PZ-HIST-23-000225

Menu Reports Help

File Date: 08/31/2023

Application Status: Pending

Assigned To: Alexander Castro

Description of Work: Building renovations to existing, historic firehouse including new roof, new windows, new overhead doors, accessibility upgrades, mechanical/electrical/plumbing/fire prote room/bathroom upgrades.

Application Detail: Detail

Application Type: Historic Preservation

Documents:

File Name	Document Group	Category	Description	Type	Docun
Asylum Hill Engine 5.pdf	PLNG_COA	Plans	Proposed floor & ro...	application/pdf	Uploac
Historic Commission.pdf	PLNG_COA	Owners Authoriz...		application/pdf	Uploac
Kloter Farms NewEnglan...	PLNG_COA	Photos	Photo of type of sh...	image/jpeg	Uploac
Niles Street.png	PLNG_COA	Photos	Photo of existing N...	image/x-png	Uploac
Pella Impervia Spec Sh...	PLNG_COA	Product Specs	Proposed replacemen...	application/pdf	Uploac
Pella Impervia.pdf	PLNG_COA	Product Specs	Proposed replacemen...	application/pdf	Uploac
Pella-Impervia_Awning.pdf	PLNG_COA	Product Specs	Proposed replacemen...	application/pdf	Uploac
Pella-Impervia_DoubleH...	PLNG_COA	Product Specs	Proposed replacemen...	application/pdf	Uploac
Rear 2.jpg	PLNG_COA	Photos	Photo of existing r...	image/jpeg	Uploac
Rear.JPG	PLNG_COA	Photos	Photo of existing r...	image/jpeg	Uploac
Side.png	PLNG_COA	Photos	Photo of existing s...	image/x-png	Uploac
Sigourney Street.jpg	PLNG_COA	Photos	Photo of existing S...	image/jpeg	Uploac

Show all

Address: 129 SIGOURNEY ST, HARTFORD, CT 06105

Owner Name: CITY OF HARTFORD FIRE DEPT

Owner Address: 550 MAIN ST, HARTFORD, CT 06103 291

Application Name:

Parcel No: 179317267

Contact Info:

Name	Organization Name	Contact Type	Contact Primary Address	Status
Matt Miller	Silver/Petrucel...	Architect	Mailing, 3190 Whitney ...	Active

Licensed Professionals Info:

Primary	License Number	License Type	Name	Business Name	Business License #

Job Value: $0.00

Total Fee Assessed: $200.00

Total Fee Invoiced: $200.00

Balance: $150.00

Custom Fields: PLNG_COA_CF

GIS Information

Zoning District
MX-1

Zoning Overlay
_

FEMA Flood Zone
_

Land Use Per Assessor
CITY OF HARTFORD FIRE DEPARTMENT

NRZ
ASYLUM HILL NRZ

Neighborhood
ASYLUM HILL

Local Historic District
_

Historic District
_

Historic Landmark/Site

State Historic District
_

Dispersion met?
No

Identify Dispersion
_

National Historic District
Asylum Hill

General Project Information

Is this application a result of a violation notice?
No

Zoning Enforcement Case ID #
_

Is this a contributing building or structure?
Unknown

Is this proposed work visible from the street?
Yes

Historic Review Types

New Construction/Addition **Exterior Alteration**

No

Yes

Demolition
No

Signage
No

Solar Panel
No

Other
–

Does this project include a demolition?
No

If a demolition request, what alternatives have you sought?
–

Exterior Alterations

Windows
√

Doors

Porches/Walkways
√

Siding

Roofs
√

Mechanical Appurtenances
√

Other
–

Describe the existing conditions and materials
Exterior brick facade, fiberglass windows and metal deck roof.

Describe the proposed materials
Repointed/repaired brick facade, fiberglass windows, modified bitumen roof with fluid applied flashing.

Hardships and Reason for Hardships

Is this an owner-occupied principal residence?
No

Is this a non-owner occupied residential building containing six (6) or fewer dwelling units?
No

Is this a commercial and industrial building?
Yes

Is this a request for demolition where there is no feasible and prudent alternative to demolition?
No

Other Payment Required

Green Infrastructure Fund

Amount
–

City Tree Fund

Amount
–

Complete Street Fund

Amount
–

Describe Reason for Payments

Reason for Request

Reason for Request

Recommendation

Recommendation

Adverse Impacts on Neighboring Lands **Suitability as Presently Zoned**

Consistency with POCD

This is a dynamic label.

PLNG_COA_DIGEPLAN
Enhanced Doc List

Reason for Hardship
Cost of historic preservation recommendations: **Economic circumstances of the applicant:Lack of availa**

Impact of the historic preservation recommendations on the district as a whole and on property value

Dates and Notices

Application Received	**Open Hearing Deadline**	**Close Hearing Deadline**
Decision Deadline	**Extensions Requested?**	**If yes, describe how the dates abc**
Notice sent to NRZ/CRCOG	**Legal Ad #1**	**Legal Ad #2**
Sign Affidavit Received	**Certificate of Mailings Returned**	**Notice of Decision Published**
Recordation Date	**Approval Expiration Date**	**Sign Deposit Check #**
Sign Deposit Date Received	**Sign Deposit Check Amount**	**Public Hearing Date**
Public Hearing Time	**Meeting Link or Location**	**Document Link**

Certificate of Compliance

As-Built Drawing Date	**Type of Bond**	**Escrow Account #**
Bonding Company Name	**Bonding Contact Name**	**Bonding Primary Phone #**
Bonding Email	**Drawings Number of Sheets**	**Drawings Last Revised**

Prior Approvals

Type of Permit/Authorization	Issued By	Issued Date	Expiration Date

Resolution Clauses

Type	Comment

Workflow Status:

Task	Assigned To	Status	Status Date	Action By
Application Intake	Alexander Castro			
Planning and Zoning Re...				
Public Notice				
Historic Commission				
Notice of Decision				
Appeal Period				
Permit Issuance				
Permit Status				
Certificate of Plannin...				
Case Complete				

Condition Status:

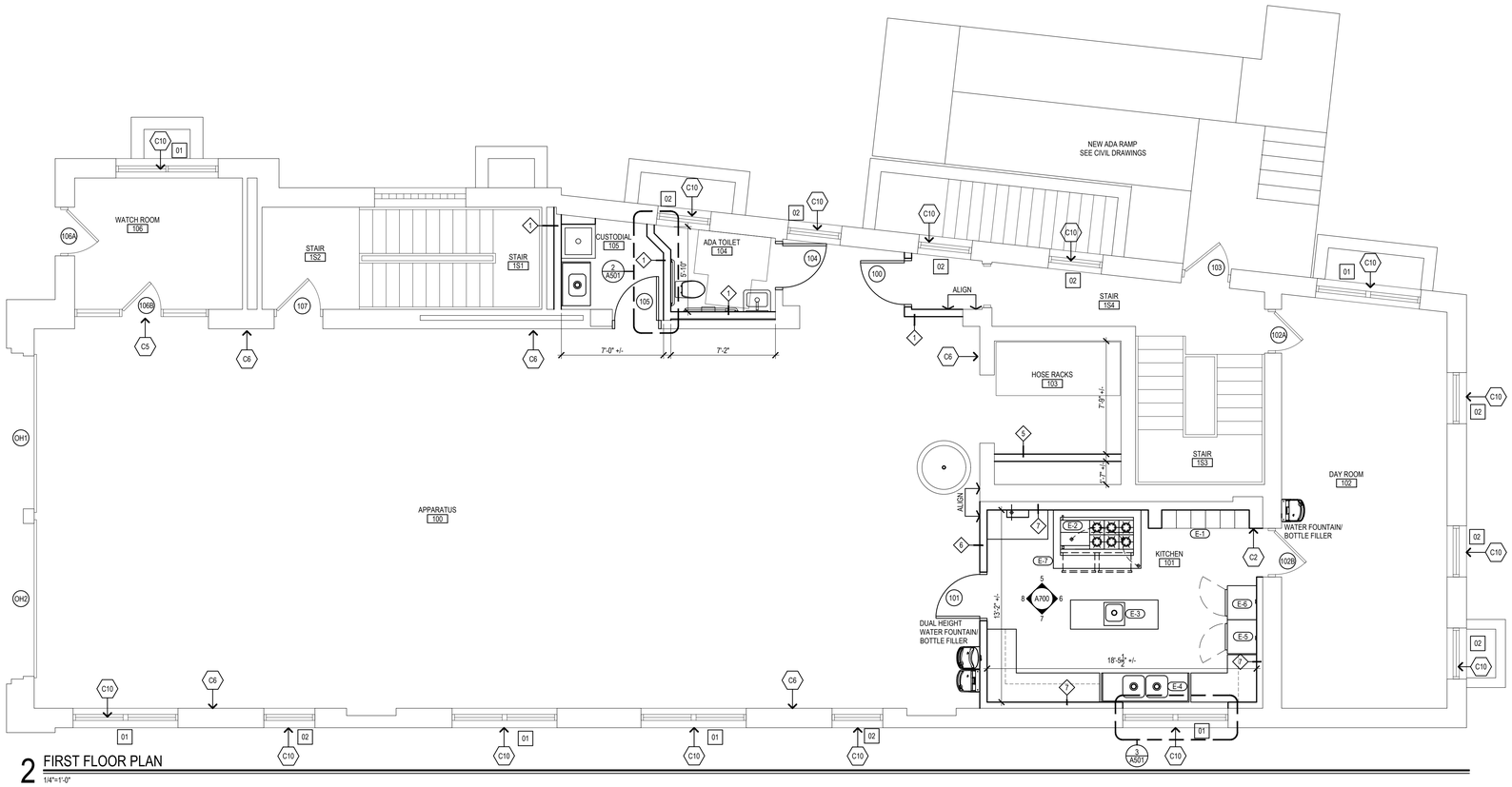
Name	Short Comments	Status	Apply Date	Severity	Action By

Application Comments:	View ID	Comment	Date

Initiated by Product: ACA

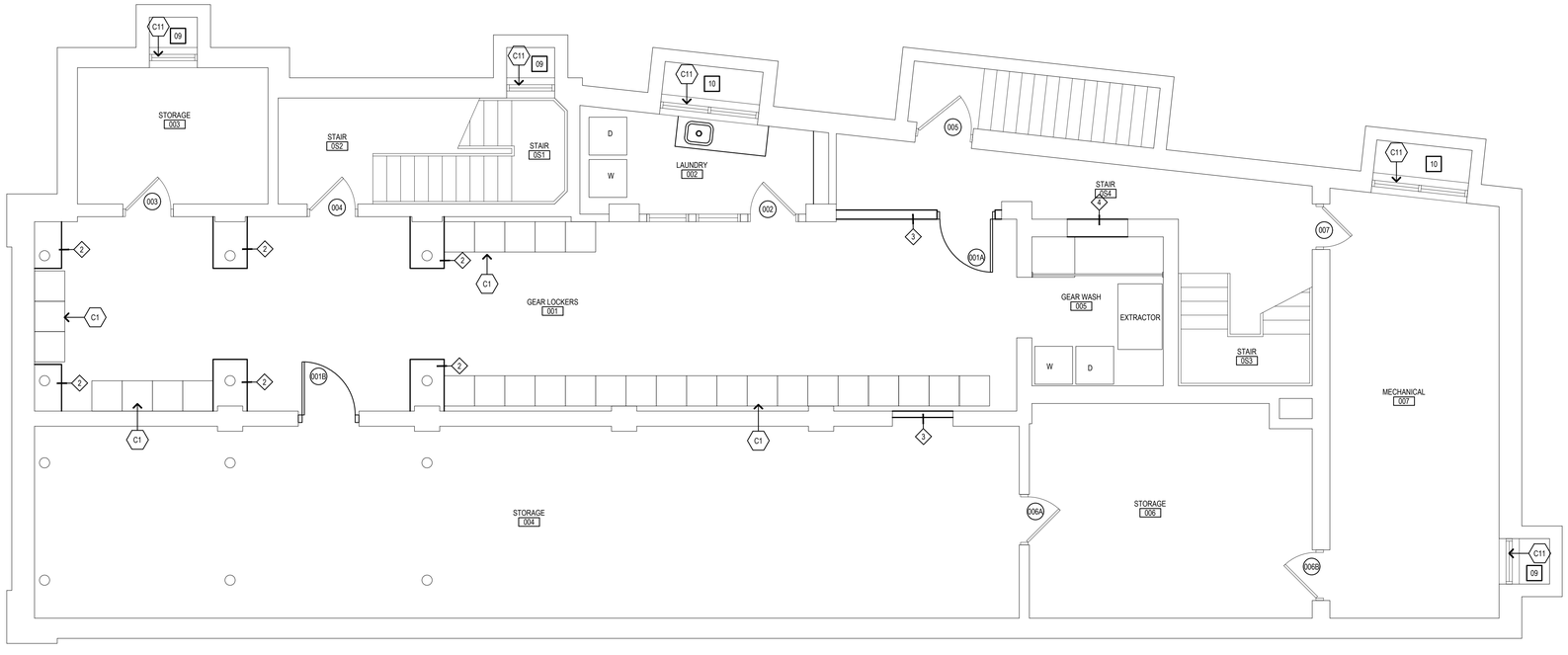
Scheduled/Pending Inspections:	Inspection Type	Scheduled Date	Inspector	Status	Comments

Resulted Inspections:	Inspection Type	Inspection Date	Inspector	Status	Comments



2 FIRST FLOOR PLAN

1/4"=1'-0"



1 LOWER LEVEL PLAN

1/4"=1'-0"

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL EXIST. CONDITIONS & DIMENSIONS PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE TO REPAIR OR REPLACE ANY AREAS DAMAGED OUTSIDE THE SCOPE OF WORK RETURNING THEM TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.
3. PATCH ALL EXIST. MATERIALS AFFECTED BY NEW CONSTRUCTION IN THIS PROJECT (MATCH EXISTING).
4. ALL MATERIALS AND EQUIPMENT ARE NEW UNLESS OTHERWISE NOTED AS "EXISTING".
5. REMOVE ALL DEMOLISHED MATERIALS FROM SITE. LEAVE SITE CLEAN OF ALL CONSTRUCTION DUST & DEBRIS AT THE END OF EACH DAY. CONTRACTOR WILL BE RESPONSIBLE FOR ALL CUSTODIAL TIME ASSOC. WITH CLEANING NOT PERFORMED BY CONTRACTOR.
6. CONTRACTOR IS RESPONSIBLE FOR REMOVING, RELOCATING AND RECONNECTING ANY AND ALL ELECTRONIC EQUIP., DEVICES, CONDUIT, SECURITY AND/OR WIRING AFFECTED BY THE SCOPE OF WORK PRIOR TO DEMOLITION AND UPON COMPLETION OF CONSTRUCTION CONTRACTOR TO VERIFY ALL ASSOCIATED COMPONENTS AFFECTED W/ARCH & OWNER.
7. CONTRACTOR TO PROVIDE FLUSH CONDITION AT ALL MASONRY OPENINGS- CUT BACK EXISTING STEEL, MASONRY, WOOD &/OR OTHER TO RECEIVE NEW.
8. CONTRACTOR IS RESPONSIBLE TO SURVEY AND DOCUMENT ALL LOCATIONS OF EXTERIOR & INTERIOR SCOPE OF WORK PRIOR TO BID. CONTRACTOR IS RESPONSIBLE TO CARRY ALL TRADES IN BID REQUIRED TO REMOVE/REINSTALL ALL CONDITIONS AFFECTED BY SCOPE OF WORK (MEP/FP/ROOFING/CIVIL)
9. CONTRACTOR IS TO VERIFY ALL DIMENSIONS RELATED TO WINDOW INSTALLATION & LAYOUT PRIOR TO BID & CONSTRUCTION.
10. ANY DEMOLITION/CONSTRUCTION ACTIVITY WHICH WOULD IMPACT LEAD, ASBESTOS &/OR OTHER (TOXIC/NON-TOXIC) MUST BE CONDUCTED WITHIN COMPLIANCE & CODE REQUIREMENTS (SEE PROJ. MAN. FOR ADD. INFO.)

