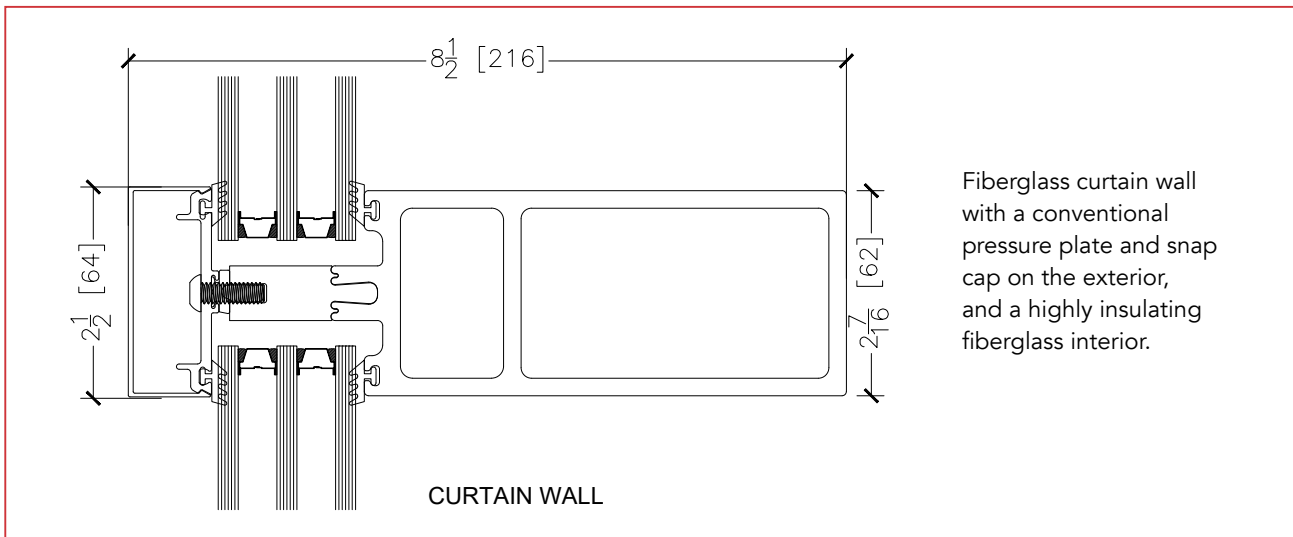


# Fiberglass Curtain Wall

Just like a conventional aluminum curtain wall, but made in the best possible framing material: fiberglass!

The curtain wall system offers the ability to glaze from the exterior with pressure plates and snap caps, and span multiple stories in low-rise applications. Options include spandrel panels and integrated fiberglass casements, awnings, and residential doors, in any of our standard colours. Achieve overall u-values as low as 0.95 W/m<sup>2</sup>K.

*Only available in select markets for single-family homes or small commercial applications. Only available in triple pane glazing.*







**RESIDENTIAL PROJECT**

Sector Architecture + Design Ltd.,  
Harris Builders

Fiberglass Curtain Wall in Black with  
Cardinal Triple Pane 366 Argon



# Mid to High Rise Buildings



DUXTON is an ideal fit in mid- and high-rise applications due to its:

## Thermal performance

Fiberglass does not need any thermal breaks like aluminum, because it is a natural insulator. With u-values as low as 0.85 W/m<sup>2</sup>K, occupants can be very comfortable year-round. Especially in buildings with radiant heat systems and limited air flow, fiberglass can make a huge difference in reducing condensation risk.

## Structural rigidity and wind-loading capabilities

Fiberglass outperforms vinyl in rigidity with either minimal or zero added reinforcing.

[NAFS Performance Ratings](#) ↗

## Air tightness

For venting in multi-storey buildings, DUXTON offers restricted casement and awning windows, which offer the best in air-tightness due to three rows of automotive weatherstripping and compression seals. Options include ADA handles.

## ABOVE THE HORIZON, REGINA, SK

Series 325/328 Fixed/Awnings and 658 Swinging Doors in Espresso/White with 250 Panning and Cardinal Triple Pane 272 Argon

Regina Housing Authority, Kreate Architecture, ESP Construction Ltd.

## Various door styles

DUXTON's swinging and sliding doors are ideal for multi-family applications due to rigorous NAFS (air, water & structural) performance. For swinging doors, DUXTON offers multi-point locks, camlocks, or magnets, to maintain a tight seal top to bottom. The door panels typically come fully finished with an industrial coating rather than unfinished as is typical in the industry. For sliding doors, DUXTON offers 2-wide, 3-wide, and 4-wide or bi-parting configurations.

## Flexible colour options

A split-finish is popular in multi-family applications, with the option to select a darker colour to complement the exterior, with White on the inside to simplify interior trim.

## Knock down installations

If the elevators cannot accommodate full assemblies, and the product cannot be practically hoisted from the exterior, product can be manufactured in a knock-down format, and/or with site glazing, to reduce the time and cost for installation.





**O'NEIL TOWER  
CALGARY, AB**

Boardwalk REIT, Wade Consulting  
Inc., CR Contractor Ltd.

Series 458 Fixed/Casements  
and 550 Patio Doors in Black/White  
with Cardinal Dual 366 Argon



**AMBER TRAILS SCHOOL  
WINNIPEG, MB**

Prairie Architects Inc., Bockstael  
Construction

Series 458 in Espresso/White with  
Ventros, 350 Panning Perimeter,  
and Triple Pane 2-272 Argon

## Schools & Daycares

DUXTON product has long been specified in schools and daycares for several reasons:

- The **insulated fiberglass frame and triple pane glass** provides a comfortable space to learn in, even if you are seated next to the window.
- The **long-term durability** of fiberglass frames with reduced maintenance requirements.
- The positioning **in line with exterior rigid insulation** by using Panning Perimeters.
- The room to accommodate **thick tempered glazing** to minimize breakage (6 mm in fixed frames and 5 mm in operable frames).
- The **larger openings** in Series 458 or 658 FiberWall™ allow for more daylight. Independent studies have shown natural light positively contributes to higher academic performance and improved attendance.
- The ability to integrate aluminum **rotating vents** to reduce the possibility of damage.



**ALEXANDRA SCHOOL  
EDMONTON, AB**

Edmonton Public Schools

Series 325/328 Fixed/Awning in White  
with Curve Tops in Cardinal 6mm Dual  
Pane 180 Argon



# Personal Care Homes and Health Care Facilities

DUXTON product has long been specified for several reasons:

- The larger openings in Series 458 or 658 FiberWall™ allow for more daylight and contribute to a more pleasant living space.
- The option of ADA handles for casements and awnings, to minimize strength and dexterity required to open/close the window.
- The insulated fiberglass frame and triple pane glass provides a comfortable space, even if you are near the window.
- The long-term durability of fiberglass frames offers reduced maintenance requirements.
- The positioning in line with exterior rigid insulation by using Panning Perimeters.



## HYDE PARK SASKATOON, SK

AODBT Architecture + Interior Design

Series 458 Casement/Fixed and 600  
Sliding Doors and Juliet Balconies in Silver  
with Cardinal Triple Pane 2-272 Argon

# Preventing Glass Breakage

## Polycarbonate Sull Sashes

Constructed with an aluminum frame and a clear polycarbonate sheet that won't shatter or splinter.



## Security Screens

Constructed with an aluminum frame and stainless-steel mesh to prevent break-ins and glass breakage with surprisingly good transparency from the interior view. Also available in egress and custodian variations.

## 8mm Tempered Laminated Glass

Thick tempered exterior lite with a laminated middle lite to achieve the transparency of glass, while reducing glass breakage, and preventing intrusions into the building.



## WAPANOHK SCHOOL THOMPSON, MB

Stantec Consulting Ltd.,  
NDC Construction

Security Screens with exterior and interior views shown.

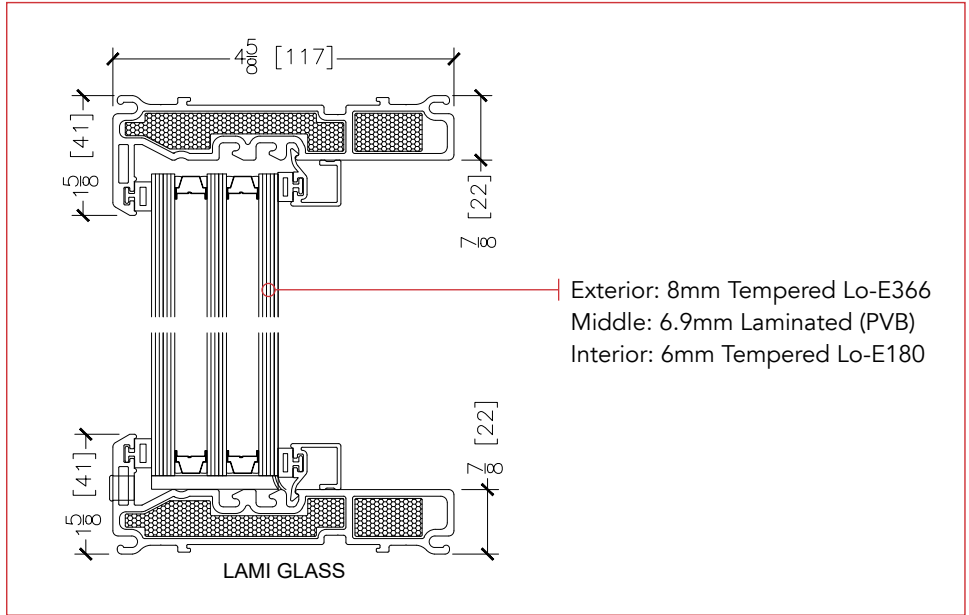




**MONTREAL LAKE,  
SASKATCHEWAN**

Accutech Engineering Inc.,  
NDL Construction Ltd.