CONSTRUCTION NOTES

CX

1. POUR NEW CONCRETE BASES FOR NEW GEAR LOCKERS, MATCH EXISTING HEIGHT. VERIFY LOCKER DIMENSIONS PRIOR TO CONSTRUCTION.
2. CONSTRUCT NEW WALLS AROUND FOOD LOCKERS W/ 2x4 METAL STUDS & 1 LAYER ½" GYPSUM BOARDS. VERIFY LOCKER DIMENSIONS PRIOR TO CONSTRUCTION.
3. PATCH IN DEMOLISHED PLASTER WALLS W/ NEW GYPSUM BOARDS. FUR OUT AS REQ'D TO MATCH EXISTING PLASTER.
4. PROVIDE NEW DOOR HARDWARE. REFINISH/REPLACE EXISTING DOOR STOPS AS REQ'D. MATCH SPECIES & STAIN IN KIND.
5. STRIP EXISTING PAINT, STAIN TO MATCH EXISTING DOORS.
6. SELECTIVE REPOINTING OF EXISTING GLAZED MASONRY BLOCK PRIOR TO PAINTING.
7. RETAIN EXISTING SILLS & TRIM FOR NEW WINDOWS.
8. CONSTRUCT NEW WALLS AROUND PERSONAL LOCKERS. VERIFY LOCKER DIMENSIONS PRIOR TO CONSTRUCTION.
9. PROVIDE TOWEL HOOKS.
10. REMOVE WINDOW SECURITY BARS. SAND/PRIME/PAINT & REINSTALL.
11. REMOVE WINDOW GRATES. REPLACE W/ NEW I-BAR GRATES. SEE DETAIL 4/A501.

NORTH

KEY PLAN

SCALE: NONE

Project Title:

CITY OF HARTFORD - BUILDING RENOVATIONS TO:

ASYLUM HILL STATION - ENGINE Co. 5

129 SIGOURNEY STREET
HARTFORD, CONNECTICUT

SILVER PETRUCELLI + ASSOCIATES

3190 WHITNEY AVENUE HAMDEN CT 06518
311 STATE STREET NEW LONDON CT 06320
203 230 9007 silverpetrucelli.com

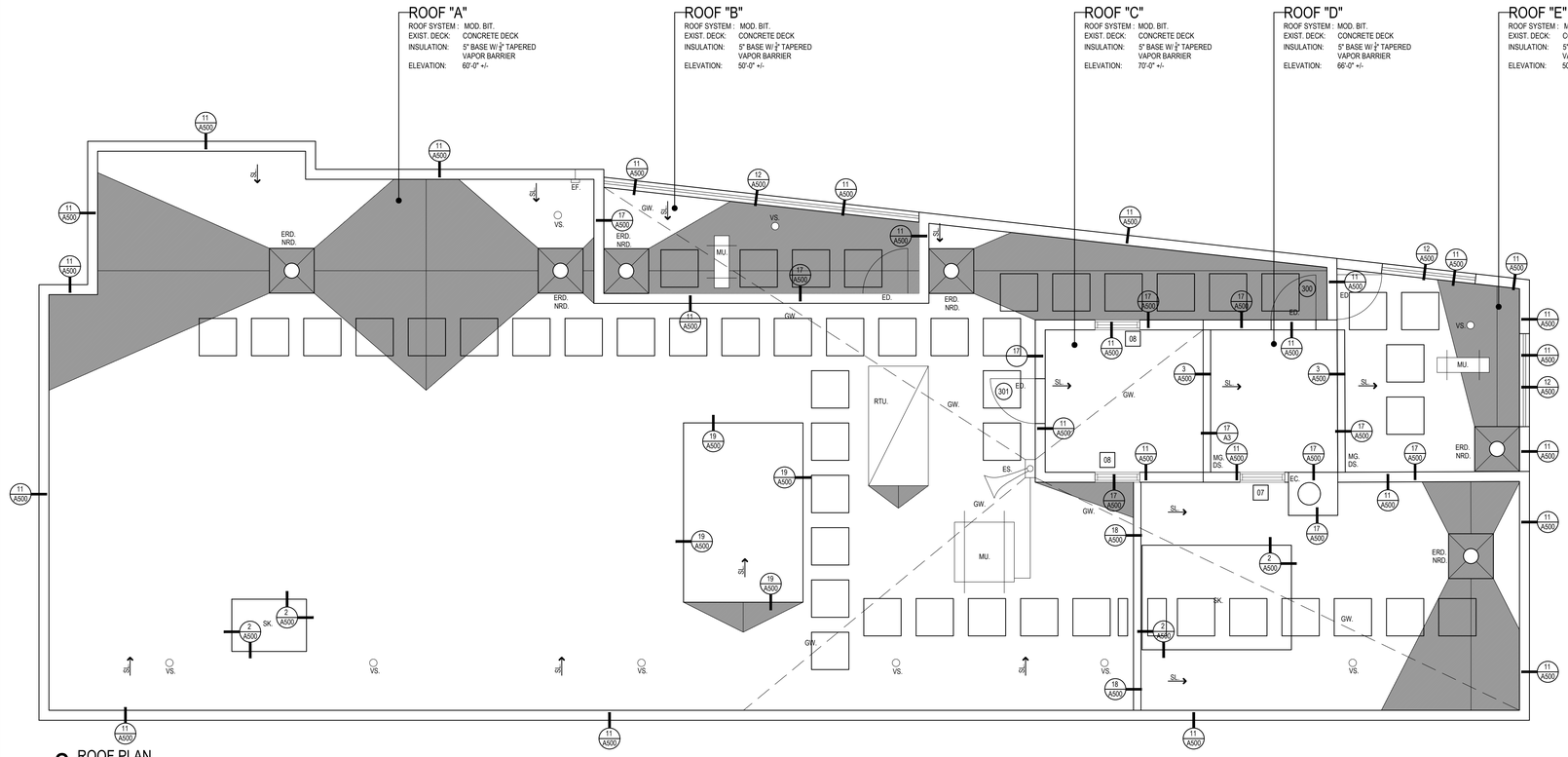
Revision:	Description:	Date:	Revised By:
	-	-	

Drawing Title:

FLOOR PLANS
LOWER LEVEL & FIRST FLOOR

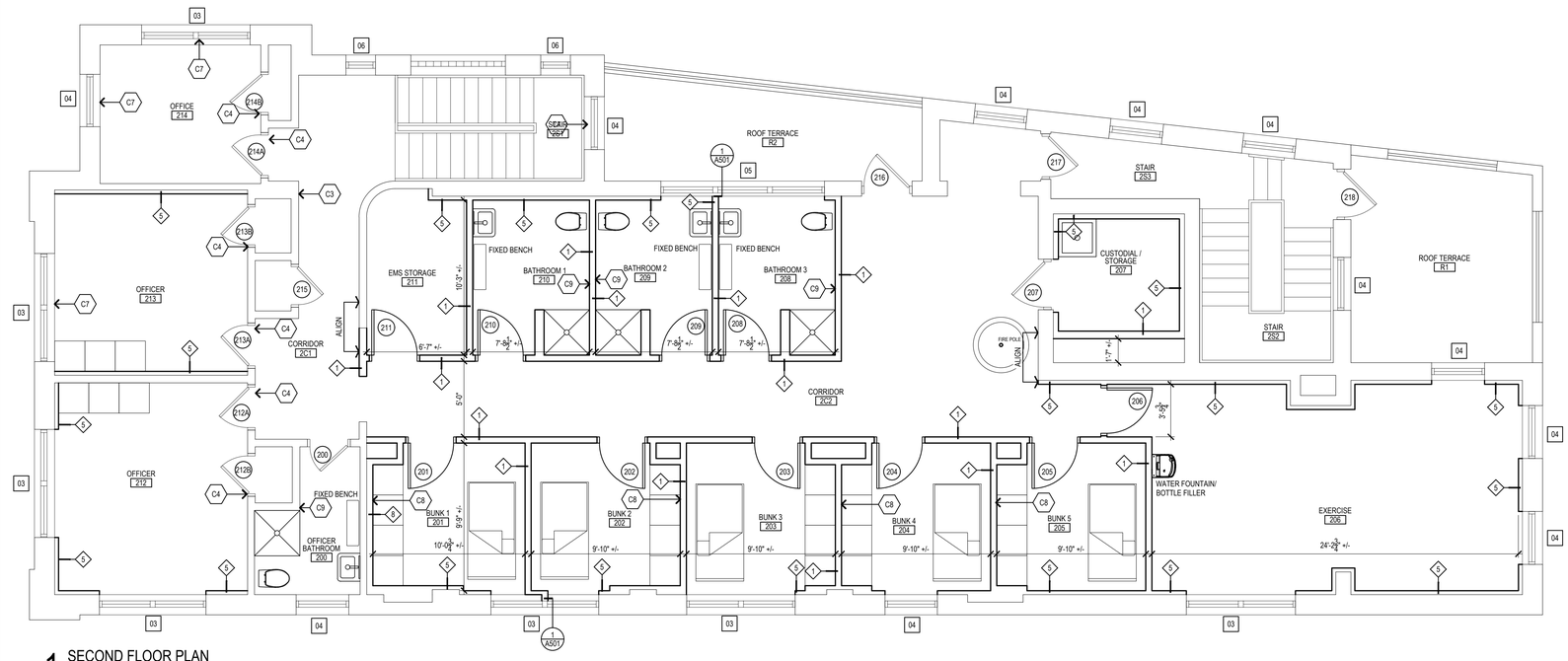
Date: 07/20/2023
Scale: 1/4" = 1'-0"
Drawn By: MCM
Project Number: 22.386

Drawing Number: A100



2 ROOF PLAN

1/4"=1'-0"



1 SECOND FLOOR PLAN

1/4"=1'-0"

ROOF SYMBOL LEGEND

- X/XX - PLAN SECTION DETAIL OR ELEVATION- SHEET NUMBER
- SL - INDICATES SLOPE DIRECTION OF TAPERED INSULATION AT 1/4" PER FOOT
- SL - TAPERED INSULATION CRICKET SLOPED @ 1/4" PER FOOT
- @X/X - INDICATES SLOPE DIRECTION & INDICATES EXISTING ROOF PITCH.
- NIC. - NOT IN CONTRACT SCOPE
- WALKWAY PADS. SEE ROOF CONSTRUCTION NOTE #2
- ERD. - EXISTING ROOF DRAIN TO BE REMOVED. SEE DEMOLITION NOTES.
- NRD. - NEW ROOF DRAIN TO BE INSTALLED. SEE DETAIL 1/A500
- MG. - METAL GUTTER. SEE DETAIL 3/A500
- DS. - METAL DOWNSPOUT. SEE ROOF CONSTRUCTION NOTE #3
- VS. - EXISTING VENT STACK. SEE DETAIL 6/A500
- MU. - EXISTING MECHANICAL UNIT. SEE DETAIL 8/A500
- RTU. - EXISTING ROOF TOP MECHANICAL UNIT. SEE DETAIL 4/A500
- SK. - SKYLIGHT. SEE ROOF CONSTRUCTION NOTE #5
- ED. - EXISTING DOOR. SEE DETAIL 5/A500
- EC. - EXISTING CHIMNEY.
- ES. - EXISTING SIREN TO REMAIN.
- GW. - EXISTING GUIDE WIRE TO REMAIN.
- EF. - EXISTING ELECTRICAL FIXTURE. SEE ROOF CONSTRUCTION NOTE #4

ROOF CONSTRUCTION NOTES

1. CONTRACTOR TO PROVIDE A SPECIFIED QUANTITY OF EXISTING DECK REPAIR & REPLACEMENT. SEE PROJECT MANUAL.
2. WALKWAY PADS TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATION. SEE PROJECT MANUAL FOR ADDITIONAL INFORMATION. COORDINATE & FINALIZE EXACT ROUTE W/ OWNER & ARCHITECT.
3. NEW METAL DOWNSPOUT, PLACE NEW CONCRETE SPLASH BLOCK AT WATER DISCHARGE. SEE PROJECT MANUAL.
4. EXISTING ELECTRICAL FIXTURE TO BE TEMPORARILY REMOVED & REINSTALLED TO ALLOW VERTICAL FLASHING TO BE INSTALLED & REINSTALLED IN EXISTING LOCATION.
5. EXISTING STRUCTURAL SKYLIGHT TO BE REMOVED & DISPOSED OF. INFILL ROOF OPENING W/ NEW METAL FRAMING/ METAL DECK. SEE DETAIL 2/A500

ROOF AREAS

ROOF "A" 2,900	SF.	ROOF "D" 100	SF.
ROOF "B" 140	SF.	ROOF "E" 190	SF.
ROOF "C" 130	SF.		

TOTAL ROOF AREAS: 3,460 SF.
THIS AREA IS APPROXIMATE; V.I.F.
IECC CODE REQUIREMENT R-VALUE MIN. R-30
CONNECTICUT ZONE 2B
CBSC REQUIREMENT : R-30 -U.0333

CODE INFORMATION

USE GROUP : B/ R-2
CONSTRUCTION CLASS: 2B
RISK CATEGORY #3
ULTIMATE DESIGN WIND SPEED: 135 MPH
NOMINAL DESIGN WIND SPEED: 105 MPH

FACTORY MUTUAL ENGINEERING & RESEARCH CORPORATION (FM): ROOF ASSEMBLY CLASSIFICATION OF NON-COMBUSTIBLE CONSTRUCTION, WIND UPLIFT REQUIREMENT OF I-60 FOR FIELD, I-75 FOR PERIMETER AND I-110 FOR CORNERS, IN ACCORDANCE WITH FM PROPERTY LOSS PREVENTION DATA SHEETS 1-28.

ROOF ASSEMBLY

OUTSIDE AIR	0.17
ROOF MEMBRANE	0.33
COVERBOARD	2.20
5" POLYISO INSUL.	29.7
EXISTING DECK	1.23
INSIDE AIR	0.61
R-VALUE TOTAL	34.24

CONSTRUCTION NOTES

1. POUR NEW CONCRETE BASES FOR NEW GEAR LOCKERS, MATCH EXISTING HEIGHT. VERIFY LOCKER DIMENSIONS PRIOR TO CONSTRUCTION.
2. CONSTRUCT NEW WALLS AROUND FOOD LOCKERS W/ 2x4 METAL STUDS & 1 LAYER 1/2" GYPSUM BOARDS. VERIFY LOCKER DIMENSIONS PRIOR TO CONSTRUCTION.
3. PATCH IN DEMOLISHED PLASTER WALLS W/ NEW GYPSUM BOARDS. FUR OUT AS REQ'D TO MATCH EXISTING PLASTER.
4. PROVIDE NEW DOOR HARDWARE. REFINISH/REPLACE EXISTING DOOR STOPS AS REQ'D, MATCH SPECIES & STAIN IN KIND.
5. STRIP EXISTING PAINT, STAIN TO MATCH EXISTING DOORS.
6. SELECTIVE REPOINTING OF EXISTING GLAZED MASONRY BLOCK PRIOR TO PAINTING.
7. RETAIN EXISTING SILLS & TRIM FOR NEW WINDOWS.
8. CONSTRUCT NEW WALLS AROUND PERSONAL LOCKERS. VERIFY LOCKER DIMENSIONS PRIOR TO CONSTRUCTION.
9. PROVIDE TOWEL HOOKS.
10. REMOVE WINDOW SECURITY BARS. SAND/PRIME/PAINT & REINSTALL.
11. REMOVE WINDOW GRATES. REPLACE W/ NEW I-BAR GRATES. SEE DETAIL 4/A501.