Series 458 Fixed in White with Cardinal  
Triple Pane 8mm Tempered Lo-E366  
/ 6.9mm Laminated / 6mm Tempered  
Lo-E180 Argon Glass





# Heritage Buildings

PORTER HOUSE  
WINNIPEG, MB

Alston Properties Ltd., 5468796 architecture

Series 850 Single Hung in Espresso with  
Cardinal Dual Pane 366 Argon







LEFT

**90 ALEXANDER AVENUE  
WINNIPEG, MB**

5468796 architecture, Heritage Planners at City of Winnipeg

Heritage Series™ 328 Fixed/ Awning in Black with Cardinal Dual Pane 272 Argon

BELOW

**PORTER HOUSE  
WINNIPEG, MB**

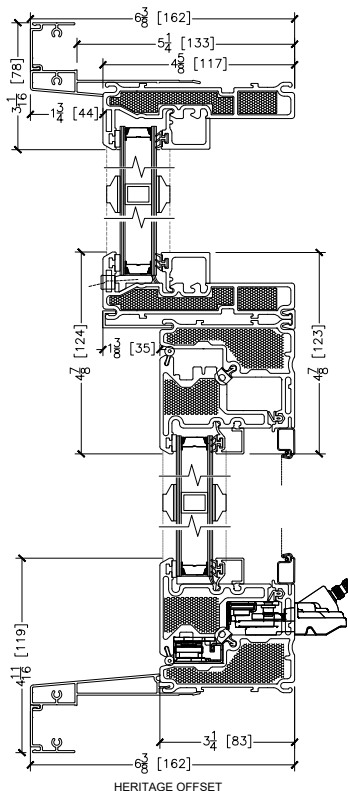
Alston Properties Ltd., 5468796 architecture

Series 850 Single Hung in Espresso with Cardinal Dual Pane 366 Argon

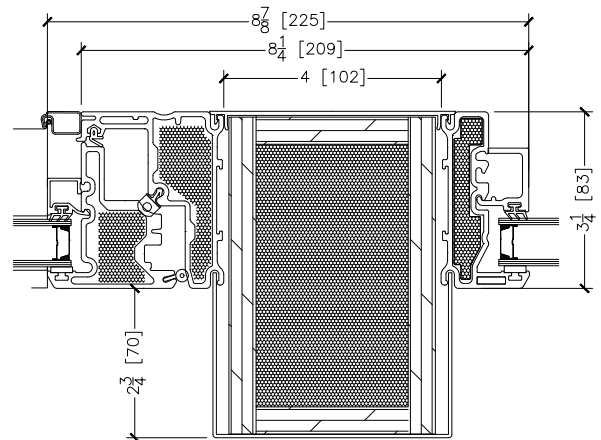
With our incredible stock of historical buildings in downtown Winnipeg, DUXTON has grown adept at meeting stringent heritage requirements. Where vinyl does not have the design flexibility, aluminum is not highly insulated, and wood restoration is time-consuming and costly, our Heritage Series™ has the perfect offering of aesthetics, performance, and longevity.



Heritage Series™ with offset panes mimics a double hung window but with a substantial improvement in air tightness.



Packed Mullions mimic the proportions of the original window assemblies.



# Sustainable Buildings

Better building envelopes are vital to lowering greenhouse gasses produced by constructing and operating our buildings.

DUXTON's fiberglass systems have some natural advantages which make them well-suited to super energy efficient builds:

- Low embodied energy to pultrude lineals
- Fiberglass is a natural insulator, and all frames are fully insulated
- Long life expectancy: Fiberglass is expected to last about 40% longer than vinyl, and Cardinal offers an amazing 20-year warranty compared to the industry standard of 10 years.

## BELOW

### SUNDANCE HOUSING CO-OP EDMONTON, AB

Low Hammond Rowe Architects  
Inc., ReNü Engineering Inc.

Series 328 Casement/Awning  
and Series 458 Swinging Doors in  
White with Cardinal Triple Pane  
2-272 Argon



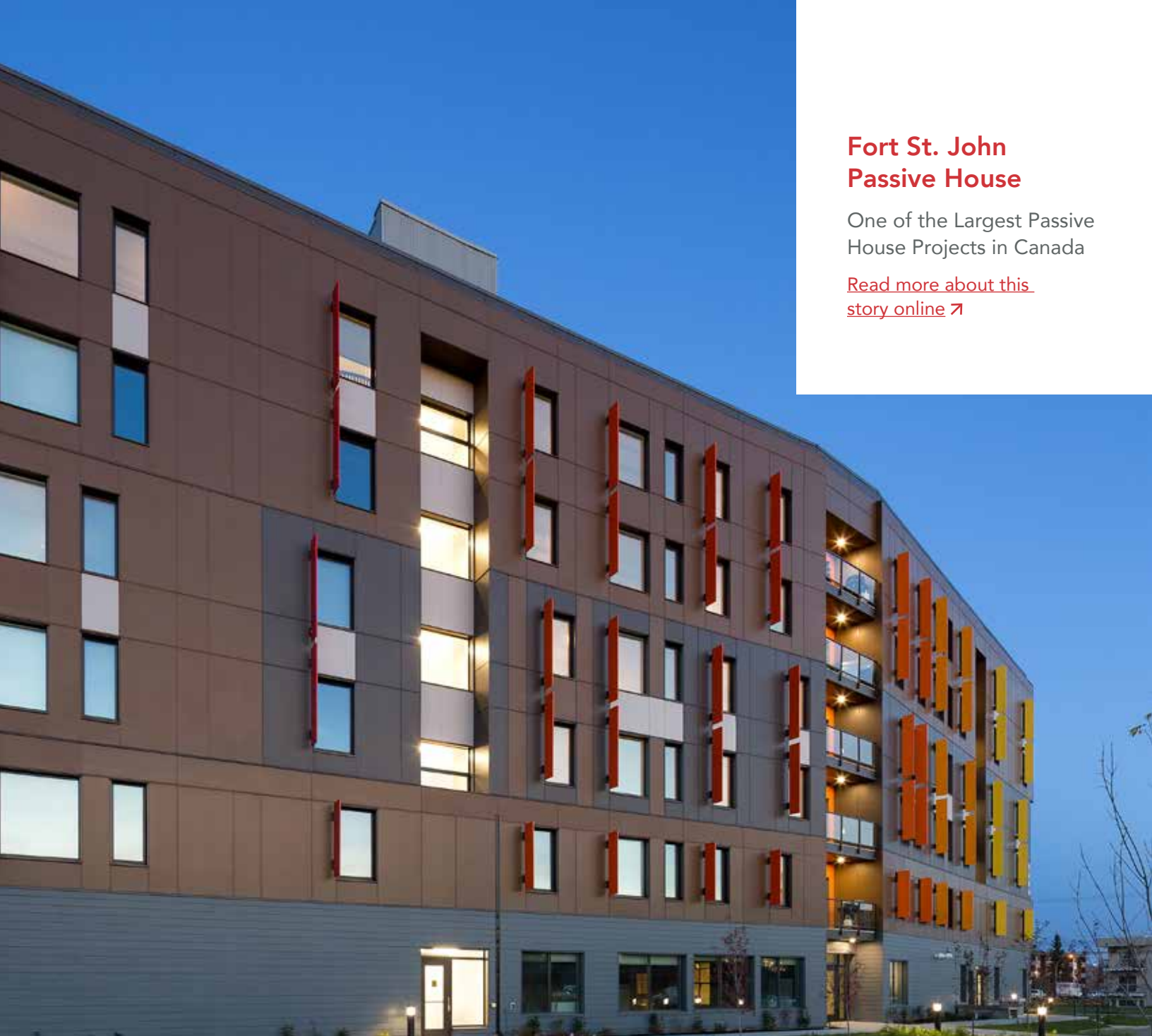
## Sundance Housing Co-op, a Deep Energy Retrofit

The first EnergieSprong  
project of scale in Canada

[Read more about this  
story online](#) ↗







## Fort St. John Passive House

One of the Largest Passive  
House Projects in Canada

[Read more about this  
story online ↗](#)

ABOVE

**FORT ST. JOHN PASSIVE HOUSE**  
**FORT ST. JOHN, BC**

Low Hammond Rowe Architects Inc., ReNü Engineering Inc.

Series 328 Fixed/325 Awning in Espresso with Cardinal Triple Pane 2-180 Krypton

# Thermal Performance

<b>Canada</b>		Center-of-Glass			328					
Glass Type (Cardinal, 90% Argon, Endur Spacer, 3mm)	LoE Surface	U <sub>G (metric)</sub>	SHGC	VT	Fixed	Casement	Awning	Hi Profile Fixed	Fixed	Casement
LoE-180	3	1.48	0.68	79%	1.59	1.53	1.53	1.48	1.59	1.53
LoE-272	2	1.42	0.41	72%	1.53	1.48	1.53	1.42	1.53	1.48
LoE-366	2	1.36	0.27	65%	1.48	1.48	1.48	1.42	1.48	1.48
<b>Triple Pane - 1 LoE Coating - High Performance</b>										
LoE-180	5	1.02	0.61	73%	1.14	1.19	1.19	1.08	1.14	1.19
LoE-272	2	1.08	0.38	66%	1.14	1.19	1.19	1.08	1.14	1.19
LoE-366	2	1.02	0.25	59%	1.14	1.19	1.19	1.08	1.14	1.19
<b>Triple Pane - 2 LoE Coatings - Ultra High Performance</b>										
LoE-180/180	2 & 5	0.74	0.56	70%	0.91	1.02	1.02	0.85	0.91	1.02
LoE-272/180	2 & 5	0.74	0.37	63%	0.85	0.97	0.97	0.85	0.85	0.97
LoE-272/272	2 & 5	0.74	0.35	58%	0.85	0.97	0.97	0.85	0.85	0.97
LoE-366/180	2 & 5	0.74	0.24	57%	0.85	0.97	0.97	0.85	0.85	0.97
LoE-366/366	2 & 5	0.68	0.24	47%	0.79	0.97	0.97	0.79	0.79	0.97

<b>USA</b>		Center-of-Glass			328					
Glass Type (Cardinal, 90% Argon, Endur Spacer, 3mm)	LoE Surface	U <sub>G (imperial)</sub>	SHGC	VT	Fixed	Casement	Awning	Hi Profile Fixed	Fixed	Casement
LoE-180	3	0.26	0.68	79%	0.28	0.27	0.27	0.26	0.28	0.27
LoE-272	2	0.25	0.41	72%	0.27	0.26	0.27	0.25	0.27	0.26
LoE-366	2	0.24	0.27	65%	0.26	0.26	0.26	0.25	0.26	0.26
<b>Triple Pane - 1 LoE Coating - High Performance</b>										
LoE-180	5	0.18	0.61	73%	0.20	0.21	0.21	0.19	0.20	0.21
LoE-272	2	0.19	0.38	66%	0.20	0.21	0.21	0.19	0.20	0.21
LoE-366	2	0.18	0.25	59%	0.20	0.21	0.21	0.19	0.20	0.21
<b>Triple Pane - 2 LoE Coatings - Ultra High Performance</b>										
LoE-180/180	2 & 5	0.13	0.56	70%	0.16	0.18	0.18	0.15	0.16	0.18
LoE-272/180	2 & 5	0.13	0.37	63%	0.15	0.17	0.17	0.15	0.15	0.17
LoE-272/272	2 & 5	0.13	0.35	58%	0.15	0.17	0.17	0.15	0.15	0.17
LoE-366/180	2 & 5	0.13	0.24	57%	0.15	0.17	0.17	0.15	0.15	0.17
LoE-366/366	2 & 5	0.12	0.24	47%	0.14	0.17	0.17	0.14	0.14	0.17

Performance Values are calculated by certified, 3rd party test labs. Information is gleaned from best available industry sources. The reader is cautioned that test results should be used for comparison purposes only. Results are size and installation dependent. In-service performance can be significantly different from those shown. Product tested indicates design potential.



U<sub>w</sub> (Overall in W/m<sup>2</sup>K) by Series

458			658			550	300	800	850	900
Awning	In-swing Door	Outswing Door	Fixed	In-swing Door	Outswing Door	Sliding Door	Tilt n' Turn	Horizontal Slider	Single Hung	Double Hung
1.53	1.36	1.42	1.59	1.36	1.48	1.59	1.53	1.65	1.65	1.70
1.48	1.36	1.42	1.53	1.36	1.42	1.59	1.48	1.59	1.59	1.65
1.48	1.31	1.36	1.48	1.36	1.42	1.53	1.48	1.59	1.59	1.59
1.19	1.36	1.42	1.14	1.36	1.48	1.25	1.25	1.59	1.59	1.65
1.19	1.36	1.42	1.14	1.36	1.42	1.25	1.25	1.59	1.59	1.65
1.19	1.36	1.42	1.14	1.36	1.42	1.19	1.19	1.59	1.59	1.59
0.97	1.25	1.31	0.91	1.24916	1.36	1.02	1.02	1.36	1.36	1.42
0.97	1.25	1.31	0.85	1.25	1.36	1.02	1.02	1.36	1.36	1.42
0.97	1.25	1.31	0.85	1.25	1.31	0.97	1.02	1.36	1.36	1.42
0.97	1.25	1.31	0.85	1.25	1.31	0.97	1.02	1.36	1.36	1.42
0.97	1.25	1.31	0.79	1.25	1.31	0.97	0.97	1.36	1.36	1.36

U<sub>w</sub> (Overall in Btu/hr•ft.2•°F) by Series

458			658			550	300	800	850	900
Awning	In-swing Door	Outswing Door	Fixed	In-swing Door	Outswing Door	Sliding Door	Tilt n' Turn	Horizontal Slider	Single Hung	Double Hung
0.27	0.24	0.25	0.28	0.24	0.26	0.28	0.27	0.29	0.29	0.30
0.26	0.24	0.25	0.27	0.24	0.25	0.28	0.26	0.28	0.28	0.29
0.26	0.23	0.24	0.26	0.24	0.25	0.27	0.26	0.28	0.28	0.28
0.21	0.24	0.25	0.20	0.24	0.26	0.22	0.22	0.28	0.28	0.29
0.21	0.24	0.25	0.20	0.24	0.25	0.22	0.22	0.28	0.28	0.29
0.21	0.24	0.25	0.20	0.24	0.25	0.21	0.21	0.28	0.28	0.28
0.17	0.22	0.23	0.16	0.22	0.24	0.18	0.18	0.24	0.24	0.25
0.17	0.22	0.23	0.15	0.22	0.24	0.18	0.18	0.24	0.24	0.25
0.17	0.22	0.23	0.15	0.22	0.23	0.17	0.18	0.24	0.24	0.25
0.17	0.22	0.23	0.15	0.22	0.23	0.17	0.18	0.24	0.24	0.25
0.17	0.22	0.23	0.14	0.22	0.23	0.17	0.17	0.24	0.24	0.24

Notes

- (1) Most products are offered in 1 3/8" OD (fixed; casement; awning; sliding doors; tilt n' turns; select swinging doors)
- (2) Most products available up to 5 or 6 mm glass in dual or triple pane.
- (3) NFRC Environmental Conditions used for all values.
- (4) Cardinal Endur warm edge stainless steel spacer used for all values.
- (5) Inswing and outswing door simulated with full glass in a flush glaze panel. Additional simulation values available online.

\*Values updated Sept. 25/23.

# NAFS Performance Ratings

## Individual Products

Series	Product	Class	Pg	Size Tested	Positive / Negative Dp	Water Test Pressure	Cdn Air Infil / Exfil	Forced Entry Resistance
Fixed Windows								
328	FiberWall™ High Profile Fixed	CW	60	94 x 60"	2880 / 2880 Pa	730 Pa	Fixed	Grade 20
328	FiberWall™ Fixed	CW	60	59.1 x 98.4"	3360 / 2880 Pa	730 Pa	Fixed	Grade 40
458	FiberWall™ Fixed	CW	60	59.1 x 98.4"	3360 / 2880 Pa	730 Pa	Fixed	Grade 40
658	FiberWall™ Fixed	CW	60	59.1 x 98.4"	3360 / 2880 Pa	730 Pa	Fixed	Grade 40
Casement / Awning Windows								
328 / 458	FiberWall™ Casement	CW	50	36 x 72"	2400 / 2400 Pa	730 Pa	A3	Grade 10
328 / 458	FiberWall™ Awning	CW	90	60 x 40"	4320 / 4320 Pa	730 Pa	A3	Grade 10
Sliding Windows								
800	Horizontal Slider	R	80	63 x 43.9"	3840 / 3840 Pa	400 Pa <i>See Note 2</i>	A2	Grade 20
850	Single Hung	LC	55	44.9 x 76.4"	2640 / 2640 Pa	400 Pa <i>See Note 2</i>	A3	Grade 20
900	Double Hung (2 lock equal lite)	R	55	40.1 x 63.7"	2640 / 2640 Pa	400 Pa <i>See Note 2</i>	A3	Grade 20
Tilt + Turn Windows								
300	Dual Action Tilt + Turn	CW	65	48 x 72.1"	3120 / 3120 Pa	470 Pa	A3	Grade 40
Hopper / Inswing Casement Windows								
700	Hopper	CW	60	48.8 x 33.1"	2880 / 2880 Pa	730 Pa	A3	Grade 20
700	Hopper Fixed	CW	30	60 x 60"	1440 / 1440 Pa	730 Pa	Fixed	Grade 20
700	Inswing Casement	CW	45	32.7 x 59.8"	2160 / 2160 Pa	510 Pa	A3	Grade 20



NAFS Product Rating ↗

Series	Product	Class	Pg	Size Tested	Positive / Negative Dp	Water Test Pressure	Cdn Air Infil / Exfil	Forced Entry Resistance
Sliding Doors								
550	Sliding Door Ultra Slim	LC	45	87 x 84"	3840 / 3840 Pa	330 Pa	A3	Grade 10
550	Sliding Door Ultra Slim (FOOF)	LC	50	126 x 96"	2400 / 2400 Pa	330 Pa	A3	Grade 20
550	Sliding Door Ultra	LC	60	96 x 96"	3120 / 3120 Pa	440 Pa	A3	Grade 10
Swinging Doors – Inswing								
458 / 658	Inswing Single Door with Sidelites, Standard Sill	R	40	112 x 82"	1920 / 2160 Pa	180-220 Pa <i>See Note 5</i>	A3	Pass
458 / 658	Inswing Single Door with Sidelites, Standard Sill	R	30	112 x 98"	1680 / 1920 Pa	180-220 Pa <i>See Note 5</i>	A3	Pass
458 / 658	Inswing Double Door, Standard Sill	R	30	74 x 82"	2400 / 2400 Pa	180-220 Pa <i>See Note 5</i>	A3	Pass
458 / 658	Inswing Double Door, Standard Sill	R	20	74 x 98"	1680 / 1680 Pa	150 Pa	A3	Pass
Swinging Doors – Outswing								
458 / 658	Outswing Single Door (full glazing and camlocks)	LC	50	36 x 84"	3360 / 3360 Pa	360 Pa <i>See Note 5</i>	A3	<i>See Note 6</i>
458 / 658	Outswing Single Door with Sidelites	R	40	112 x 81"	2160 / 1920 Pa	440 Pa <i>See Note 5</i>	A3	Pass
458 / 658	Outswing Single Door with Sidelites	R	35	112 x 97"	1920 / 1680 Pa	440 Pa <i>See Note 5</i>	A3	Pass
458 / 658	Outswing Double Door	R	50	74 x 81"	2400 / 2400 Pa	440 Pa <i>See Note 5</i>	A3	Pass
458 / 658	Outswing Double Door	R	35	74 x 98"	1920 / 1680 Pa	440 Pa <i>See Note 5</i>	A3	Pass

Notes:

(1) Standard products are not necessarily manufactured to the ratings shown here. Product must be ordered with these specifications in order to achieve this performance. It is the responsibility of the customer to correctly specify the applicable building code and performance requirements. Actual performance is also size and installation dependent.