NORTH

KEY PLAN

SCALE: NONE

Project Title:

CITY OF HARTFORD - BUILDING RENOVATIONS TO:

ASYLUM HILL STATION - ENGINE Co. 5

129 SIGOURNEY STREET
HARTFORD, CONNECTICUT

SILVER PETRUCELLI + ASSOCIATES

3190 WHITNEY AVENUE HAMDEN CT 06518
311 STATE STREET NEW LONDON CT 06320
203 230 9007 silverpetrucelli.com

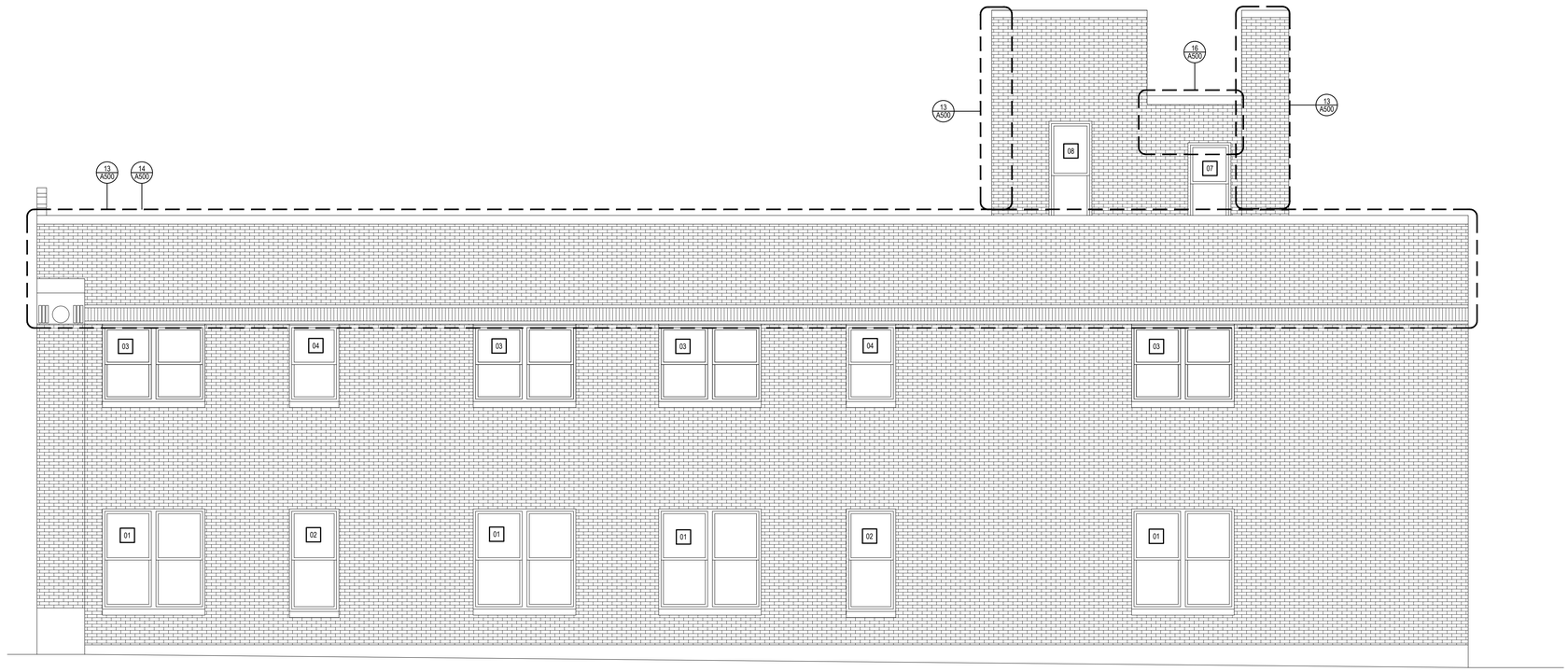
Revision:	Description:	Date:	Revised By:
	-	-	

Drawing Title:

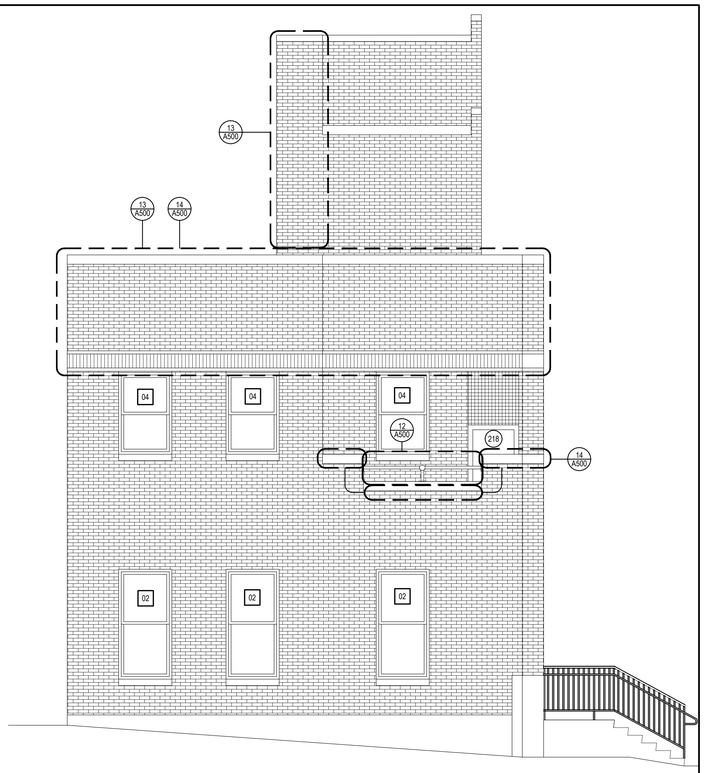
FLOOR PLANS
SECOND FLOOR & ROOF

Date: 07/20/2023
Scale: 1/4" = 1'-0"
Drawn By: MCM
Project Number: 22.386

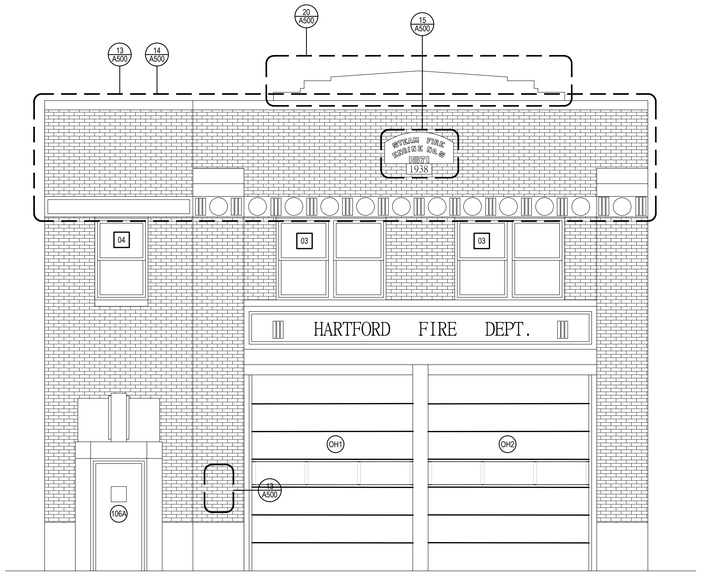
Drawing Number: A101



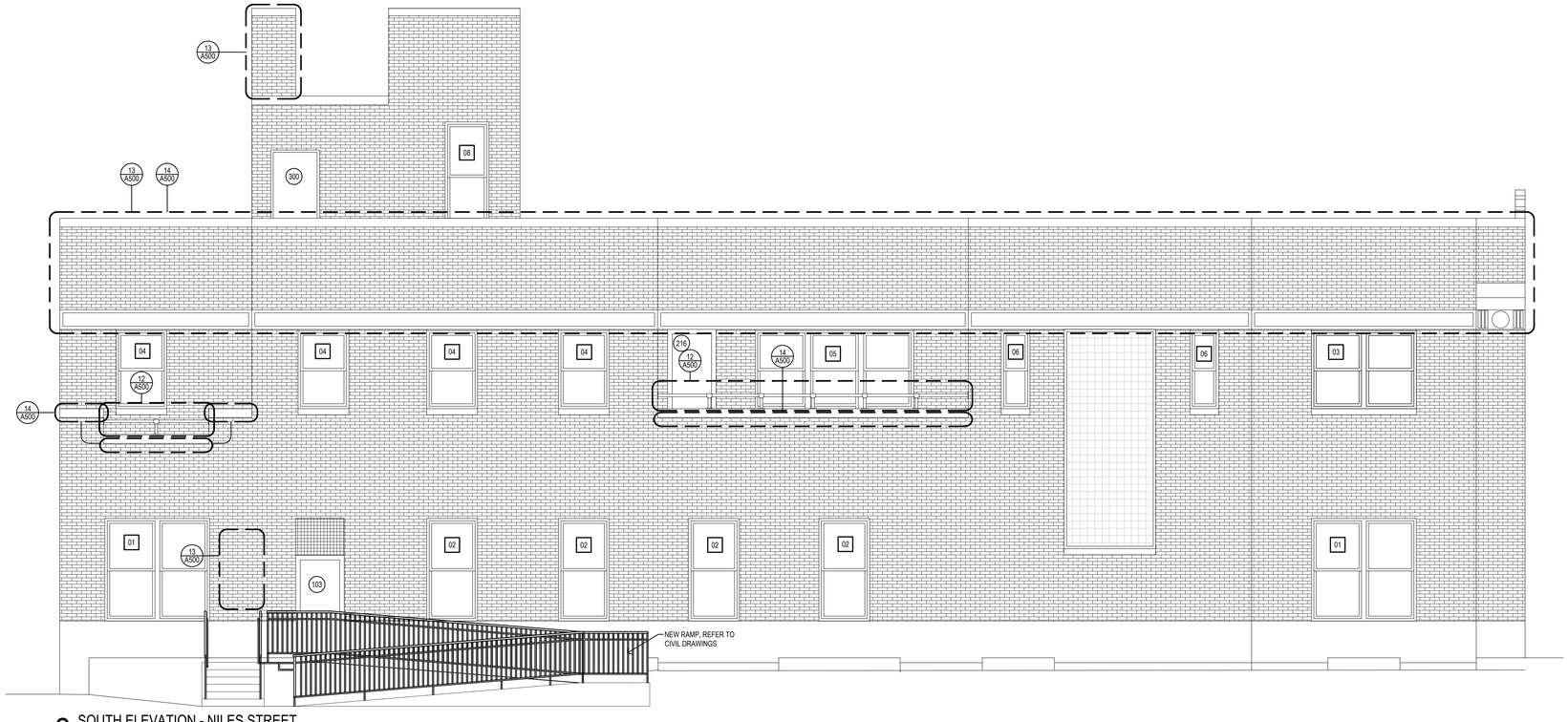
4 NORTH ELEVATION
1/4"=1'-0"



3 WEST ELEVATION
1/4"=1'-0"



1 EAST ELEVATION - SIGOURNEY STREET
1/4"=1'-0"



2 SOUTH ELEVATION - NILES STREET
1/4"=1'-0"

Project Title:
CITY OF HARTFORD - BUILDING RENOVATIONS TO:
ASYLUM HILL STATION - ENGINE Co. 5
129 SIGOURNEY STREET
HARTFORD, CONNECTICUT

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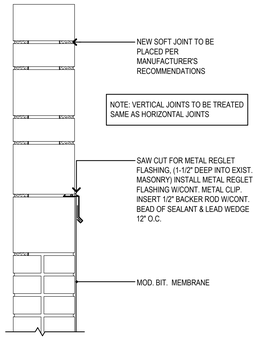
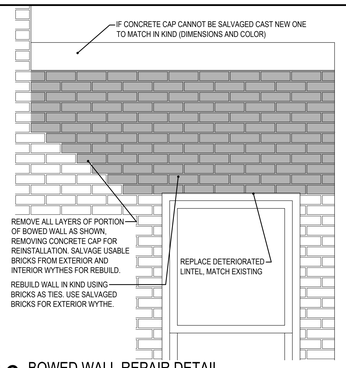
Revision:	Description:	Date:	Revised By:
	-	-	

Drawing Title:
EXTERIOR ELEVATIONS

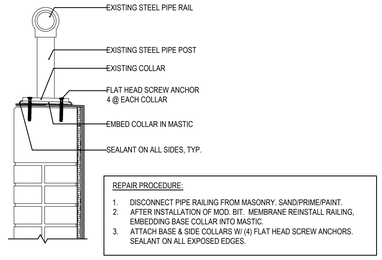
Date: 07/20/2023
Scale: 1/4" = 1'-0"
Drawn By: MCM
Project Number: 22.386
Drawing Number: A300



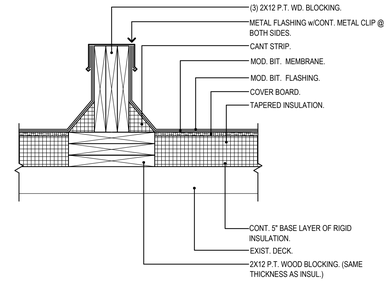
20 BROWNSTONE PEDIMENT REPAIR DETAIL
1-1/2"=1'-0"



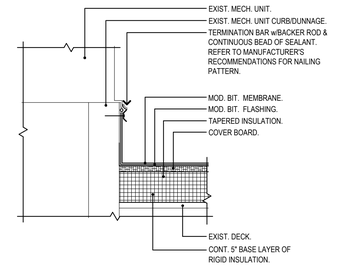
16 BOWED WALL REPAIR DETAIL
3/4"=1'-0"



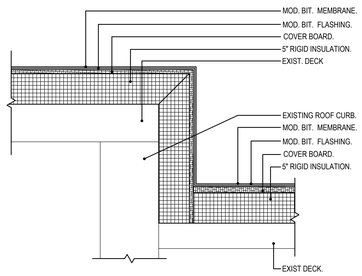
12 GUARD RAIL DETAIL
1-1/2"=1'-0"



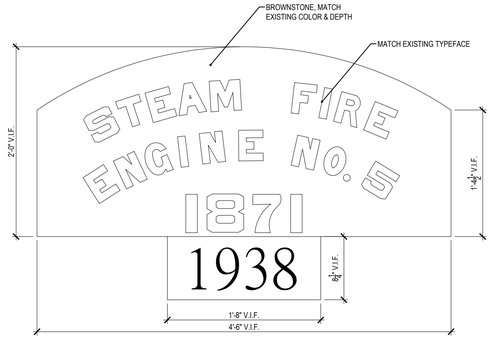
8 MECHANICAL UNIT DETAIL
1-1/2"=1'-0"



4 ROOF TOP UNIT
1-1/2"=1'-0"

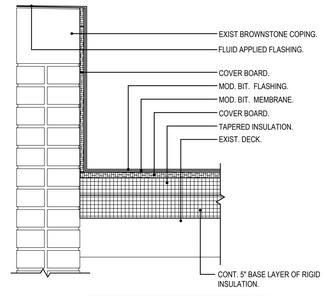


19 ROOF TO ROOF
1-1/2"=1'-0"

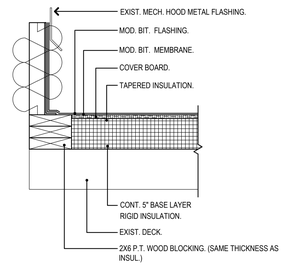


15 BROWNSTONE FACADE INSCRIPTION DETAIL
1"=1'-0"

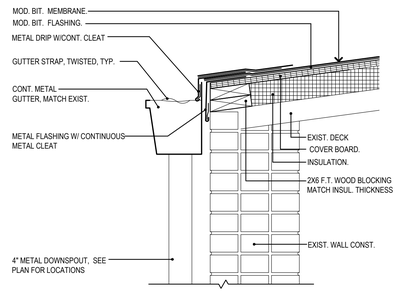
BID ALTERNATE



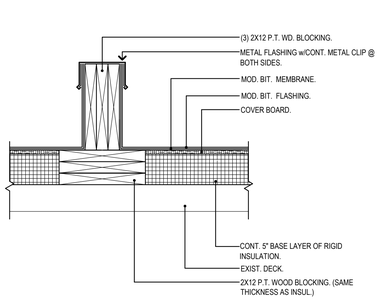
11 PARAPET WALL DETAIL
1-1/2"=1'-0"



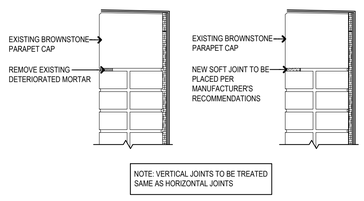
7 ROOF EXHAUST FAN DETAIL
1-1/2"=1'-0"



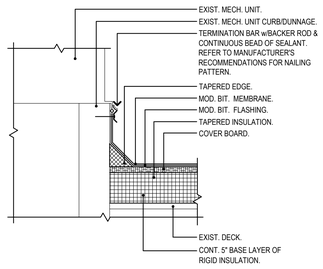
3 GUTTER DETAIL
1-1/2"=1'-0"



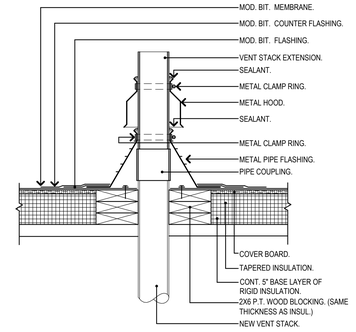
18 ROOF DIVIDER
1-1/2"=1'-0"



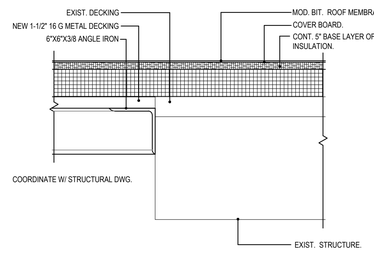
14 BROWNSTONE PARAPET CAP REPOINTING DETAIL
1-1/2"=1'-0"



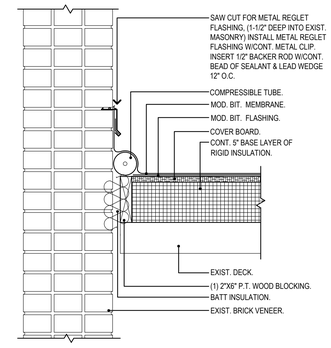
10 RTU TERMINATION DETAIL
1-1/2"=1'-0"



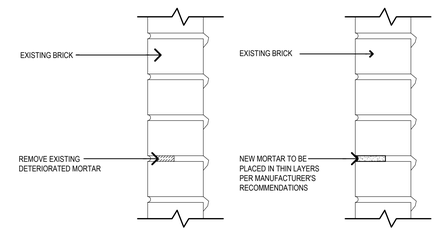
6 VENT STACK DETAIL
1-1/2"=1'-0"



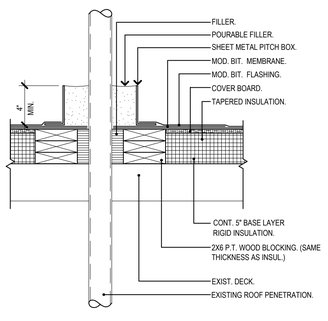
2 SKYLIGHT INFILL
1-1/2"=1'-0"



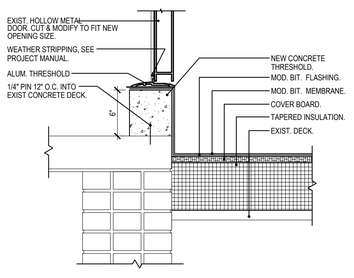
17 ROOF TO WALL REGLET
1-1/2"=1'-0"



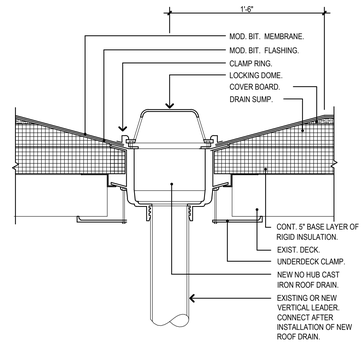
13 BRICK REPOINTING DETAIL
1-1/2"=1'-0"



9 RTU SUPPORT/PITCH POCKET DETAIL
1-1/2"=1'-0"



5 EXISTING DOOR
1-1/2"=1'-0"



1 ROOF DRAIN DETAIL
1-1/2"=1'-0"

Project Title:

CITY OF HARTFORD - BUILDING RENOVATIONS TO:

ASYLUM HILL STATION - ENGINE Co. 5

129 SIGOURNEY STREET
HARTFORD, CONNECTICUT

SILVER PETRUCELLI + ASSOCIATES

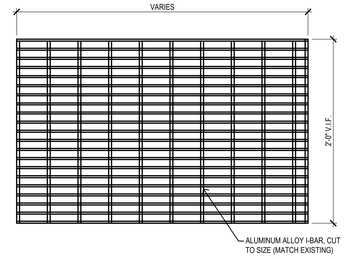
3190 WHITNEY AVENUE HAMDEN CT 06518
311 STATE STREET NEW LONDON CT 06320
203 230 9007 silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
	-	-	

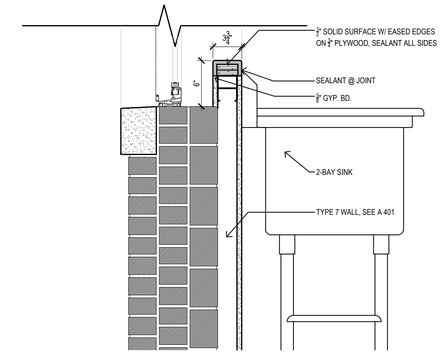
Drawing Title:

MASONRY REPAIR & ROOF DETAILS

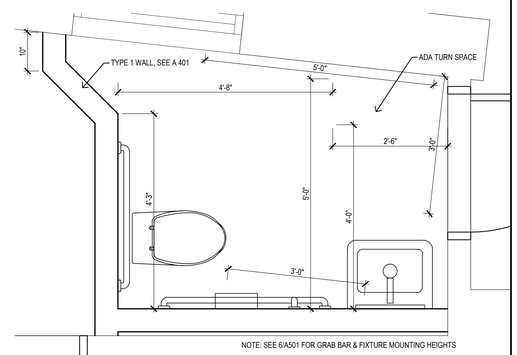
Date: 07/20/2023
Scale: AS NOTED
Drawn By: MCM/KL
Project Number: 22.386
Drawing Number: A500



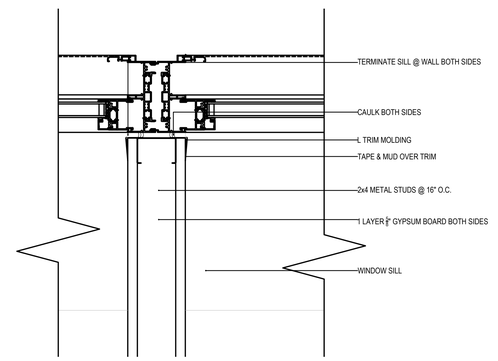
4 WINDOW WELL GRATE DETAIL
1-1/2"=1'-0"



3 KITCHEN WINDOW SILL DETAIL
1-1/2"=1'-0"



2 ADA TOILET WALL DETAIL
3/4"=1'-0"



1 BUNK WALL TO WINDOW MULLION DETAIL
1-1/2"=1'-0"

Project Title:
CITY OF HARTFORD - BUILDING RENOVATIONS TO:
ASYLUM HILL STATION - ENGINE Co. 5
129 SIGOURNEY STREET
HARTFORD, CONNECTICUT

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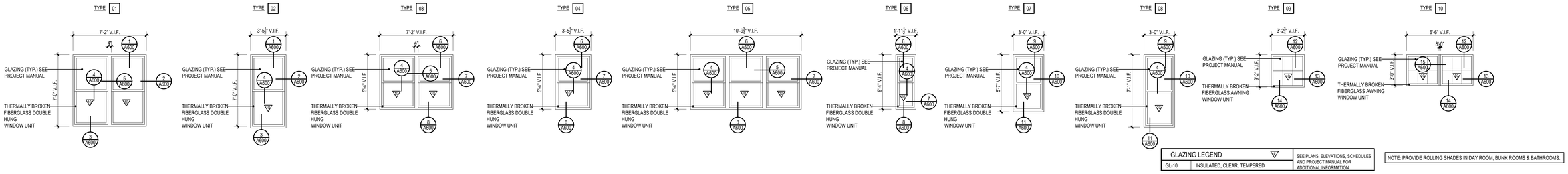
203 230 9007 silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
	-	-	

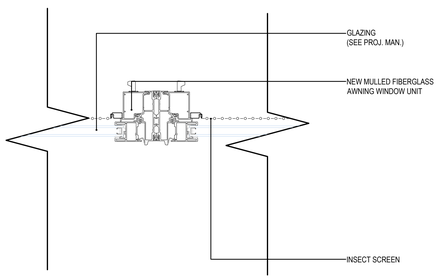
Drawing Title:
DETAILS

Date: 07/20/2023
Scale: AS NOTED
Drawn By: MCM/KL
Project Number: 22.386

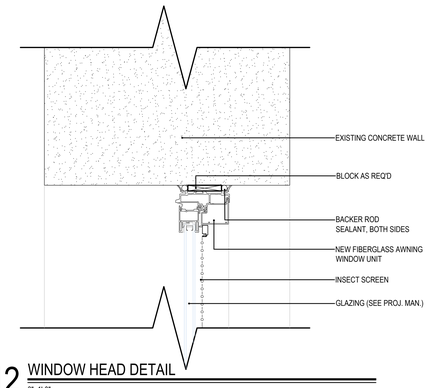
Drawing Number:
A501



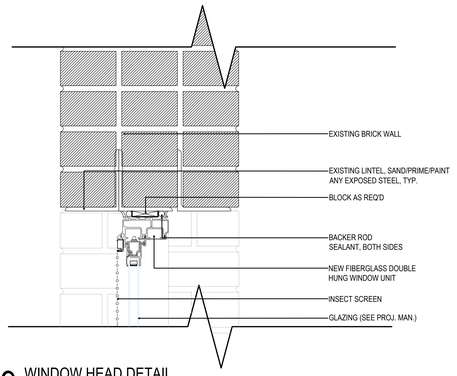
1 WINDOW ELEVATIONS
1/4"=1'-0"



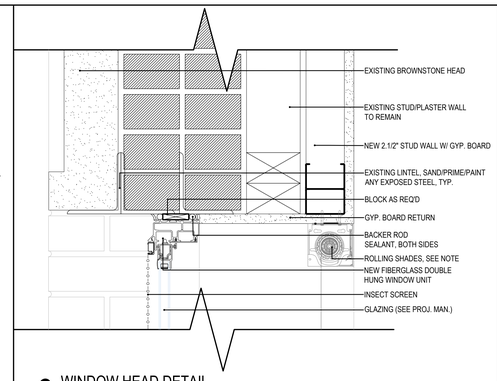
15 WINDOW MULLION DETAIL
3"=1'-0"



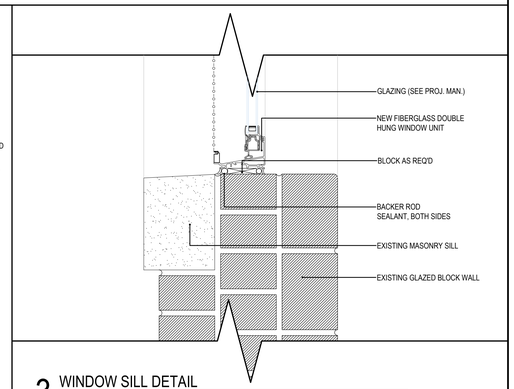
12 WINDOW HEAD DETAIL
3"=1'-0"



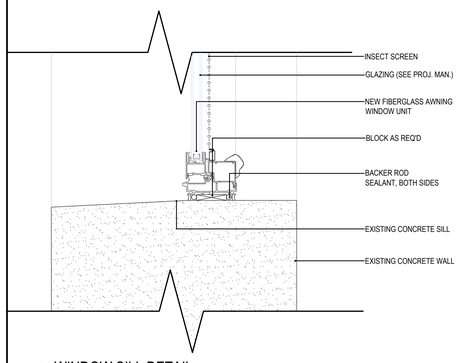
9 WINDOW HEAD DETAIL
3"=1'-0"



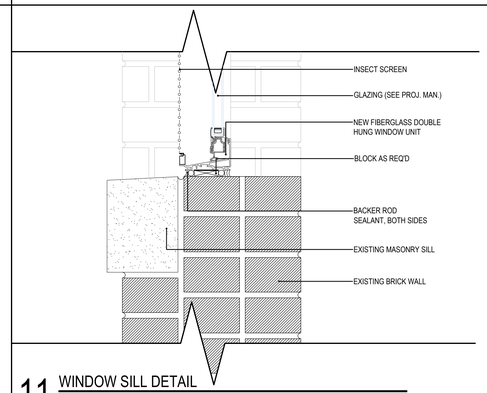
6 WINDOW HEAD DETAIL
3"=1'-0"



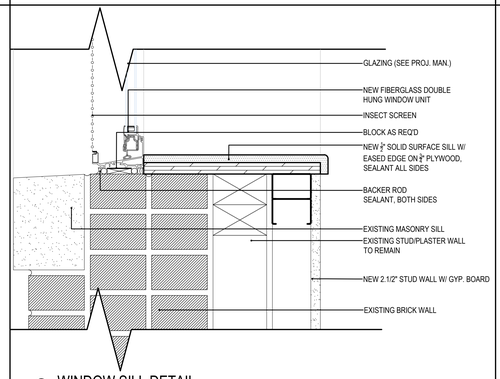
3 WINDOW SILL DETAIL
3"=1'-0"



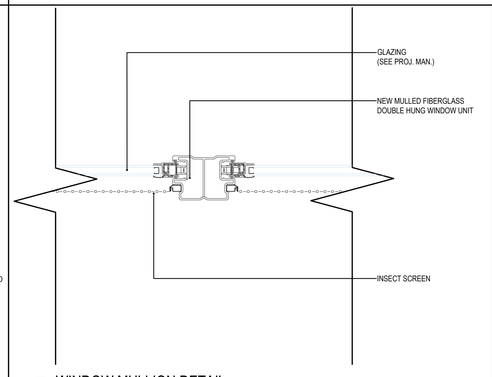
14 WINDOW SILL DETAIL
3"=1'-0"



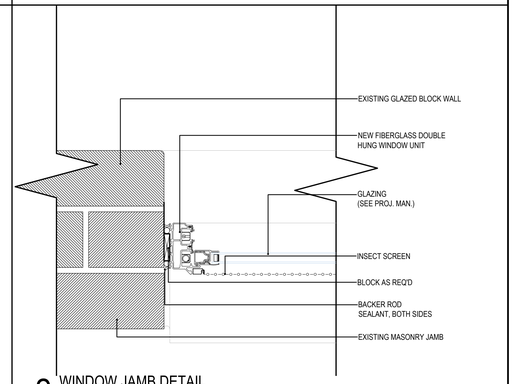
11 WINDOW SILL DETAIL
3"=1'-0"



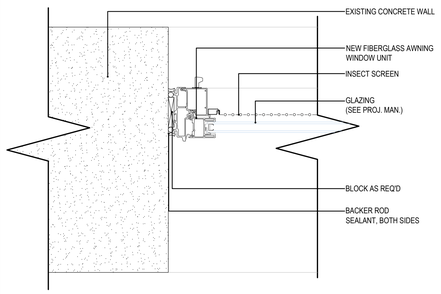
8 WINDOW SILL DETAIL
3"=1'-0"



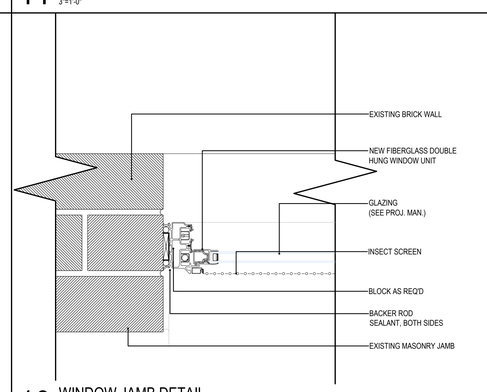
5 WINDOW MULLION DETAIL
3"=1'-0"



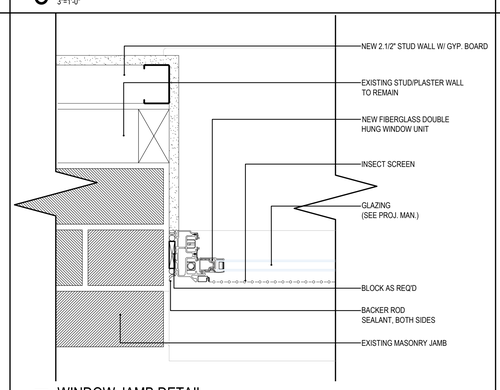
2 WINDOW JAMB DETAIL
3"=1'-0"



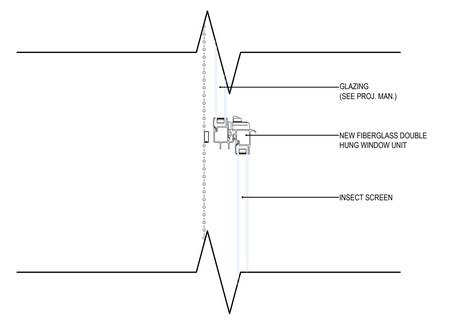
13 WINDOW JAMB DETAIL
3"=1'-0"



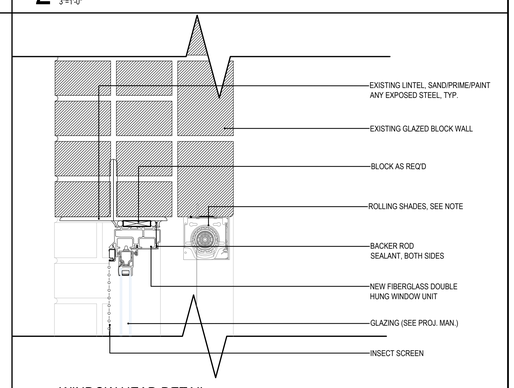
10 WINDOW JAMB DETAIL
3"=1'-0"



7 WINDOW JAMB DETAIL
3"=1'-0"



4 WINDOW RAIL DETAIL
3"=1'-0"



1 WINDOW HEAD DETAIL
3"=1'-0"

Project Title:
CITY OF HARTFORD - BUILDING RENOVATIONS TO:
ASYLUM HILL STATION - ENGINE Co. 5
129 SIGOURNEY STREET
HARTFORD, CONNECTICUT

SILVER PETRUCELLI + ASSOCIATES
3190 WHITNEY AVENUE HAMDEN CT 06518
311 STATE STREET NEW LONDON CT 06320
203 230 9007 silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
	-	-	

Drawing Title:
WINDOW ELEVATIONS & DETAILS

Date: 07/20/2023
Scale: 1/4" = 1'-0"
Drawn By: MCM
Project Number: 22.386

Drawing Number:
A600

CITY OF HARTFORD

550 Main Street
Hartford, CT 06105

LUKE A. BRONIN
Mayor

Telephone: (860) 757-9515

www.hartford.gov

THEA MONTANEZ
Chief Operating Officer

DATE: **August 21, 2023**

TO: **City of Hartford Historic Preservation Commission**

FROM: **Paul M. Drummey, Director of Capital Projects and Operations**

SUBJECT: 127 - 129 Sigourney Street, Hartford, CT 06105

Pursuant to section 29-263 of the Connecticut General Statutes, application for a permit shall be made by the owner or by an authorized agent. If the authorized agent is a contractor, such contractor shall follow the provisions of section 20-338b of the Connecticut general Statutes. The applicant shall include the full names and addresses of the owner, agent and the responsible officers, if the owner or agent is corporate body.