(2) Higher test ratings are available by request depending on application.

(3) Equivalency Evaluation: Based on a 3rd party review by a certified testing facility, SERIES 328 FIBERWALL™ FIXED and SERIES 458 FIBERWALL™ FIXED would attain performance levels equivalent to SERIES 658 FIBERWALL™ FIXED in a single unit assembly.

(4) Equivalency Evaluation: Based on a 3rd party review by a certified testing facility, SERIES 328 FIBERWALL™ CASEMENT/AWNING would attain performance levels equivalent to SERIES 458 FIBERWALL™ CASEMENT/AWNING in a single unit assembly.

(5) Recommended to specify magnets (inswing); camlocks (outswing); or multi-point locks (inswing/outswing).

(6) Full NAFS testing not conducted. See other product ratings for Forced Entry Resistance.

# NAFS Performance Ratings

## Combination Products

[NAFS Combination Rating ↗](#)

Series	Product	Class	Pg	Size Tested	Positive / Negative Dp	Water Test Pressure	Cdn Air Infil / Exfil	Forced Entry Resistance
Fiberwall™ Series 328								
328	Combination, 328 Fixed, 325 Casement	CW	65	61" x 47 1/8"	4800 / 4800 Pa	730 Pa	A3	See Note 2
328	Combination, 6 Lite Fixed, FG Reinforced	LC	40	96" x 72"	1920 / 1920 Pa	730 Pa	A3	Grade 10
Fiberwall™ Series 458								
458	Combination, 6 Lite Fixed, FG Reinforced	CW LC	35 55	96" x 72"	1680 / 1680 Pa 2880 / 2880 Pa	730 Pa	A3	Grade 10
458	Combination, 4 Lite, Steel Reinforced	CW	30	92" x 100"	1440 / 1440 Pa	730 Pa	A3	Grade 10
Fiberwall™ Series 458								
458	Combination, 9 Lite Fixed, Steel Reinforced	CW LC	30 45	108" x 96"	1440 / 1440 Pa 2160 / 2160 Pa	730 Pa	A3	Grade 10
Fiberwall™ Series 658								
658	Combination, 6 Lite Fixed, FG Reinforced	CW	60	96" x 72"	2880 / 2880 Pa	730 Pa	A3	Grade 10

**Notes:**

- Standard products are not necessarily manufactured to the ratings shown here. Product must be ordered with these specifications in order to achieve this performance. It is the responsibility of the customer to correctly specify the applicable building code and performance requirements. Actual performance is also size and installation dependent.
- Full NAFS testing not conducted on combined product. See individual product ratings for Forced Entry Resistance.



# Maximum and Minimum Sizes

All OSM Frame measurements in inches

Product	Min Width	Min Height	Max Width	Max Height	Max Square Footage
Fixed 328/458/658 <sup>1</sup>	8	8	74	144	74
Awning 328/458 <sup>1</sup>	15 3/4	16	72	72	30
Casement 328/458	16	16	38	72	18
Sidemounted Casement 458	15 3/4	36	36	98	18
Swinging Door 458/6583	29 3/4	81	43 3/4	97 7/8	30
Sliding Door 550 (2 Panels)	48	48	130	108	97
Sliding Door 550 (4 Panels)	96	48	259	108	194
Tilt + Turn 300	24	30	48	90	22
Hopper 700	15	15	72	48	18
Top Hinged Hopper 700	15	15	48	40	12
Horizontal Slider 800	24	18	84	66	21
Single Hung 850	18	40	60	72	21
Double Hung 900	18	28	54	60	21

**Notes:**

1. Dimensions can be rotated 90 degrees.
2. For operable windows, some custom sizes are available in dual pane only, with restricted openings.
3. Height can be further cut down but width cannot.
4. Figures are for single boxes only. Windows can be mullied into much larger combination units.

Window size must fall within all 3 criteria of max width, height, and square footage.

## Swinging Doors Standard Sizes

### Single Doors

Frame Sizes (inches)		Panel Widths						
		28	30	32	34	36	42	
Panel Heights	80	Inswing:	29 3/4 x 81 7/8	31 3/4 x 81 7/8	33 3/4 x 81 7/8	35 3/4 x 81 7/8	37 3/4 x 81 7/8	43 3/4 x 81 7/8
		Outswing:	29 3/4 x 81	31 3/4 x 81	33 3/4 x 81	35 3/4 x 81	37 3/4 x 81	43 3/4 x 81
	84	Inswing:	29 3/4 x 85 7/8	31 3/4 x 85 7/8	33 3/4 x 85 7/8	35 3/4 x 85 7/8	37 3/4 x 85 7/8	43 3/4 x 85 7/8
		Outswing:	29 3/4 x 85	31 3/4 x 85	33 3/4 x 85	35 3/4 x 85	37 3/4 x 85	43 3/4 x 85
	96	Inswing:	29 3/4 x 97 7/8	31 3/4 x 97 7/8	33 3/4 x 97 7/8	35 3/4 x 97 7/8	37 3/4 x 97 7/8	43 3/4 x 97 7/8
		Outswing:	29 3/4 x 97	31 3/4 x 97	33 3/4 x 97	35 3/4 x 97	37 3/4 x 97	43 3/4 x 97

Rough Opening Sizes (inches)		Panel Widths						
		28	30	32	34	36	42	
Panel Heights	80	Inswing:	30 3/4 x 82 3/8	32 3/4 x 82 3/8	34 3/4 x 82 3/8	36 3/4 x 82 3/8	38 3/4 x 82 3/8	44 3/4 x 82 3/8
		Outswing:	30 3/4 x 81 1/2	32 3/4 x 81 1/2	34 3/4 x 81 1/2	36 3/4 x 81 1/2	38 3/4 x 81 1/2	44 3/4 x 81 1/2
	84	Inswing:	30 3/4 x 86 3/8	32 3/4 x 86 3/8	34 3/4 x 86 3/8	36 3/4 x 86 3/8	38 3/4 x 86 3/8	44 3/4 x 86 3/8
		Outswing:	30 3/4 x 85 1/2	32 3/4 x 85 1/2	34 3/4 x 85 1/2	36 3/4 x 85 1/2	38 3/4 x 85 1/2	44 3/4 x 85 1/2
	96	Inswing:	30 3/4 x 98 3/8	32 3/4 x 98 3/8	34 3/4 x 98 3/8	36 3/4 x 98 3/8	38 3/4 x 98 3/8	44 3/4 x 98 3/8
		Outswing:	30 3/4 x 97 1/2	32 3/4 x 97 1/2	34 3/4 x 97 1/2	36 3/4 x 97 1/2	38 3/4 x 97 1/2	44 3/4 x 97 1/2

All panel widths shown are nominal. For true panel width, deduct 1/4".  
 All panel heights shown are nominal. For true panel height, deduct 1".  
 Example: 36x80 panel actually measures 35 3/4 x 79".

Note: Rough openings are calculated from Frame Width + 1", and Frame Height + 1/2".

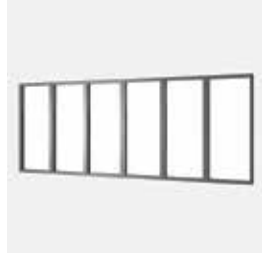
# Style options

## Windows



### [Lo & Hi Profile Fixed](#)

Picture windows available in either a Lo Profile for maximum glass, or Hi Profile to match the sight lines of a flanking operable window.



### [FiberWall™ Fixed](#)

Robust collection of picture windows to suit standard punched openings up to stunning walls of glass.



### [Casements & Awnings](#)

Outswinging windows with an excellent compression seal. Includes the NEW Series 328 and 458 FiberWall™ Operator.



### [Euro-Style Tilt + Turns](#)

European-style dual-functioning inswing windows and doors.



### [Single Hungs](#)

Vertical sliding windows with a fixed top sash and a moveable bottom sash.



### [Double Hungs](#)

Vertical sliding windows with a moveable top and bottom sash.



### [Sliders](#)

Horizontal sliding windows for easy access to fresh air.



### [Inswing Casements, Hoppers & Fixed Windows](#)

European-style inswing windows provide for easy cleaning access.



### [Bays & Bows](#)

Angled window combination that projects outward, adding light and space.



### [Custom Shapes](#)

Any shape from round to angular to 90 degree corner.

## Doors



### [Swinging Doors](#)

Make a statement with your doors. FiberWall™ Swinging Doors can project any style, with amazing size capabilities and finish flexibility.



### [Sliding Doors](#)

Sliding doors maximize your floor area by not having panels swinging into the room or out onto your deck.





# FiberWall™ Series 328

## Fixed, Casement, Awning and Hi Profile

Most commonly used series for conventional punched opening windows.

Features:

- 3 1/4" frame depth
- Slim sight lines for maximized glass area
- Dual (up to 6 mm) and triple pane (up to 5 or 6 mm) insulated glass units
- LC and CW performance ratings for air/water/structural
- Tubular frames for increased rigidity
- Superb thermal performance down to 0.85 W/m2K
- Interior glazed for ease of installation and service
- Casements & Awnings:
  - Heavy-duty multi-point locking hardware
  - Heavy-duty steel roller hinges for largest sizes
  - Triple automotive weatherstripping
- Custom: Lo Profile Fixed (and rectangular Casements/Awnings) can be used in curves, rakes, peaks, bays, bows, and glass-to-glass configurations



### ABOVE

#### FAIRMONT CHÂTEAU LAKE LOUISE LAKE LOUISE, AB

RJC Engineers, Excel Glass Inc.