I owner, City of Hartford Fire Department, authorize the below listed person to act as agent to apply and secure permits for the property located at 127-129 Sigourney Street, Hartford, CT 06105.

Owner Representative Name:

Paul M. Drummey, Director of Capital Projects & Operations, City of Hartford

8-21-23

Owner Signature Date

Agent Representative Name:

Christopher Nardi, Principal Architect
Silver Petrucelli & Associates

8-31-2023

Agent Signature Date

Pella® Impervia®

Fiberglass windows and patio doors

Unmatched strength and lasting durability

Achieve commercial-grade strength and lasting durability for your customers' long-term return on investment. Pella Impervia products are made from our proprietary fiberglass material, the strongest material for windows and patio doors, engineered for lasting durability.[1]

Revolutionary hardware

The patent-pending Easy-Slide Operator simply slides to open, without the effort of cranking, on casement and awning windows.

Sleek profiles and more glass

Create bold designs from sleek profiles and more glass with our intentionally-designed products made from our exceptionally strong proprietary fiberglass.

- **100x more impact resistant[2]**
  Pella's fiberglass is 100x more impact-resistant than Andersen's Fibrex windows. You can trust our fiberglass products to be better equipped to stand up to a hammer misfire and other jobsite conditions.
- **Proven performance**
  Engineered for the rigorous performance requirements of a commercial building, Pella Impervia products provide outstanding resistance to water, wind and outside noise.[3]
- **Installation solutions and expertise**
  With nearly 100 years in business, we've got you covered with products and installation solutions for your exact situation.
- **Exceptional mulling capabilities**
  With both interior and exterior accessory grooves on all Pella fiberglass products, you can create larger, unique combinations specifically for your remodel or new construction project. Our extensive factory-mulled options will come preassembled, saving you time on the jobsite.
- **Up-to-date color palette**
  Achieve your design style with up-to-date frame color options, including Black.
- **Tested beyond requirements**
  Tested beyond industry standards and to extremes from -40ºF to 180ºF, our proprietary fiberglass can handle the most extreme heat and sub-zero cold.[4] Our products are tested beyond industry standards to help ensure less maintenance with fewer callbacks.
- **Durable three-way corner joints**
  For added strength, durability and reliable water performance, Pella Impervia products feature corner locks and sashes injected with sealant and fastened with screws.
- **The confidence of a strong warranty[5]**
  We know your reputation matters, so we have one of the strongest warranties in the business.

Available in these window and patio door styles:

Special shape windows also available.

[1,2,3,4,5] See back cover for disclosures.

Delivering **unmatched strength,** engineered for **lasting durability**.[1]

Pella's proprietary fiberglass vs. Andersen Fibrex[2, 6, 7]
Pella Impervia products won't dent, bend or break as much as the competition.

Won't dent.
100x
more impact-resistant

Won't bend.
10x
stronger

Won't break.
20x
the tensile strength

Product Specifications

Window & Patio Door Styles	Min. Width	Min. Height	Max. Width	Max. Height	Performance Class & Grade	Performance Values: U-Factor	SHGC	STC	Frame/Install
Vent Awning	20"	17-½"	59-½"	59-½"	LC30-LC50	0.18-0.48	0.16-0.55	29-37	Block Frame, Standard Fin, Off-set Fin, Integral Fin
Fixed Awning	13-½"	11-½"	71-½"	79-½"	LC45-LC50	0.16-0.49	0.18-0.63	28-36	
Vent Casement	17-½"	20"	37-½"	79-½"	LC45-LC50	0.26-0.45	0.18-0.55	25-32	
Fixed Casement	13-½"	11-½"	71-½"	79-½"	LC45-LC50	0.22-0.48	0.20-0.62	27-33	
Vent Double-Hung	17-½"	29-½"	47-½"	77-½"	LC30-LC50	0.25-0.49	0.19-0.58	26-29	
Vent Single-Hung	17-½"	23-½"	47-½"	77-½"	LC40-LC50	0.24-0.51	0.19-0.59	26-32	Block Frame, Standard Fin, Off-Set Fin, Integral Fin, Flush Frame
Sliding Window (OX, XO)	23-½"	11-½"	71-½"	71-½"	LC30-LC50	0.25-0.50	0.19-0.59	26-33	
Sliding Window (XOX)	47-½"	17-½"	107-½"	71-½"	LC30-LC50	0.25-0.50	0.19-0.59	26-32	
Fixed Sash and Frame	13-½"	13-½"	71-½"	71-½"	CW35-CW50	0.22-0.50	0.20-0.62	27-33	
Fixed Frame Direct Set	11-½"	11-½"	143-½"	143-½"	CW50	0.14-0.46	0.18-0.69	28-36	Block Frame, Standard Fin, Off-Set Fin
Sliding Patio Door (One Panel)	27"	71-½"	50.-⅝"	119-½"	LC30-LC50	0.17-0.48	0.19-0.59	29-33	Block Frame, Standard Fin, Off-Set Fin
Sliding Patio Door (Two Panel)	59-¼"	71-½"	95-¼"	119-½"	LC30-LC50	0.17-0.48	0.19-0.59	29-33	
Sliding Patio Door (Three Panel)	91-⅞"	71-½"	145-⅞"	119-½"	LC35-LC50	0.17-0.48	0.19-0.59	29-33	

Window sizes available in 1/8" increments
Maximum square footage rules apply. Maximum width and height cannot exceed the maximum square footage. Special shapes available.
Two and three-panel sliding patio door configurations that are greater than or equal to 95.5" in height will come knock-down and require field assembly.
Knock-down will be optional for two and three-panel configurations until 95.5" in height.

Glass & Additional Energy Efficiency Upgrades

InsulShield® Low-E Glass[8]

Pella Impervia products offer energy-efficient options that will meet or exceed ENERGY STAR guidelines in all 50 states.[9]


Advanced Low-E insulating dual- or triple-pane glass with argon


Advanced Comfort Low-E insulating dual-pane glass with argon


Natural Sun Low-E insulating dual- or triple-pane glass with argon


SunDefense™ Low-E insulating dual- or triple-pane glass with argon

Additional Glass Options


Tempered glass


Laminated (non-impact-resistant),[10] tinted[11] or obscure glass also available on select products


STC (Sound Transmission Class) dual-pane sound control glass[12]


Triple Pane[13]

Foam Insulation Options

Optional foam-insulated frame and sash are available to increase energy efficiency.

1, 2, 6, 7, 8, 9, 10, 11, 12, 13 See back cover for disclosures.

Color & Finishes

Frame Colors

Our long-lasting powder-coat finish resists chipping and fading and meets AAMA 624, which is a highly-rated fiberglass finish that will never need to be repainted or refinished.

Solid-Color:

White


Brown


Black


Tan


Morning Sky Gray

Dual-Color:


White Interior with Brown Exterior


White Interior with Black Exterior

Window Hardware

Casement & Awning

The patent-pending Easy-Slide Operator is a revolutionary way to operate casement and awning windows. Simply slide to open, without the effort of cranking. With precision venting technology, the window will open to an exact location. Or select the fold-away crank, that folds neatly away, against the window frame. Neither solution will interfere with roomside window treatments.


Easy-Slide Operator


Fold-Away Crank

Color-Matched Finishes:

White


Brown


Matte Black


Tan

Morning Sky Gray

Additional Finish:[14]


Satin Nickel

Sliding, Single & Double-Hung

Pella's cam-action lock pulls the sashes against the weatherstripping on single-hung, double-hung and sliding windows for a tighter seal.


Cam-Action Lock

Color-Matched Finishes:

White


Brown


Matte Black


Tan

Morning Sky Gray

Additional Finishes:

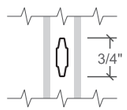

Satin Nickel


Bright Brass

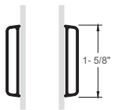

Oil-Rubbed Bronze

Grilles

Grilles are color-matched to window or patio door interior and exterior frame color.



Aluminum Grilles-Between-the-Glass ¾"[15]



Applied Grilles[16]

14,15,16,17 See back cover for disclosures.

Patio Door Hardware

Sliding Patio Door

Elevate a home's style with sleek hardware selections.

Sliding Patio Door Handle

Color-Matched Finishes:

White | Brown | Matte Black | Tan | Morning Sky Gray

Additional Finish:

Satin Nickel

Secure Vent Lock

A secure vent lock comes standard on all Pella Impervia sliding doors and provides security in both the closed and venting positions. Secure vent lock is color-matched to the interior of the frame.

Secure Vent Lock

Color-Matched Finishes:

White | Brown | Matte Black | Tan | Morning Sky Gray

Patio Door Blinds

Blinds-Between-the-Glass[17]

Give your homeowners more privacy by adding blinds-between-the-glass. Located between panes of glass, blinds are protected from dust, dirt and damage.

White | Slate Gray | Espresso

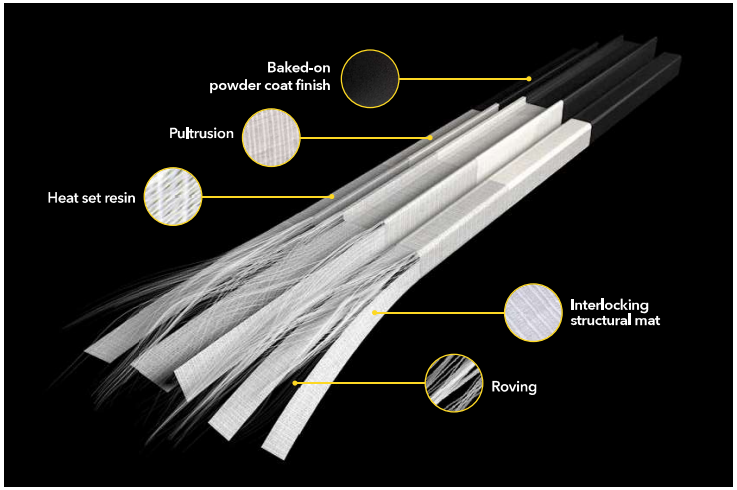
NOTE: Product specifications may change without notice.
Actual colors may vary from those shown and products may vary slightly from illustrations and photos.

[1] Pella's proprietary fiberglass material has displayed superior strength over wood, vinyl, aluminum, wood/plastic composites, and other fiberglass materials used by leading national brands in tensile and 3-point bend tests performed in accordance with ASTM D638 and D790 testing standards.
[2] Impact testing performance based on testing 10 samples of each material using ASTM D256, Method C.
[3] Pella® Impervia® windows and patio doors have a performance class of LC or higher. For information on product ratings see www.pella.com/performance.
[4] In testing performed in accordance with ASTM testing standards, Pella's fiberglass has displayed superior performance in strength, ability to withstand extreme heat and cold and resistance to dents and scratches. Special shape windows are made from a fiberglass resin material.
[5] See written limited warranty for details, including exceptions and limitations, at installpella.com/warranties
[6] Tensile testing performance based on testing 7 samples of each material using ASTM D638 test methodology.
[7] 3-point bend testing performance based on testing 10 samples of each material using ASTM D790 test methodology.
[8] Optional high-altitude Low-E insulating glass available with or without argon on select products.
[9] Some Pella products may not meet ENERGY STAR® guidelines in Canada. For more information, contact your local Pella sales representative or go to energystar.gc.ca.
[10] For best performance, the laminated glass may be in the interior or exterior pane of the insulating glass, depending on the product.
[11] Available with Advanced Low-E insulating glass with argon with bronze, gray or green tint on select products.
[12] Sound control glass consists of dissimilar glass thickness (3mm/5mm or 5mm/3mm).
[13] Available on direct set, awning and casement windows and sliding patio doors. Not available with Advanced Comfort Low-E glass.
[14] Only available for fold-away crank.
[15] Appearance of exterior grille color may vary depending on the Low-E insulating glass selection.
[16] Available on direct set windows only.
[17] Available on all two-panel and select sizes for three-panel sliding patio doors only.

Pella® Impervia®
Casement windows with a Black interior and exclusive, patent-pending Easy-Slide Operator.

Fiberglass Windows & Patio Doors

The natural strength and durability of fiberglass makes it an exceptional choice for windows and doors. As a leader in innovation since 1925, we created our proprietary fiberglass to give our customers more — more strength for long-lasting use and thinner profiles with more glass. Our fiberglass is the strongest material for windows and patio doors, engineered for lasting durability.* It delivers exceptional durability for the jobsite, easier installation, larger sizes and factory and field-mulling capabilities.



PROPRIETARY FIBERGLASS MATERIAL
Pella's fiberglass windows and patio doors are made from our proprietary fiberglass material through our one-of-a-kind manufacturing process.

Pella LIMITED LIFETIME WARRANTY

The confidence of a strong warranty.

We know your reputation matters and you stake your reputation on quality, dependable products. That's why we have one of the strongest warranties in the business. See written limited warranty for details, including exceptions and limitations, at **pella.com/warranty**.

* Pella's proprietary fiberglass material has displayed superior strength over wood, vinyl, aluminum, wood/plastic composites, and other fiberglass materials used by leading national brands in tensile and 3-point bend tests performed in accordance with ASTM D638 and D790 testing standards.

Pella® Impervia®

Fiberglass

Unmatched strength & lasting durability

Made from our proprietary fiberglass, the strongest material available for windows and patio doors.[1]

Sleek, timeless style

Versatile design elements combined with sleek profiles and clean lines deliver a timeless style.

Proven performance

Get outstanding resistance to water, wind and outside noises while increasing energy efficiency, security and ease of operation.

Installation solutions & expertise

Save time and reduce costly callbacks with our exclusive installation methods. Our dedicated team of experts is prepared to find a solution for your project.

Tested beyond requirements

Tested to extremes from -40°F to 180°F, our proprietary fiberglass can handle the most extreme heat and sub-cold.[2] Our products are tested beyond industry standards to help ensure less maintenance with fewer callbacks.

Pella Impervia products are engineered to last. Our proprietary fiberglass material provides unmatched strength and lasting durability with sleek, timeless style.[2] And they balance thermal efficiency, scale and value when it matters most.

Don't leave water and structural performance to chance. Tested in extremes and designed for every day, Pella Impervia products are engineered for the rigorous performance requirements of a commercial building and are designed to resist water, wind and outside noises.[3] With nearly 100 years in business, it's rare to come across an application that we haven't already designed a robust installation for. We've got you covered with both products and an installation designed for your exact situation. And whether new construction or window replacement, we have a dedicated team of experts to help with your project.

Rigorously tested, optimized designs.

100x more impact resistant than Fibrex.[4] Pella Impervia products are made from our proprietary fiberglass material and are on average 100x more impact-resistant than Andersen Fibrex, a wood/plastic composite product. You can trust our fiberglass products to stand up to a hammer misfire and other jobsite conditions.

ENERGY STAR® certified.[5] Pella Impervia products offer energy-efficient options that will meet or exceed ENERGY STAR guidelines in all 50 states.

Sleek, versatile elements.

Up-to-date color palette. Interior and exterior color options to achieve achieve your customers' unique design style, including Black. Our colors are a durable, powder-coat finish which resists chalking and fading.

Revolutionary hardware. Our patent-pending Easy-Slide Operator allows your homeowner to simply slide to open casement and awning windows, without the effort of cranking. Select a complementary or contrasting hardware finish to add interest.

Unique factory mulling. Factory-mulled combinations help save you time on the jobsite. And the superior strength of Pella fiberglass allows you to create larger, unique combinations, made just for your remodel or new construction project.

No-fuss solution for durability and value. The Pella Impervia – Classic Design sliding patio door features a simplified selection and exceptional strength and durability, all at an affordable price. Available exclusively to building professionals – to help keep your project on schedule, within budget and your clients' needs met.

Available in these window and patio door styles:

Special shapes also available.

[1] Pella's proprietary fiberglass material has displayed superior strength over wood, vinyl, aluminum, wood/plastic composites, and other fiberglass materials used by leading national brands in tensile and 3-point bend tests performed in accordance with ASTM D638 and D790 testing standards.

[2] In testing performed in accordance with ASTM testing standards, Pella's fiberglass has displayed superior performance in strength, ability to withstand extreme heat and cold and resistance to dents and scratches. Special shape windows are made from a fiberglass resin material.

[3] Pella Impervia windows and patio doors have a performance grade of LC or higher. For information on product ratings see pella.com/performance.

[4] Impact testing performance based on testing 10 samples of each material using ASTM D256, Method C.

[5] Pella products may not meet ENERGY STAR guidelines in Canada. For more information, contact your local Pella sales representative or go to energystar.gc.ca.

Colors & Finishes

Frame Colors

Our long-lasting powder-coat finish resists chalking and fading so you never need to paint or refinish.

Solid-Color Frame:

White | Brown | Black

Glass & Additional Energy Efficiency Upgrades

InsulShield® Low-E Glass[1]

Advanced Low-E insulating dual- or triple-pane glass with argon

AdvancedComfort Low-E dual-pane glass with argon

NaturalSun Low-E insulating dual- or triple-pane glass with argon

SunDefense™ Low-E insulating dual- or triple-pane glass with argon

Additional Glass Options

Bronze-tinted Advanced Low-E insulating glass with argon[1, 2]

Obscure Low-E insulating glass[2]

Tempered glass

Laminated (non-impact-resistant)[3] or tinted[4] also available on select products[2]

STC (Sound Transmission Class)-improved dual-pane sound control glass[5, 2]

Triple-pane glass[5, 2]

Foam Insulation Options

Optional foam-insulated frames are available to increase energy efficiency.

Grilles[2]

Grilles

Grilles are color-matched to the window or patio door interior and exterior frame color.

Aluminum Grilles-Between-the-Glass 3/4"[7]

Applied Grilles[8]

Grille Patterns

Choose from one of our standard grille patterns, or create a unique look with custom grille patterns.[9]

Traditional | **6-Lite Prairie** | **9-Lite Prairie** | **Top Row** | **Custom**

Screens[10]

Flat

InView™ screens let in 14% more light and are 8% more open for improved airflow when compared to the conventional fiberglass screen.[11]

InView™

[1] Optional high-altitude Low-E insulating glass available with or without argon on select products. Not available on Classic Design sliding patio door.
[2] Not available on Classic Design sliding patio door.
[3] For best performance, the laminated glass may be in the interior or exterior pane of the insulating glass, depending on the product.
[4] Available with Advanced Low-E insulating glass with argon with bronze, gray or green tint on selected products.
[5] Sound control glass consists of dissimilar glass thickness (3mm/5mm or 5mm/3mm).
[6] Available on direct set, awning, casement windows and sliding patio doors.
[7] Appearance of exterior grille color may vary depending on the Low-E insulating glass selection.
[8] Available on direct set windows only.
[9] Grille patterns offered may vary per product. See specific product information for availability.
[10] Warning: Screen will not stop child or pet from falling out of window or door. Keep child or pet away from open window or door.
[11] Improved airflow is based on calculated screen cloth openness. Screen cloth transmittance was measured using an integrated sphere spectrophotometer.

Window Hardware

Casement & Awning

The patent-pending Easy-Slide Operator is a revolutionary way to operate casement and awning windows. Simply slide to open, without the effort of cranking. With precision venting technology, the window will open to an exact location. Or select the fold-away crank, which folds neatly away against the window frame. Both solutions allow roomside window treatments to hang neatly.

Easy-Slide Operator

Fold-Away Crank

Color-Matched Finishes:

White | Brown | Matte Black

Additional Finish:*

Satin Nickel

Sliding, Single- & Double-Hung

Pella's cam-action lock pulls the sash against the weatherstripping on single-hung, double-hung and sliding windows for a tighter seal.

Cam-Action Lock

Color-Matched Finishes:

White | Brown | Matte Black

Additional Finish:

Satin Nickel | Bright Brass | Oil-Rubbed Bronze

* Only available on the fold-away crank.

Patio Door Hardware

Sliding Patio Door

A multipoint lock is available in color-matched and upgraded finishes to complement your project.

Sliding Patio Door Handle[1]

Color-Matched Finishes:

White | Brown | Matte Black

Additional Finish:[1]

Satin Nickel

Secure Vent Lock[1]

A secure vent lock comes standard on all Pella Impervia sliding doors and provides security in both the closed and venting positions.

Secure Vent Lock

Color-Matched Finishes:

White | Brown | Matte Black

Patio Door Blinds[1, 2]

Blinds-Between-the-Glass

Add privacy and complement a home's decor with blinds-between-the-glass. Located between panes of glass, blinds are protected from dust, dirt and damage.

White | Slate Gray | Espresso

Pella Impervia – Classic Design Sliding Patio Door

A no-fuss solution for durability and value. The classic design patio door features a simplified selection and exceptional strength and durability, all at an affordable price.[3] Available exclusively to building professions.

Hardware:

Classic Design Sliding Patio Door Handle

Frame and Hardware Finishes:

White | Brown | Black

Standard Features:

- **Advanced Low-E tempered dual-pane glass with argon**
- **Foam-insulated frame**

[1] Not available on Classic Design sliding patio door.
[2] Available on select sizes only. Contact your local Pella representative for more information.

[3] Pella's proprietary fiberglass material has displayed superior strength over wood, vinyl, aluminum, wood/plastic composites, and other fiberglass materials used by leading national brands in tensile and 3-point bend tests performed in accordance with ASTM D638 and D790 testing standards.

Document Navigation Tips:

Items listed in the table of contents above are active links that will take you to the corresponding page.
The Pella logo on each page is a link back to this table of contents.
Bookmarks are also included in this PDF document and are available as an additional navigation option.

Supporting documents for this product:

Test Reports:
https://media.pella.com/professional/adm/CertificationReports/Test_Reports_IMP.pdf

CSI Specs (readable using Microsoft Word or other text editing application):
https://media.pella.com/professional/adm/Fiberglass-CSI_Specs/08572_CMAW.rtf

AIA Masterspec (readable using Microsoft Word or other text editing application):
https://media.pella.com/professional/adm/Fiberglass-CSI_Specs/085413_fl.doc

Detailed Product Description (readable using Microsoft Word or other text editing application):
https://media.pella.com/professional/adm/Fiberglass/F2-AW.rtf

Size Tables (requires appropriate CAD software to read and use):
https://media.pella.com/professional/adm/Fiberglass/IMP-AW-LA-Elev_D.dwg

CAD cross sections (requires appropriate CAD software to read and use):
https://media.pella.com/professional/adm/Fiberglass/IMP-AW-LA-Detail_D.dwg

3D & BIM (requires appropriate software to read and use):
https://media.pella.com/professional/adm/RevitFiles/Imp-Revit/Window-Awning-Pella-Impervia.zip

Sketchup (requires appropriate software to read and use):
https://media.pella.com/professional/adm/Fiberglass/PellaSKP_Impervia_Awning.zip

Combination Recommendations:
https://media.pella.com/professional/adm/Fiberglass/F2_Combinations.pdf

Installation Details:
https://media.pella.com/professional/adm/Fiberglass/Pella-Impervia_InstallationDetails.pdf

Awning

Sizes	
Standard Vent/Fixed	●
Standard Fixed Companion Sizes	●
Special Sizes	●
Performance [1]	
Meets or Exceeds AAMA/WDMA Ratings	AP-LC30 - LC+50/-60 Hallmark Certified
Air Infiltration (cfm/ft² of frame @ 1.57 psf wind pressure)	0.05
Water Resistance	4.5 - 7.5 psf
Design Pressure	30 - 50 psf
Other Performance Criteria	
Forced Entry Resistance Level (Minimum Security Grade)[2]	40
Roto-Operator Maximum Operating Force (lb) Initiate Motion/Maintain Motion	15/6
Easy-Slide Operator Maximum Operating Force (lb) Initiate Motion/Maintain Motion	10/7
Easy-Slide Operator with Accessibility Lock Lever - Operating Force (lb) Initiate Motion/Maintain Motion Available for select sizes only Size requirements: Frame Width is ≤ 59.5" and Frame Height is ≤ 59.5" (Limited opening if FW > 26.75"). Review Local and Federal requirements for guidance on install height and other considerations to meet ADA compliance.	5/5

Sound Transmission Class and Outdoor-Indoor Transmission Class

Product	Frame Size Tested [3]	Glazing System				STC Rating	OITC Rating
		Overall Glazing Thickness	Exterior Glass Thickness	Middle Glass Thickness	Interior Glass Thickness		
VENT	59" x 23-1/2"	11/16"	3mm	–	3mm	29	25
	59" x 23-1/2"	11/16"	4mm	–	4mm	31	26
	59" x 23-1/2"	1"	3mm	3mm	3mm	29	24
	59" x 23-1/2"	1"	4mm	–	6mm	35	28
	59" x 23-1/2"	1"	5mm	–	3mm	34	28
	59" x 23-1/2"	1"	5mm	–	5mm	30	24
	59" x 23-1/2"	1"	6mm	–	6mm	33	27
	59" x 23-1/2"	1"	4mm	–	7mm Laminated	36	29
	59" x 23-1/2"	1"	5mm	–	10mm Laminated	37	31
FIXED	47" x 59"	11/16"	3mm	–	3mm	28	24
	47" x 59"	11/16"	4mm	–	4mm	29	25
	47" x 59"	1"	3mm	3mm	3mm	29	24
	47" x 59"	1"	4mm	4mm	4mm	30	26
	47" x 59"	1"	4mm	–	6mm	33	28
	47" x 59"	1"	5mm	–	3mm	32	27
	47" x 59"	1"	5mm	–	5mm	30	25
	47" x 59"	1"	6mm	–	6mm	30	24
	47" x 59"	1"	4mm	–	7mm Laminated	34	29
	47" x 59"	1"	5mm	–	10mm Laminated	36	31

(1) See Design Data pages in this section for specific product performance class and grade values.

(2) The higher the level, the greater the product's ability to resist forced entry.

(3) ASTM E 1425 defines standard sizes for acoustical testing. Ratings achieved at that size are representative of all sizes of the same configuration.

	Block Frame	Integral Nailing Fin
Glazing		
Glazing Type		
Dual-pane Insulating Glass	S	S
Triple-pane Insulating Glass	O	O
Insulated Glass Options / Low-E Types		
Clear Insulating Glass (no Low-E coating)	S	S
Advanced Low-E Insulating Glass	O	O
SunDefense™ Low-E Insulating Glass	O	O
AdvancedComfort Low-E Insulating Glass	O	O
NaturalSun Low-E Insulating Glass	O	O
Additional Glass Options		
Annealed Glass	S	S
Tempered Glass	O	O
Noise reduction glass (5/3mm, 4/6mm combinations)	O	O
Noise reduction laminated glass (non-impact)	O	O
Tinted glass (Bronze, Gray, Green) Advanced Low-E	O	O
Obscure Glass[1]	O	O
Gas Fill / High Altitude		
Argon	S	S
High Altitude	O	O
High Altitude with argon	O	O
Exterior / Interior Factory Pre-finish Colors		
Powder-Coat White	S	S
Powder-Coat Brown, Black, Tan or Morning Sky Gray	O	O
Powder-Coat Dual-color (Black or Brown Exterior with White interior)	O	–
Hardware		
Match interior finish	S	S
Tan, Morning Sky Gray, Satin Nickel[2]	O	O
Operator		
Easy-Slide Operator	S	S
Fold Away Crank	O	O
Sash Locks		
Accessibility Lock Handle	O	O
Screens		
InView™ screen	O	O
Grilles		
Grilles-Between-the-Glass		
Traditional, Prairie, Top Row and Custom - Equally Divided	O	O

S = Standard; O = Optional; (–) = Not available

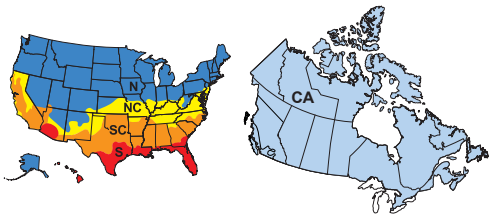
(1) Contact your local Pella sales representative for current offering.

(2) Satin Nickel is not available for Easy-Slide operator.

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
										U. S.				Canada[2]	
			Ext.	Int.		U-Factor	SHGC	VLT	CR	Zone				ER	Zone
Vent										N	NC	SC	S		CA
11/16"	Clear IG	PEL-N-278-00225-00001	3	3	air	0.45	0.55	0.58	43						
	with grilles-between-the-glass	PEL-N-278-00226-00001				0.45	0.50	0.52	43						
11/16"	Clear IG	PEL-N-278-00229-00001	4	4	air	0.46	0.53	0.57	42						
	with grilles-between-the-glass	PEL-N-278-00230-00001				0.46	0.49	0.52	42						
1"	Clear IG	PEL-N-278-00001-00001	5	5	air	0.44	0.53	0.57	44						
	with grilles-between-the-glass	PEL-N-278-00002-00001				0.44	0.48	0.51	44						
1"	Clear IG	PEL-N-278-00005-00001	6	6	air	0.44	0.51	0.56	44						
	with grilles-between-the-glass	PEL-N-278-00006-00001				0.44	0.46	0.50	44						
11/16"	Advanced Low-E IG	PEL-N-278-00235-00001	3	3	argon	0.29	0.26	0.49	58		NC				
	with grilles-between-the-glass	PEL-N-278-00236-00001				0.29	0.24	0.44	58		NC	SC	S		
11/16"	Advanced Low-E IG	PEL-N-278-00239-00001	4	4	argon	0.30	0.26	0.48	56		NC				
	with grilles-between-the-glass	PEL-N-278-00240-00001				0.31	0.24	0.44	56				S		
1"	Advanced Low-E IG	PEL-N-278-00019-00001	5	5	argon	0.29	0.26	0.48	55		NC				
	with grilles-between-the-glass	PEL-N-278-00020-00001				0.29	0.24	0.43	55		NC	SC	S		
1"	Advanced Low-E IG	PEL-N-278-00023-00001	6	6	argon	0.29	0.25	0.47	57		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00024-00001				0.29	0.23	0.43	57		NC	SC	S		
11/16"	SunDefense™ IG	PEL-N-278-00243-00001	3	3	argon	0.28	0.20	0.45	59		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00244-00001				0.29	0.18	0.41	58		NC	SC	S		
11/16"	SunDefense™ IG	PEL-N-278-00247-00001	4	4	argon	0.30	0.20	0.45	57		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00248-00001				0.30	0.18	0.41	57		NC	SC	S		
1"	SunDefense™ IG	PEL-N-278-00059-00001	5	5	argon	0.29	0.20	0.44	56		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00060-00001				0.29	0.18	0.40	56		NC	SC	S		
1"	SunDefense™ IG	PEL-N-278-00063-00001	6	6	argon	0.28	0.20	0.44	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00064-00001				0.28	0.18	0.40	58		NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-278-00259-00001	3	3	argon	0.26	0.26	0.48	46	N	NC				
	with grilles-between-the-glass	PEL-N-278-00260-00001				0.26	0.24	0.43	46	N	NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-278-00263-00001	4	4	argon	0.27	0.26	0.47	44	N	NC				
	with grilles-between-the-glass	PEL-N-278-00264-00001				0.27	0.23	0.43	44	N	NC	SC	S		
1"	AdvancedComfort Low-E IG	PEL-N-278-00091-00001	5	5	argon	0.26	0.25	0.47	44	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00092-00001				0.26	0.23	0.42	44	N	NC	SC	S		
1"	AdvancedComfort Low-E IG	PEL-N-278-00095-00001	6	6	argon	0.25	0.25	0.46	46	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00096-00001				0.25	0.23	0.42	46	N	NC	SC	S		
11/16"	NaturalSun Low-E IG	PEL-N-278-00251-00001	3	3	argon	0.30	0.48	0.55	58	N					
	with grilles-between-the-glass	PEL-N-278-00252-00001				0.30	0.44	0.50	58	N					
11/16"	NaturalSun Low-E IG	PEL-N-278-00255-00001	4	4	argon	0.31	0.47	0.55	56						
	with grilles-between-the-glass	PEL-N-278-00256-00001				0.32	0.43	0.50	56						
1"	NaturalSun Low-E IG	PEL-N-278-00075-00001	5	5	argon	0.30	0.47	0.54	55	N					
	with grilles-between-the-glass	PEL-N-278-00076-00001				0.30	0.43	0.49	55	N					
1"	NaturalSun Low-E IG	PEL-N-278-00079-00001	6	6	argon	0.30	0.45	0.54	57	N					
	with grilles-between-the-glass	PEL-N-278-00080-00001				0.30	0.41	0.49	57						