Series 328 Awnings in Espresso/  
White with Cardinal Dual Pane 366 Argon  
and Fiberglass Angle

### LEFT

#### AMBER GATES APARTMENTS WINNIPEG, MB

WRE Development, LD Builders

Series 328 Fixed/Awnings in White with  
Cardinal Triple Pane 2-272 Argon and Narrow  
Perimeter



## Hardware

Espresso



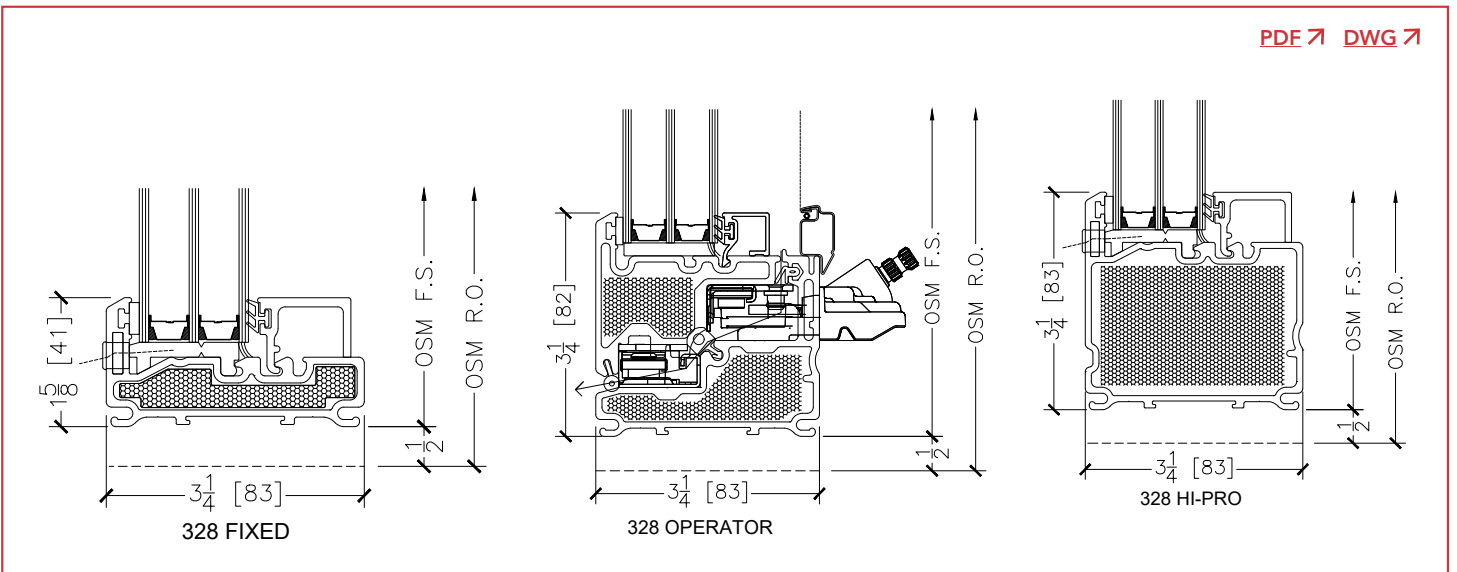
White



Satin nickel



Black



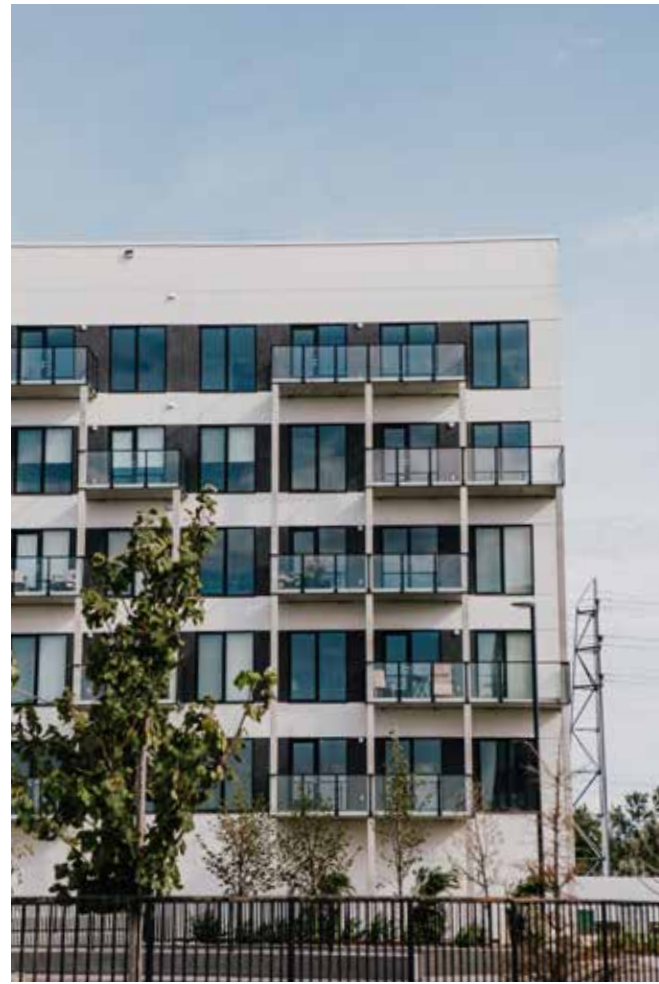
# FiberWall™ Series 458

## Fixed, Casement, Awning and Swinging Door

For large openings and/or heavy wind loads. Window systems integrate easily with swinging doors in residential use.

Features:

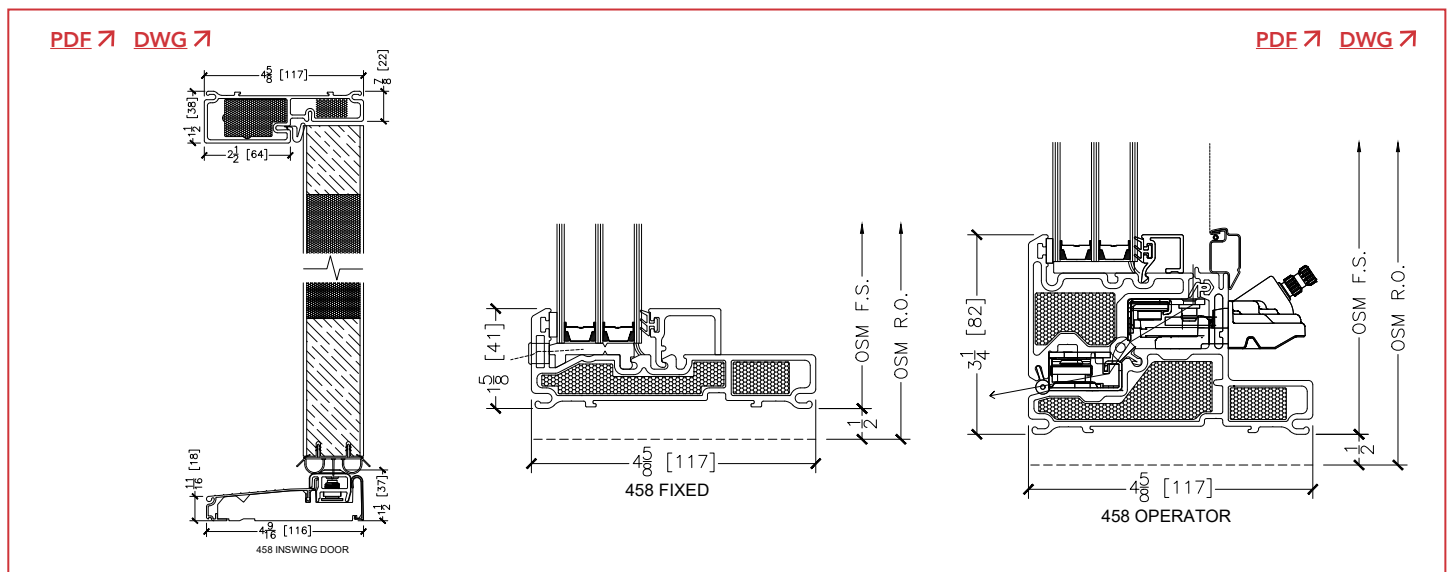
- 4 5/8" frame depth
  - Wider pocket for reinforcement if needed
- Dual (up to 6 mm) and triple pane (up to 5 or 6 mm) insulated glass units
- Slim sight lines for maximized glass area
- Dual and triple pane insulated glass units
- LC and CW performance ratings for air/water/structural
- Tubular frames for increased rigidity
- Superb thermal performance down to 0.85 W/m<sup>2</sup>K
- Interior glazed for ease of installation and service
- Casements & Awnings:
  - Heavy-duty multi-point locking hardware
  - Heavy-duty steel roller hinges for largest sizes
  - Triple automotive weatherstripping
- Custom: 458 Fixed (and rectangular Casements/Awnings) can be used in rakes, peaks, bays, bows, and glass-to-glass configurations



LUX @ TUX  
WINNIPEG, MB

BLDG, PCL Construction

Series 458 Fixed/Swinging Doors/Casements in Black with Cardinal Dual Pane 272 Argon and Narrow Perimeter





BELOW

**RONALD MCDONALD HOUSE  
WINNIPEG, MB**

ft3 architecture, Bird Construction

Series 458 Fixed/Awnings in Black/White with Cardinal Triple Pane Argon and Narrow Perimeter



ABOVE

**RESIDENTIAL PROJECT**

Prairie Windows & Doors

Series 458 Fixed/Swinging Doors/Casements in Black with Cardinal Dual Pane 272 Argon and Narrow Perimeter

BELOW

**RESIDENTIAL PROJECT**

Sector Architecture + Design, Harris Builders

Series 458 Fixed/Side-Mounted Casements in Black with Cardinal Triple Pane 272 Argon and 250 Panning



# FiberWall™ Series 458/658

## Swinging Door

Contemporary or traditional swinging doors for residential applications, including mid- to high-rise buildings.