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating



(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500.
ENERGY STAR® values are updated to 2016 (Version 6) criteria.
(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.
For center-glass values, see the Product Performance section.
See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S.				Canada[2]	
										Zone				ER	Zone
Vent – with Foam Insulation										N	NC	SC	S		CA
11/16"	Advanced Low-E IG	PEL-N-278-00567-00001	3	3	argon	0.28	0.26	0.49	58		NC				
	with grilles-between-the-glass	PEL-N-278-00568-00001				0.28	0.24	0.44	58		NC	SC	S		
11/16"	Advanced Low-E IG	PEL-N-278-00571-00001	4	4	argon	0.29	0.26	0.48	56		NC				
	with grilles-between-the-glass	PEL-N-278-00572-00001				0.30	0.24	0.44	56		NC	SC	S		
1"	Advanced Low-E IG	PEL-N-278-00351-00001	5	5	argon	0.28	0.26	0.48	55		NC				
	with grilles-between-the-glass	PEL-N-278-00352-00001				0.28	0.24	0.43	55		NC	SC	S		
1"	Advanced Low-E IG	PEL-N-278-00355-00001	6	6	argon	0.28	0.25	0.47	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00356-00001				0.28	0.23	0.43	58		NC	SC	S		
11/16"	SunDefense IG	PEL-N-278-00575-00001	3	3	argon	0.27	0.20	0.45	59	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00576-00001				0.28	0.18	0.41	59		NC	SC	S		
11/16"	SunDefense IG	PEL-N-278-00579-00001	4	4	argon	0.29	0.20	0.45	57		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00580-00001				0.29	0.18	0.41	57		NC	SC	S		
1"	SunDefense™ IG	PEL-N-278-00391-00001	5	5	argon	0.27	0.20	0.44	56	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00392-00001				0.27	0.18	0.40	56	N	NC	SC	S		
1"	SunDefense™ IG	PEL-N-278-00395-00001	6	6	argon	0.27	0.20	0.44	58	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00396-00001				0.27	0.18	0.40	58	N	NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-278-00591-00001	3	3	argon	0.25	0.26	0.48	46	N	NC				
	with grilles-between-the-glass	PEL-N-278-00592-00001				0.25	0.24	0.43	46	N	NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-278-00595-00001	4	4	argon	0.26	0.26	0.47	44	N	NC				
	with grilles-between-the-glass	PEL-N-278-00596-00001				0.26	0.23	0.43	44	N	NC	SC	S		
1"	AdvancedComfort Low-E IG	PEL-N-278-00423-00001	5	5	argon	0.24	0.25	0.47	44	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00424-00001				0.24	0.23	0.42	44	N	NC	SC	S		
1"	AdvancedComfort Low-E IG	PEL-N-278-00427-00001	6	6	argon	0.24	0.25	0.46	46	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00428-00001				0.24	0.23	0.42	46	N	NC	SC	S		
11/16"	NaturalSun Low-E IG	PEL-N-278-00583-00001	3	3	argon	0.29	0.48	0.55	58	N					
	with grilles-between-the-glass	PEL-N-278-00584-00001				0.29	0.44	0.50	58	N					
11/16"	NaturalSun Low-E IG	PEL-N-278-00587-00001	4	4	argon	0.30	0.47	0.55	56	N					
	with grilles-between-the-glass	PEL-N-278-00588-00001				0.31	0.43	0.50	56						
1"	NaturalSun Low-E IG	PEL-N-278-00407-00001	5	5	argon	0.29	0.47	0.54	55	N					
	with grilles-between-the-glass	PEL-N-278-00408-00001				0.29	0.43	0.49	55	N					
1"	NaturalSun Low-E IG	PEL-N-278-00411-00001	6	6	argon	0.29	0.45	0.54	57	N					
	with grilles-between-the-glass	PEL-N-278-00412-00001				0.29	0.41	0.49	57	N					

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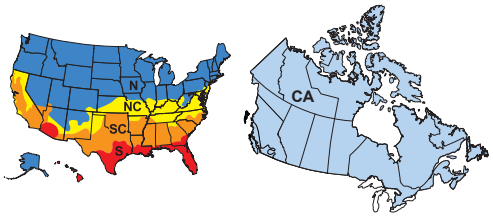

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Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm) Ext.	Glass (mm) Int.	Gap Fill	Performance Values[1] U-Factor	SHGC	VLT	CR	Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown U. S. Zone N	NC	SC	S	Canada[2] ER	Zone CA
Vent - High Altitude Glazing															
11/16"	(HA) Advanced Low-E IG	PEL-N-278-00233-00001	3	3	air	0.32	0.27	0.49	54						
	with grilles-between-the-glass	PEL-N-278-00234-00001				0.33	0.24	0.44	54				S		
11/16"	(HA) Advanced Low-E IG	PEL-N-278-00237-00001	4	4	air	0.34	0.27	0.48	52						
	with grilles-between-the-glass	PEL-N-278-00238-00001				0.35	0.24	0.44	52				S		
1"	(HA) Advanced Low-E IG	PEL-N-278-00017-00001	5	5	air	0.32	0.26	0.48	52						
	with grilles-between-the-glass	PEL-N-278-00018-00001				0.32	0.24	0.43	52				S		
1"	(HA) Advanced Low-E IG	PEL-N-278-00021-00001	6	6	air	0.32	0.26	0.47	54						
	with grilles-between-the-glass	PEL-N-278-00022-00001				0.32	0.24	0.43	54				S		
11/16"	(HA) SunDefense IG	PEL-N-278-00241-00001	3	3	air	0.32	0.20	0.45	54				S		
	with grilles-between-the-glass	PEL-N-278-00242-00001				0.33	0.19	0.41	54				S		
11/16"	(HA) SunDefense IG	PEL-N-278-00245-00001	4	4	air	0.34	0.20	0.45	52				S		
	with grilles-between-the-glass	PEL-N-278-00246-00001				0.35	0.19	0.41	52				S		
1"	(HA) SunDefense IG	PEL-N-278-00057-00001	5	5	air	0.32	0.20	0.44	52				S		
	with grilles-between-the-glass	PEL-N-278-00058-00001				0.32	0.18	0.40	52				S		
1"	(HA) SunDefense IG	PEL-N-278-00061-00001	6	6	air	0.32	0.20	0.44	54				S		
	with grilles-between-the-glass	PEL-N-278-00062-00001				0.32	0.18	0.40	54				S		
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00257-00001	3	3	air	0.29	0.26	0.48	42		NC				
	with grilles-between-the-glass	PEL-N-278-00258-00001				0.29	0.24	0.43	42		NC	SC	S		
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00261-00001	4	4	air	0.30	0.26	0.47	40		NC				
	with grilles-between-the-glass	PEL-N-278-00262-00001				0.30	0.24	0.43	40		NC	SC	S		
1"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00089-00001	5	5	air	0.28	0.25	0.47	43		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00090-00001				0.28	0.23	0.42	43		NC	SC	S		
1"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00093-00001	6	6	air	0.28	0.25	0.46	42		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00094-00001				0.28	0.23	0.42	42		NC	SC	S		
11/16"	(HA) NaturalSun Low-E IG	PEL-N-278-00249-00001	3	3	air	0.33	0.48	0.55	54						
	with grilles-between-the-glass	PEL-N-278-00250-00001				0.33	0.44	0.50	54						
11/16"	(HA) NaturalSun Low-E IG	PEL-N-278-00253-00001	4	4	air	0.35	0.47	0.55	52						
	with grilles-between-the-glass	PEL-N-278-00254-00001				0.36	0.43	0.50	52						
1"	(HA) NaturalSun Low-E IG	PEL-N-278-00073-00001	5	5	air	0.33	0.47	0.54	52						
	with grilles-between-the-glass	PEL-N-278-00074-00001				0.33	0.42	0.49	52						
1"	(HA) NaturalSun Low-E IG	PEL-N-278-00077-00001	6	6	air	0.33	0.45	0.54	54						
	with grilles-between-the-glass	PEL-N-278-00078-00001				0.33	0.41	0.49	54						

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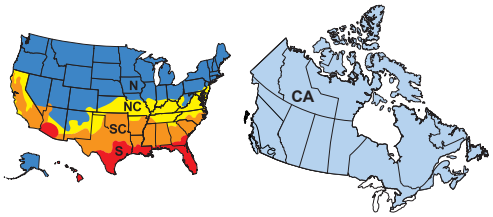

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Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm) Ext.	Glass (mm) Int.	Gap Fill	Performance Values[1] U-Factor	SHGC	VLT	CR	Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown U. S. Zone N	NC	SC	S	Canada[2] ER	Canada[2] Zone CA
Vent - High Altitude Glazing – with Foam Insulation															
11/16"	(HA) Advanced Low-E IG	PEL-N-278-00565-00001	3	3	air	0.31	0.27	0.49	54						
	with grilles-between-the-glass	PEL-N-278-00566-00001				0.32	0.24	0.44	54				S		
11/16"	(HA) Advanced Low-E IG	PEL-N-278-00569-00001	4	4	air	0.33	0.27	0.48	52						
	with grilles-between-the-glass	PEL-N-278-00570-00001				0.34	0.24	0.44	52				S		
1"	(HA) Advanced Low-E IG	PEL-N-278-00349-00001	5	5	air	0.31	0.26	0.48	52						
	with grilles-between-the-glass	PEL-N-278-00350-00001				0.31	0.24	0.43	52				S		
1"	(HA) Advanced Low-E IG	PEL-N-278-00353-00001	6	6	air	0.31	0.26	0.47	54						
	with grilles-between-the-glass	PEL-N-278-00354-00001				0.31	0.24	0.43	54				S		
11/16"	(HA) SunDefense IG	PEL-N-278-00573-00001	3	3	air	0.31	0.20	0.45	55				S		
	with grilles-between-the-glass	PEL-N-278-00574-00001				0.32	0.19	0.41	54				S		
11/16"	(HA) SunDefense IG	PEL-N-278-00577-00001	4	4	air	0.33	0.20	0.45	53				S		
	with grilles-between-the-glass	PEL-N-278-00578-00001				0.34	0.19	0.41	52				S		
1"	(HA) SunDefense IG	PEL-N-278-00389-00001	5	5	air	0.31	0.20	0.44	53				S		
	with grilles-between-the-glass	PEL-N-278-00390-00001				0.31	0.18	0.40	53				S		
1"	(HA) SunDefense IG	PEL-N-278-00393-00001	6	6	air	0.30	0.20	0.44	55		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00394-00001				0.30	0.18	0.40	55		NC	SC	S		
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00589-00001	3	3	air	0.27	0.26	0.48	42	N	NC				
	with grilles-between-the-glass	PEL-N-278-00590-00001				0.28	0.24	0.43	42		NC	SC	S		
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00593-00001	4	4	air	0.29	0.26	0.47	40		NC				
	with grilles-between-the-glass	PEL-N-278-00594-00001				0.29	0.24	0.43	40		NC	SC	S		
1"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00421-00001	5	5	air	0.27	0.25	0.47	43	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00422-00001				0.27	0.23	0.42	43	N	NC	SC	S		
1"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00425-00001	6	6	air	0.27	0.25	0.46	43	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00426-00001				0.27	0.23	0.42	43	N	NC	SC	S		
11/16"	(HA) NaturalSun Low-E IG	PEL-N-278-00581-00001	3	3	air	0.32	0.48	0.55	54						
	with grilles-between-the-glass	PEL-N-278-00582-00001				0.32	0.44	0.50	54						
11/16"	(HA) NaturalSun Low-E IG	PEL-N-278-00585-00001	4	4	air	0.34	0.47	0.55	52						
	with grilles-between-the-glass	PEL-N-278-00586-00001				0.35	0.43	0.50	52						
1"	(HA) NaturalSun Low-E IG	PEL-N-278-00405-00001	5	5	air	0.32	0.47	0.54	52						
	with grilles-between-the-glass	PEL-N-278-00406-00001				0.32	0.42	0.49	52						
1"	(HA) NaturalSun Low-E IG	PEL-N-278-00409-00001	6	6	air	0.32	0.45	0.54	54						
	with grilles-between-the-glass	PEL-N-278-00410-00001				0.32	0.41	0.49	54						

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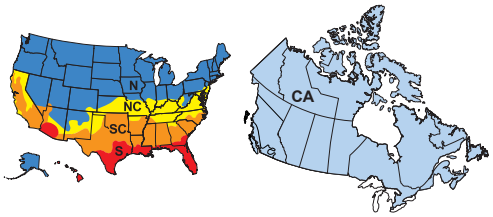

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Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S. Zone				Canada[2] ER	Canada[2] Zone
										N	NC	SC	S		CA
Vent - 5mm/3mm Glass															
1"	Clear IG	PEL-N-278-00009-00001	5	3	air	0.44	0.53	0.57	44						
	with grilles-between-the-glass	PEL-N-278-00010-00001				0.44	0.48	0.52	44						
1"	Advanced Low-E IG	PEL-N-278-00051-00001	5	3	argon	0.29	0.26	0.48	56		NC				
	with grilles-between-the-glass	PEL-N-278-00052-00001				0.29	0.24	0.44	56		NC	SC	S		
1"	SunDefense™ IG	PEL-N-278-00067-00001	5	3	argon	0.29	0.20	0.45	56		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00068-00001				0.29	0.18	0.41	56		NC	SC	S		
1"	AdvancedComfort Low-E IG	PEL-N-278-00099-00001	5	3	argon	0.26	0.25	0.47	45	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00100-00001				0.26	0.23	0.43	45	N	NC	SC	S		
1"	NaturalSun Low-E IG	PEL-N-278-00083-00001	5	3	argon	0.30	0.47	0.55	56	N					
	with grilles-between-the-glass	PEL-N-278-00084-00001				0.30	0.43	0.50	56	N					
Vent – 5mm/3mm Glass with Foam Insulation															
1"	Advanced Low-E IG	PEL-N-278-00383-00001	5	3	argon	0.28	0.26	0.48	56		NC				
	with grilles-between-the-glass	PEL-N-278-00384-00001				0.28	0.24	0.44	56		NC	SC	S		
1"	SunDefense IG	PEL-N-278-00399-00001	5	3	argon	0.28	0.20	0.45	57		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00400-00001				0.28	0.18	0.41	57		NC	SC	S		
1"	AdvancedComfort Low-E IG	PEL-N-278-00431-00001	5	3	argon	0.25	0.25	0.47	45	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00432-00001				0.25	0.23	0.43	45	N	NC	SC	S		
1"	NaturalSun Low-E IG	PEL-N-278-00415-00001	5	3	argon	0.29	0.47	0.55	56	N					
	with grilles-between-the-glass	PEL-N-278-00416-00001				0.29	0.43	0.50	56	N					
Vent - 5mm/3mm Glass High Altitude Glazing															
1"	(HA) Advanced Low-E IG	PEL-N-278-00049-00001	5	3	air	0.32	0.26	0.48	53						
	with grilles-between-the-glass	PEL-N-278-00050-00001				0.32	0.24	0.44	53				S		
1"	(HA) SunDefense IG	PEL-N-278-00065-00001	5	3	air	0.32	0.20	0.45	53				S		
	with grilles-between-the-glass	PEL-N-278-00066-00001				0.32	0.18	0.41	53				S		
1"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00097-00001	5	3	air	0.28	0.25	0.47	41		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00098-00001				0.28	0.23	0.43	41		NC	SC	S		
1"	(HA) NaturalSun Low-E IG	PEL-N-278-00081-00001	5	3	air	0.33	0.47	0.55	53						
	with grilles-between-the-glass	PEL-N-278-00082-00001				0.33	0.43	0.50	53						
Vent - 5mm/3mm Glass High Altitude Glazing – with Foam Insulation															
1"	(HA) Advanced Low-E IG	PEL-N-278-00381-00001	5	3	air	0.31	0.26	0.48	53						
	with grilles-between-the-glass	PEL-N-278-00382-00001				0.31	0.24	0.44	53				S		
1"	(HA) SunDefense IG	PEL-N-278-00397-00001	5	3	air	0.31	0.20	0.45	53				S		
	with grilles-between-the-glass	PEL-N-278-00398-00001				0.31	0.18	0.41	53				S		
1"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00429-00001	5	3	air	0.27	0.25	0.47	41	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00430-00001				0.27	0.23	0.43	41	N	NC	SC	S		
1"	(HA) NaturalSun Low-E IG	PEL-N-278-00413-00001	5	3	air	0.32	0.47	0.55	53						
	with grilles-between-the-glass	PEL-N-278-00414-00001				0.32	0.43	0.50	53						

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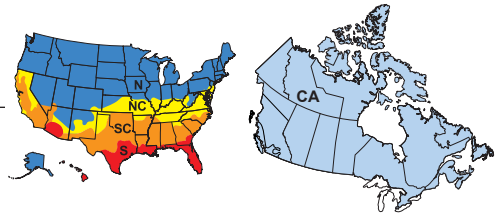