Features:

- 4 5/8" or 6 5/8" frame depth
- Inswing or Outswing with composite door sill
- High quality fiberglass door panel and fiberglass frame with factory coating
- Heavy duty stainless steel ball bearing hinges
- Continuous automotive weatherstripping
- Magnets, camlocks, or multi-point locks recommended for highest performance

*Note: Commercial hardware not available*

LEFT

**SMITH STREET LOFTS APARTMENTS  
WINNIPEG, MB**

MMP Architects Inc., Crosier Kilgour & Partners,  
Akman Construction

Series 458 Outswing Door in Black with  
Multi-Point Locks



Standard Multi-Point Lever



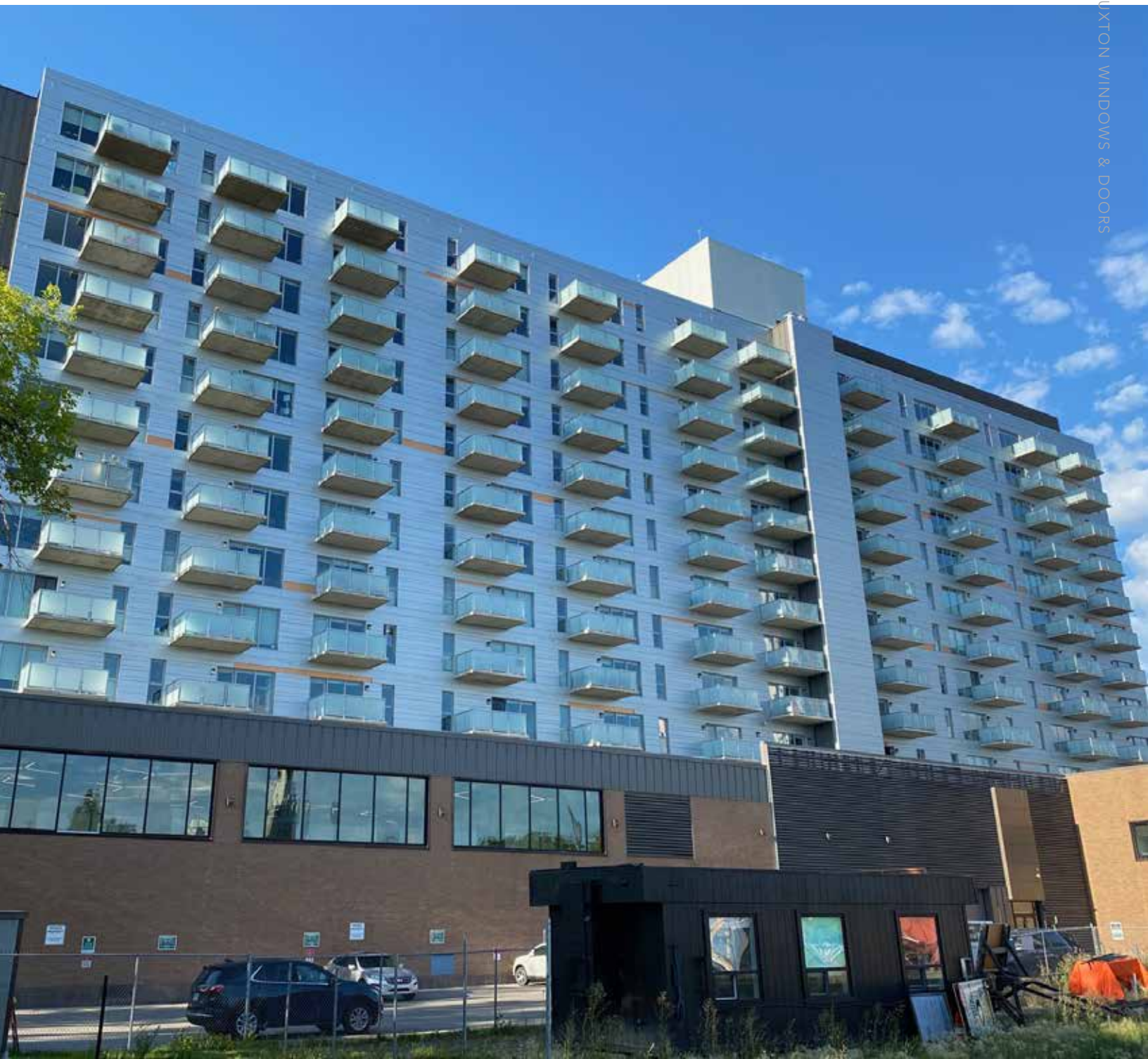
Hook Multi-Point with Pull Bar and Thumb Turn



Fentro Multi-Point with Euro Lever







ABOVE

**J22**  
**EDMONTON, AB**

Dialog Architecture, All West Glass

Series 458 Fixed/Swinging Doors in Silver  
Mist with Cardinal Dual Pane 272 Argon  
and 250 Panning







# FiberWall™ Series 658

## Fixed and Swinging Door

For very large openings and/or heavy wind loads. Window systems integrate easily with swinging doors in residential use.

**Features:**

- 6 5/8" frame depth
  - Wider pocket for reinforcement if needed
- Dual (up to 6 mm) and triple pane (up to 5 or 6 mm) insulated glass units
- Slim sight lines for maximized glass area
- Dual and triple pane insulated glass units
- LC and CW performance ratings for air/water/structural
- Tubular frames for increased rigidity
- Superb thermal performance down to 0.79 W/m<sup>2</sup>K
- Interior glazed for ease of installation and service
- Casements & Awnings:
  - Planted 458 series
  - Custom: 658 Fixed (and rectangular Casements/Awnings) can be used in rakes and peaks

**LEFT**

**LIGHT OF THE PRAIRIES  
SASKATOON, SK**

Kindrachuk Agrey Architecture,  
York Windows & Doors

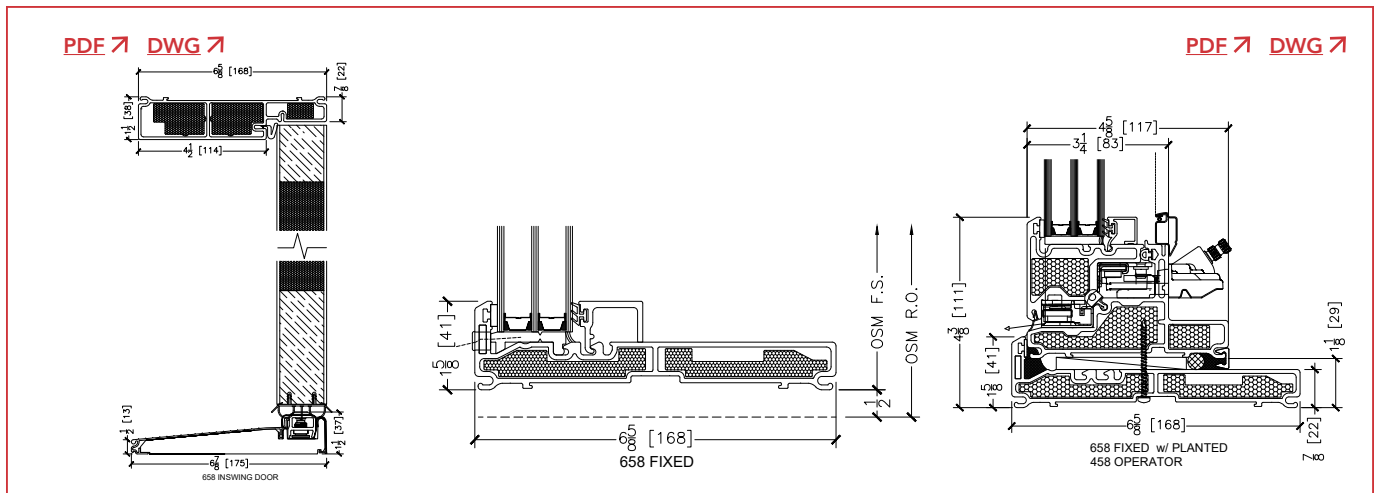
Series 658 Fixed/458 Awning in Black  
with Cardinal Dual Pane 272 Argon  
and Narrow Perimeter

**RIGHT**

**RESIDENTIAL PROJECT**

Equinox Homes

Series 658 Fixed in Silver Mist  
with Cardinal Triple Pane 366 Argon  
and Narrow Perimeter



# Ultra Series 550

## Sliding Door

For single-family and multi-family settings, including mid-to high-rise buildings. Integrates with Series 458 sidelites and transoms using a build-out.

Features:

- 5 1/2" frame depth
- Dual (up to 6 mm) and triple pane (up to 5 mm) insulated glass units
- 2, 3, and 4-Panel Configurations up to 10' tall
- Custom sizing up to 40 square feet per panel
- High quality steel rollers
- Exterior screen
- Keyed or non-keyed lock in contemporary or traditional style
- Optional footlock
- Optional Juliet balcony
- LC and CW performance ratings for air/water/structural
- Superb thermal performance down to 0.97 W/m2K
- Interior glazed for ease of installation and service



## Sliding Door hardware

Contemporary black



Contemporary faux oil rubbed bronze



Contemporary satin nickel



Standard black



Standard brown



Standard white





LEFT

**5TH AVE. SW APARTMENTS  
EDMONTON, AB**

IBI Group, Williams Engineering,  
Cana Construction

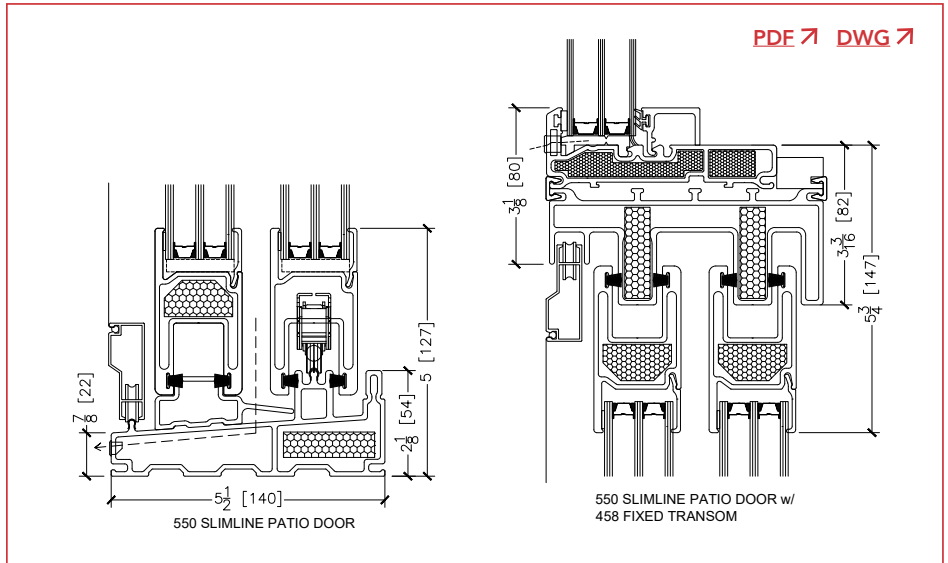
Series 550 Sliding Door in Silver Mist/  
White with Juliet Balconies and Cardinal  
Triple Pane 366 Argon

BELOW

**RESIDENTIAL PROJECT**

John Duerksen Architecture,  
Creative Spaces, Click Pro

Series 458 Fixed with  
Custom Mullions in Black with  
Cardinal Triple Pane 272/180 Argon  
and Narrow Perimeter



# Series 800

## Horizontal Sliders

Integrates with Series 328 Fixed.

Features:

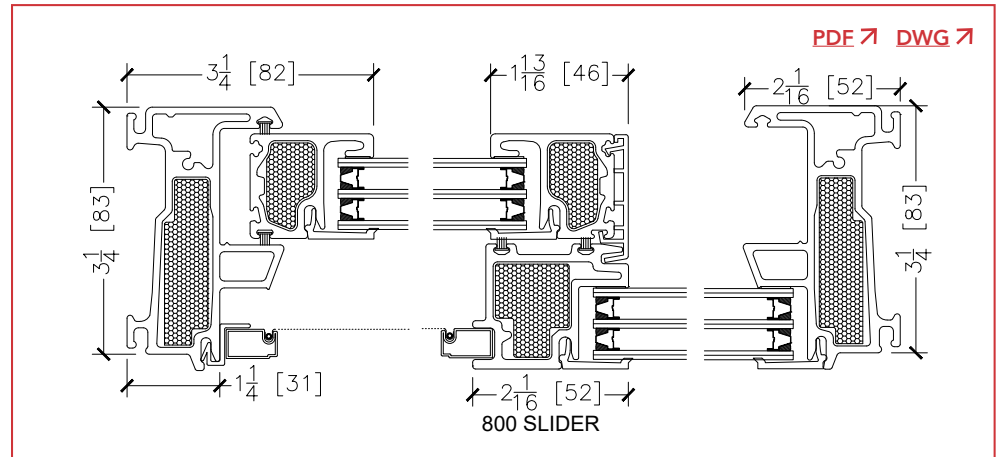
- 3 1/4" frame depth
- Dual (up to 6 mm) and triple pane (up to 3 mm) insulated glass units
  - Series 458 Horizontal Sliders offers 6 mm triple pane
- Low-resistance gliding track
- Resilient hardware
- Exterior screen

BELOW

ARGYLE ALTERNATIVE HIGH SCHOOL  
WINNIPEG, MB

Winnipeg School Division

Series 800 Horizontal Sliders in White







## Series 850

### Single Hungs

Integrates with Series 328 Fixed.

Features:

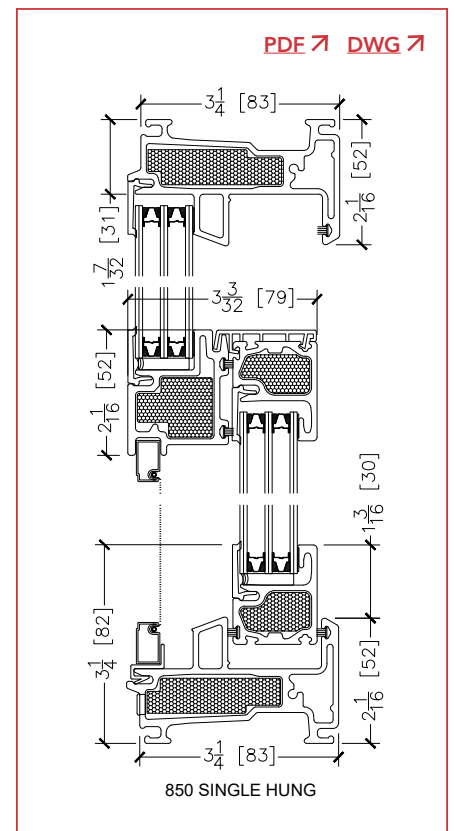
- 3 1/4" frame depth
- Dual (up to 6 mm) and triple pane (up to 3 mm) insulated glass units
- Lift hardware with optional Ultra Lift (recommended)
- Double weatherstripping
- Bottom sash tilts for cleaning access
- Traditional design and sight lines
- Exterior screen

ABOVE

ARLINGTONHAUS APARTMENTS, WINNIPEG, MB

Crosier Kilgour & Partners, PCL Construction

Product: Series 850 Single Hung in White with Triple Pane 2-272 Argon





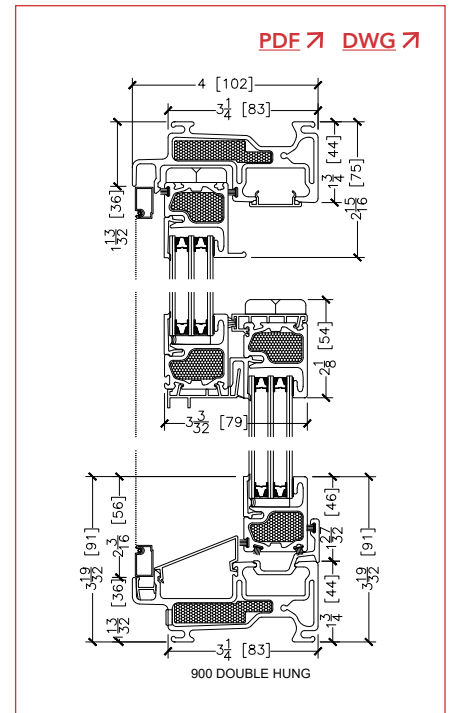
# Series 900

## Double Hungs

Integrates with Series 328 Fixed.

Features:

- 3 1/4" frame depth
- Dual (up to 6 mm) and triple pane (up to 3 mm) insulated glass units
- Lift hardware with optional Ultra Lift (recommended)
- Double weatherstripping
- Top and bottom sashes tilt for cleaning access
- Traditional design and sight lines
- Exterior screen



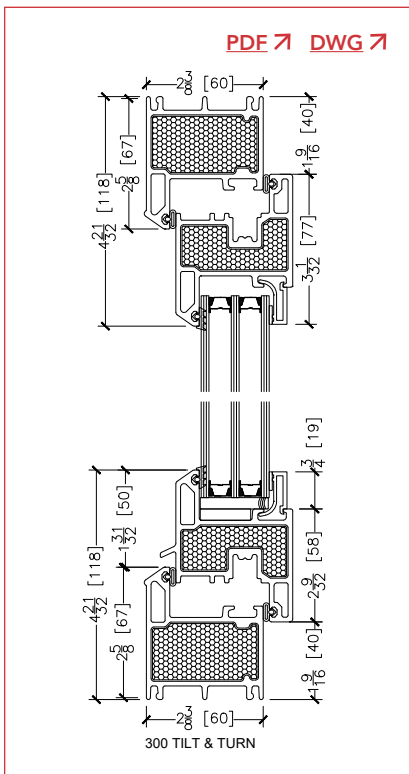
RRC POLYTECH MANITOU A BI BII DAZIIGAE  
WINNIPEG, MB

Number Ten Architectural Group + Diamond Schmitt Architects,  
Ron Hambley; Doublespace; Akman Construction Ltd.

Series 900 Double Hung in Espresso with Cardinal Dual  
Pane 272/i89 Argon installed interior of historic storm window



## Series 300 Tilt + Turns



European style windows that open inwards, by either tilting the top of the sash in, or swinging the sash as a side-hinged product.

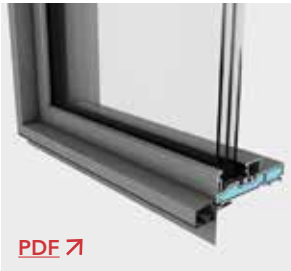
Features:

- 2 3/8" frame depth
- Dual (up to 6 mm) and triple pane (up to 5 mm) insulated glass units
- Lift hardware with optional Ultra Lift (recommended)
- Double weatherstripping
- Top and bottom sashes tilt for cleaning access
- Traditional design and sight lines
- Exterior screen

# Exterior Options

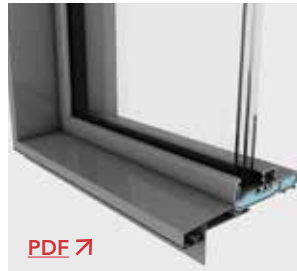
## Perimeters

Select from a variety of aluminum perimeters, which are attached to the exterior of the frame for installation purposes.



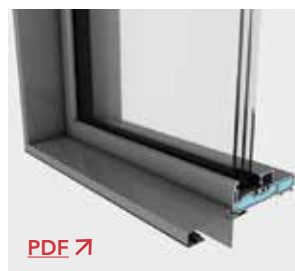
### Narrow

Simple, slim, most common choice of nailing fin



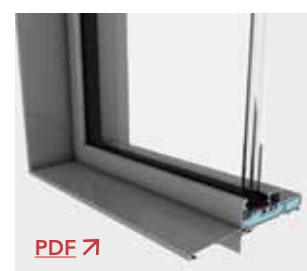
### New Wide

Nailing fin that sets the window deeper into the wall, creating elegant shadow lines



### 250 Panning

Nailing fin that protrudes outwards 2 1/2" to accommodate rigid insulation or other finishing exterior details such as brick

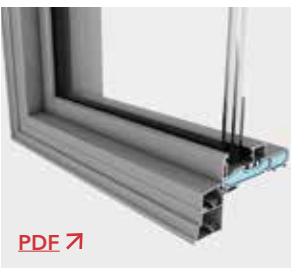


### 350 Panning

Nailing fin that protrudes outwards 3 1/2" to accommodate rigid insulation or other finishing exterior details such as brick

## Brickmoulds

Select from a variety of aluminum brickmoulds, used in renovation projects to cover installation screws, or to emphasize the windows by outlining the frame.



### Profiled

Capping piece with elegant shadow lines that mimic millwork



### Flat

Capping piece with simple, clean lines



### Profiled with Sill Perimeter

Mimics original wood windows, with a Sill Perimeter on the bottom, and Narrow Perimeter with Profiled or Flat Brickmould on three sides.



# Interior Options

[Jamb and Interior Options ↗](#)

## Factory-applied jamb extensions

### Drywall Return

A simple, clean detail, allowing the drywall to return to the window. Available in white only.



**1/2" Drywall Return U-Channel**



**3/4" Drywall Return U-Channel**

### Wood

Real wood options to add a richness to the window. All wood interior options come unfinished, for the customer to stain or paint as they wish. Choose from Pacific Coast Hemlock, Oak, or request a custom wood type.



**Pacific Coast Hemlock**



**Oak**

### Cellular PVC

A low maintenance, pre-finished white interior finish that resists moisture.

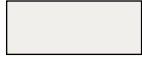


**White Cellular PVC**

# Colour Options

## Standard

White



Espresso



## Premium

Almond



Slate



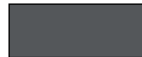
Brownstone



Black



Charcoal



Chestnut



DUXTON Red



Cranberry



Brick Red



Cedar



Sage Green



Evergreen



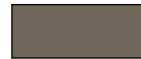
Steel Blue



Midnight Blue



Bronze



Silver



## Stains

Cherry Red

Cherry Red Stain  
on Cherry Grain



Cherry Red Stain  
on Fir Grain



Cherry Red Stain  
on Oak Grain



Cocoa

Cocoa Stain  
on Cherry Grain



Cocoa Stain  
on Fir Grain



Cocoa Stain  
on Oak Grain



Hazelnut

Hazelnut Stain  
on Cherry Grain



Hazelnut Stain  
on Fir Grain



Hazelnut Stain  
on Oak Grain



Honey

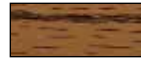
Honey Stain  
on Cherry Grain



Honey Stain  
on Fir Grain



Honey Stain  
on Oak Grain



Smoke

Smoke Stain  
on Cherry Grain



Smoke Stain  
on Fir Grain



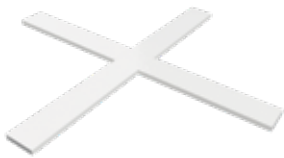
Smoke Stain  
on Oak Grain



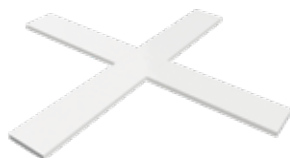
Stains apply to woodgrain door panels only. Colours may not appear exactly as shown. Woodgrain door panels are available in any stain colour, but select grain types.

# Simulated Divided Lites (SDLs)

[SDLs and Internal Grills](#) ↗



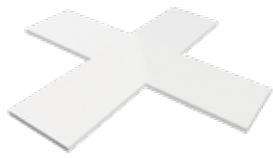
**Flat 3/4"**



**Flat 1"**



**Flat 1 1/2"**



**Flat 2"**



**Flat 3"**



**Profiled 7/8"**



**Real Wood 3/4"  
(interior only)**

Simulated Divided Lites offer the most impact, as they are applied on the surface of the glass (interior and exterior), with internal grills inserted between the glass panes for added depth. SDLs offer an excellent solution when the aim is to replicate true divided lites.

Choose from flat, profiled, or a combination of flat and profiled to replicate a simulated sash. Available in ANY Standard or Premium Colour.



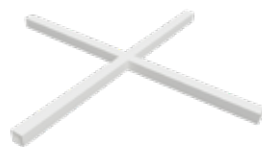
## Internal Grills (IGs)

Choose from a variety of flat or profiled IGs.

### Internal grills available:

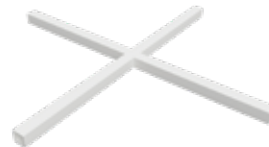
Some options will differ by product line, contact us for more information.

Internal Grills offer an easy-to-clean, cost effective solution for adding a grill pattern to your windows and doors.



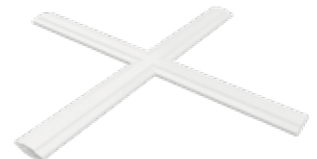
**Flat 5/16"**

Available in White, Black, Bright Gold or Pewter



**Flat 5/8"**

Available in White, Espresso, Black, Brownstone, or Bright Gold



**Profiled 11/16"**

Available in White, Espresso, Black, or Brownstone





# Rainscreen Installation



Whether it's new construction or renovation – commercial or residential buildings – they all have the same basic needs. To keep the building well insulated, but to also keep out the water.

The following is a shortened excerpt from Jon Eakes's publication, *"Applying Rain Screen Principles to Window and Door Installations"*:

The IRC (Institute for Research in Construction of the National Research Council of Canada) published two research projects in 2011 and 2013 – backed up by six years of lab research.

The primary conclusion of these two research projects is that you should not attempt to stop both the water and the wind on the same plane.

When we caulk on the outdoor side of this whole assembly, we break this rule right from the start – we flow water over caulking that was imperfectly applied (ever seen that?) or that is inadequately maintained and then subject the water flowing over an open crack to the full force of the wind. You lose – the water is forced inward.

Site applied sealing efforts on the outside, on ladders or scaffolds, often fall short of perfection with subsequent water penetration problems.

Instead, modern research and real-life applications throughout Canada, including cold-climate locations, point to a drained rough opening.

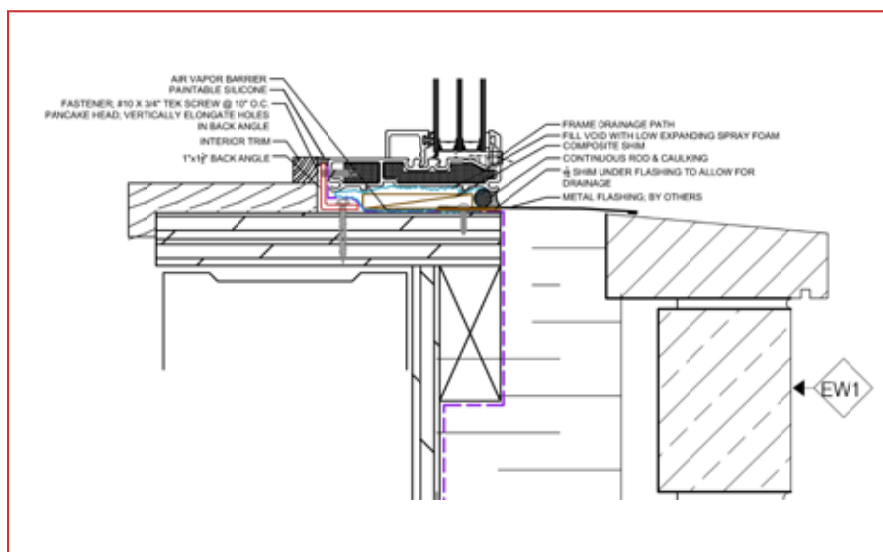
**Key Points:**

- Intercept the bulk of the water at the exterior
- Pressure equalization of the drainage path to remove the driving force of wind-driven water
- Waterproof membrane on the rough opening
- Create a full air seal on the inside face of the wall
  - Include a water dam (a raised wall) where possible
- Allow the reduced amount of water to escape at the exterior

In our practice, the most effective installations involve a water dam to the interior of the window; not caulking. A physical barrier between moisture and the inside of the building is the most reliable, and least subject to human error in applying sealant. If there is a seal to touch-up, the interior is much easier to access, whereas any sealant on the exterior of the building or under a nailing fin is not accessible without removing exterior cladding.

Additionally, removing the exterior nailing fin is a huge benefit to the long-term performance of the product and surrounding conditions. A nailing fin obstructs water drainage, unless the bottom fin is shimmed away from the wall. Further, the nailing fin is very difficult to remove at the end of the product's lifespan, making renovation more costly and difficult to re-seal.

The best place to start is with a building envelope engineer. They will assess the full building envelope to tie together the wall, the window, the roof, and all the intersections in between. Different wall conditions will vary the installation detailing substantially.





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**COVER IMAGE**

**PUMPHOUSE APARTMENTS, WINNIPEG, MB**

5468796 architecture, Alston Properties Ltd., Holz Constructors

Series 458 Fixed/Awnings in Black with Cardinal Dual 272 Argon and 350 Panning