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Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S. Zone				Canada[2] ER	Canada[2] Zone
										N	NC	SC	S		CA
Vent - 4mm/6mm Glass															
1"	Clear IG	PEL-N-278-00013-00001	4	6	air	0.44	0.53	0.56	44						
	with grilles-between-the-glass	PEL-N-278-00014-00001				0.44	0.48	0.51	44						
1"	Advanced Low-E IG	PEL-N-278-00055-00001	4	6	argon	0.29	0.26	0.48	55		NC				
	with grilles-between-the-glass	PEL-N-278-00056-00001				0.29	0.24	0.43	55		NC	SC	S		
1"	SunDefense™ IG	PEL-N-278-00071-00001	4	6	argon	0.29	0.20	0.44	55		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00072-00001				0.29	0.18	0.40	55		NC	SC	S		
1"	AdvancedComfort Low-E IG	PEL-N-278-00103-00001	4	6	argon	0.25	0.25	0.47	44	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00104-00001				0.25	0.23	0.42	44	N	NC	SC	S		
1"	NaturalSun Low-E IG	PEL-N-278-00087-00001	4	6	argon	0.30	0.47	0.54	55	N					
	with grilles-between-the-glass	PEL-N-278-00088-00001				0.30	0.43	0.49	55	N					
Vent – 4mm/6mm Glass with Foam Insulation															
1"	Advanced Low-E IG	PEL-N-278-00387-00001	4	6	argon	0.28	0.26	0.48	55		NC				
	with grilles-between-the-glass	PEL-N-278-00388-00001				0.28	0.24	0.43	55		NC	SC	S		
1"	SunDefense IG	PEL-N-278-00403-00001	4	6	argon	0.27	0.20	0.44	55	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00404-00001				0.27	0.18	0.40	55	N	NC	SC	S		
1"	AdvancedComfort Low-E IG	PEL-N-278-00435-00001	4	6	argon	0.24	0.25	0.47	44	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00436-00001				0.24	0.23	0.42	44	N	NC	SC	S		
1"	NaturalSun Low-E IG	PEL-N-278-00419-00001	4	6	argon	0.29	0.47	0.54	55	N					
	with grilles-between-the-glass	PEL-N-278-00420-00001				0.29	0.43	0.49	55	N					
Vent - 4mm/6mm Glass High Altitude Glazing															
1"	(HA) Advanced Low-E IG	PEL-N-278-00053-00001	4	6	air	0.32	0.26	0.48	52						
	with grilles-between-the-glass	PEL-N-278-00054-00001				0.32	0.24	0.43	52				S		
1"	(HA) SunDefense IG	PEL-N-278-00069-00001	4	6	air	0.32	0.20	0.44	52				S		
	with grilles-between-the-glass	PEL-N-278-00070-00001				0.32	0.18	0.40	52				S		
1"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00101-00001	4	6	air	0.28	0.25	0.47	43		NC	SC	S	19	CA
	with grilles-between-the-glass	PEL-N-278-00102-00001				0.28	0.23	0.42	43		NC	SC	S	18	CA
1"	(HA) NaturalSun Low-E IG	PEL-N-278-00085-00001	4	6	air	0.33	0.47	0.54	52					25	CA
	with grilles-between-the-glass	PEL-N-278-00086-00001				0.33	0.43	0.49	52						
Vent - 4mm/6mm Glass High Altitude Glazing – with Foam Insulation															
1"	(HA) Advanced Low-E IG	PEL-N-278-00385-00001	4	6	air	0.31	0.26	0.48	52						
	with grilles-between-the-glass	PEL-N-278-00386-00001				0.31	0.24	0.43	52				S		
1"	(HA) SunDefense IG	PEL-N-278-00401-00001	4	6	air	0.31	0.20	0.44	52				S		
	with grilles-between-the-glass	PEL-N-278-00402-00001				0.31	0.18	0.40	52				S		
1"	(HA) AdvancedComfort Low-E IG	PEL-N-278-00433-00001	4	6	air	0.27	0.25	0.47	43	N	NC	SC	S	20	CA
	with grilles-between-the-glass	PEL-N-278-00434-00001				0.27	0.23	0.42	43	N	NC	SC	S	19	CA
1"	(HA) NaturalSun Low-E IG	PEL-N-278-00417-00001	4	6	air	0.32	0.47	0.54	52					27	CA
	with grilles-between-the-glass	PEL-N-278-00418-00001				0.32	0.43	0.49	52						

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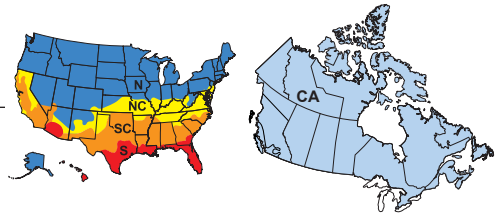

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Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm) Ext.	Glass (mm) Int.	Gap Fill	Performance Values[1] U-Factor	SHGC	VLT	CR	Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown U. S. Zone N	NC	SC	S	Canada[2] ER	Canada[2] Zone CA
Vent – with Tinted Glazing															
11/16"	Bronze Advanced Low-E IG	PEL-N-278-00275-00001	5	3	argon	0.30	0.24	0.32	57		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00276-00001				0.31	0.22	0.29	57				S		
1"	Bronze Advanced Low-E IG	PEL-N-278-00027-00001	5	5	argon	0.29	0.23	0.31	56		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00028-00001				0.29	0.21	0.28	56		NC	SC	S		
1"	Bronze Advanced Low-E IG	PEL-N-278-00039-00001	6	6	argon	0.29	0.22	0.28	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00040-00001				0.29	0.20	0.25	58		NC	SC	S		
11/16"	Gray Advanced Low-E IG	PEL-N-278-00279-00001	5	3	argon	0.30	0.22	0.27	57		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00280-00001				0.31	0.20	0.25	57				S		
1"	Gray Advanced Low-E IG	PEL-N-278-00031-00001	5	5	argon	0.29	0.21	0.27	56		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00032-00001				0.29	0.19	0.24	56		NC	SC	S		
1"	Gray Advanced Low-E IG	PEL-N-278-00043-00001	6	6	argon	0.29	0.19	0.24	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00044-00001				0.29	0.18	0.21	58		NC	SC	S		
11/16"	Green Advanced Low-E IG	PEL-N-278-00283-00001	5	3	argon	0.30	0.27	0.43	57		NC				
	with grilles-between-the-glass	PEL-N-278-00284-00001				0.31	0.24	0.39	57				S		
1"	Green Advanced Low-E IG	PEL-N-278-00035-00001	5	5	argon	0.29	0.26	0.42	56		NC				
	with grilles-between-the-glass	PEL-N-278-00036-00001				0.29	0.24	0.38	56		NC	SC	S		
1"	Green Advanced Low-E IG	PEL-N-278-00047-00001	6	6	argon	0.29	0.25	0.41	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00048-00001				0.29	0.23	0.37	58		NC	SC	S		
Vent – with Foam Insulation and Tinted Glazing															
11/16"	Bronze Advanced Low-E IG	PEL-N-278-00607-00001	5	3	argon	0.29	0.24	0.32	57		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00608-00001				0.30	0.22	0.29	57		NC	SC	S		
1"	Bronze Advanced Low-E IG	PEL-N-278-00359-00001	5	5	argon	0.28	0.23	0.31	56		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00360-00001				0.28	0.21	0.28	56		NC	SC	S		
1"	Bronze Advanced Low-E IG	PEL-N-278-00371-00001	6	6	argon	0.28	0.22	0.28	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00372-00001				0.28	0.20	0.25	58		NC	SC	S		
11/16"	Gray Advanced Low-E IG	PEL-N-278-00611-00001	5	3	argon	0.29	0.22	0.27	57		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00612-00001				0.30	0.20	0.25	57		NC	SC	S		
1"	Gray Advanced Low-E IG	PEL-N-278-00363-00001	5	5	argon	0.28	0.21	0.27	56		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00364-00001				0.28	0.19	0.24	56		NC	SC	S		
1"	Gray Advanced Low-E IG	PEL-N-278-00375-00001	6	6	argon	0.28	0.19	0.24	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00376-00001				0.28	0.18	0.21	58		NC	SC	S		
11/16"	Green Advanced Low-E IG	PEL-N-278-00615-00001	5	3	argon	0.29	0.27	0.43	57		NC				
	with grilles-between-the-glass	PEL-N-278-00616-00001				0.30	0.24	0.39	57		NC	SC	S		
1"	Green Advanced Low-E IG	PEL-N-278-00367-00001	5	5	argon	0.28	0.26	0.42	56		NC				
	with grilles-between-the-glass	PEL-N-278-00368-00001				0.28	0.24	0.38	56		NC	SC	S		
1"	Green Advanced Low-E IG	PEL-N-278-00379-00001	6	6	argon	0.28	0.25	0.41	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00380-00001				0.28	0.23	0.37	58		NC	SC	S		

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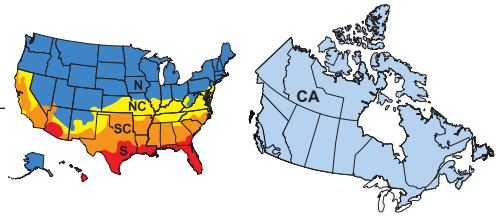

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Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm) Ext.	Glass (mm) Int.	Gap Fill	Performance Values[1] U-Factor	SHGC	VLT	CR	Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown U. S. Zone N	NC	SC	S	Canada[2] ER	Canada[2] Zone CA
Vent - High Altitude Glazing – with Tinted Glazing															
11/16"	Bronze Advanced Low-E IG	PEL-N-278-00273-00001	5	3	air	0.34	0.24	0.32	53				S		
	with grilles-between-the-glass	PEL-N-278-00274-00001				0.35	0.22	0.29	53				S		
1"	Bronze Advanced Low-E IG	PEL-N-278-00025-00001	5	5	air	0.32	0.24	0.31	53				S		
	with grilles-between-the-glass	PEL-N-278-00026-00001				0.32	0.22	0.28	53				S		
1"	Bronze Advanced Low-E IG	PEL-N-278-00037-00001	6	6	air	0.32	0.22	0.28	55				S		
	with grilles-between-the-glass	PEL-N-278-00038-00001				0.32	0.20	0.25	55				S		
11/16"	Gray Advanced Low-E IG	PEL-N-278-00277-00001	5	3	air	0.34	0.22	0.27	53				S		
	with grilles-between-the-glass	PEL-N-278-00278-00001				0.35	0.21	0.25	53				S		
1"	Gray Advanced Low-E IG	PEL-N-278-00029-00001	5	5	air	0.32	0.22	0.27	53				S		
	with grilles-between-the-glass	PEL-N-278-00030-00001				0.32	0.20	0.24	53				S		
1"	Gray Advanced Low-E IG	PEL-N-278-00041-00001	6	6	air	0.32	0.20	0.24	55				S		
	with grilles-between-the-glass	PEL-N-278-00042-00001				0.32	0.18	0.21	55				S		
11/16"	Green Advanced Low-E IG	PEL-N-278-00281-00001	5	3	air	0.34	0.27	0.43	53						
	with grilles-between-the-glass	PEL-N-278-00282-00001				0.35	0.25	0.39	53				S		
1"	Green Advanced Low-E IG	PEL-N-278-00033-00001	5	5	air	0.32	0.26	0.42	53						
	with grilles-between-the-glass	PEL-N-278-00034-00001				0.32	0.24	0.38	53				S		
1"	Green Advanced Low-E IG	PEL-N-278-00045-00001	6	6	air	0.32	0.25	0.41	55				S		
	with grilles-between-the-glass	PEL-N-278-00046-00001				0.32	0.23	0.37	55				S		
Vent - High Altitude Glazing – with Foam Insulation and Tinted Glazing															
11/16"	Bronze Advanced Low-E IG	PEL-N-278-00605-00001	5	3	air	0.33	0.24	0.32	53				S		
	with grilles-between-the-glass	PEL-N-278-00606-00001				0.34	0.22	0.29	53				S		
1"	Bronze Advanced Low-E IG	PEL-N-278-00357-00001	5	5	air	0.31	0.24	0.31	53				S		
	with grilles-between-the-glass	PEL-N-278-00358-00001				0.31	0.22	0.28	53				S		
1"	Bronze Advanced Low-E IG	PEL-N-278-00369-00001	6	6	air	0.31	0.22	0.28	55				S		
	with grilles-between-the-glass	PEL-N-278-00370-00001				0.31	0.20	0.25	55				S		
11/16"	Gray Advanced Low-E IG	PEL-N-278-00609-00001	5	3	air	0.33	0.22	0.27	53				S		
	with grilles-between-the-glass	PEL-N-278-00610-00001				0.34	0.21	0.25	53				S		
1"	Gray Advanced Low-E IG	PEL-N-278-00361-00001	5	5	air	0.31	0.22	0.27	53				S		
	with grilles-between-the-glass	PEL-N-278-00362-00001				0.31	0.20	0.24	53				S		
1"	Gray Advanced Low-E IG	PEL-N-278-00373-00001	6	6	air	0.31	0.20	0.24	55				S		
	with grilles-between-the-glass	PEL-N-278-00374-00001				0.31	0.18	0.21	55				S		
11/16"	Green Advanced Low-E IG	PEL-N-278-00613-00001	5	3	air	0.33	0.27	0.43	53						
	with grilles-between-the-glass	PEL-N-278-00614-00001				0.34	0.25	0.39	53				S		
1"	Green Advanced Low-E IG	PEL-N-278-00365-00001	5	5	air	0.31	0.26	0.42	53						
	with grilles-between-the-glass	PEL-N-278-00366-00001				0.31	0.24	0.38	53				S		
1"	Green Advanced Low-E IG	PEL-N-278-00377-00001	6	6	air	0.31	0.25	0.41	55				S		
	with grilles-between-the-glass	PEL-N-278-00378-00001				0.31	0.23	0.37	55				S		

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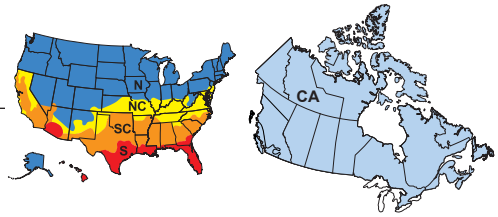

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Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S.				Canada[2]	
										Zone				ER	Zone
Vent – with Laminated Glazing										N	NC	SC	S		CA
1"	Advanced Low-E IG	PEL-N-278-00139-00001	4	7	argon	0.29	0.26	0.48	58		NC				
	with grilles-between-the-glass	PEL-N-278-00140-00001				0.29	0.24	0.43	58		NC	SC	S		
1"	Advanced Low-E IG	PEL-N-278-00151-00001	5	10	argon	0.28	0.26	0.47	56		NC				
	with grilles-between-the-glass	PEL-N-278-00152-00001				0.28	0.24	0.42	56		NC	SC	S		
1"	SunDefense™ IG	PEL-N-278-00135-00001	4	7	argon	0.28	0.20	0.44	59		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00136-00001				0.28	0.18	0.40	59		NC	SC	S		
1"	SunDefense™ IG	PEL-N-278-00147-00001	5	10	argon	0.28	0.20	0.44	57		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00148-00001				0.28	0.18	0.39	57		NC	SC	S		
Vent – with Foam insulation and Laminated Glazing															
1"	Advanced Low-E IG	PEL-N-278-00471-00001	4	7	argon	0.28	0.26	0.48	58		NC				
	with grilles-between-the-glass	PEL-N-278-00472-00001				0.28	0.24	0.43	58		NC	SC	S		
1"	Advanced Low-E IG	PEL-N-278-00483-00001	5	10	argon	0.27	0.26	0.47	57	N	NC				
	with grilles-between-the-glass	PEL-N-278-00484-00001				0.27	0.24	0.42	57	N	NC	SC	S		
1"	SunDefense™ IG	PEL-N-278-00467-00001	4	7	argon	0.27	0.20	0.44	59	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00468-00001				0.27	0.18	0.40	59	N	NC	SC	S		
1"	SunDefense™ IG	PEL-N-278-00479-00001	5	10	argon	0.27	0.20	0.44	57	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00480-00001				0.27	0.18	0.39	57	N	NC	SC	S		

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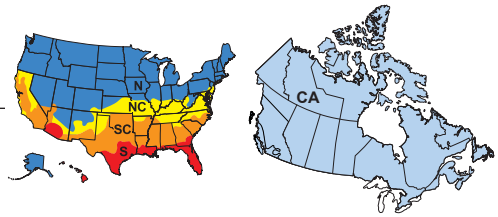

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Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S.				Canada[2]	
										Zone				ER	Zone
Vent - High Altitude Glazing – with Laminated Glazing										N	NC	SC	S		CA
1"	Advanced Low-E IG	PEL-N-278-00137-00001	4	7	air	0.32	0.26	0.48	55						
	with grilles-between-the-glass	PEL-N-278-00138-00001				0.32	0.24	0.43	55				S		
1"	Advanced Low-E IG	PEL-N-278-00149-00001	5	10	air	0.31	0.26	0.47	53						
	with grilles-between-the-glass	PEL-N-278-00150-00001				0.31	0.24	0.42	53				S		
1"	SunDefense IG	PEL-N-278-00133-00001	4	7	air	0.31	0.20	0.44	55				S		
	with grilles-between-the-glass	PEL-N-278-00134-00001				0.31	0.18	0.40	55				S		
1"	SunDefense IG	PEL-N-278-00145-00001	5	10	air	0.31	0.20	0.44	53				S		
	with grilles-between-the-glass	PEL-N-278-00146-00001				0.31	0.18	0.39	53				S		
Vent - High Altitude Glazing – with Foam Insulation and Laminated Glazing															
1"	Advanced Low-E IG	PEL-N-278-00469-00001	4	7	air	0.31	0.26	0.48	55						
	with grilles-between-the-glass	PEL-N-278-00470-00001				0.31	0.24	0.43	55				S		
1"	Advanced Low-E IG	PEL-N-278-00481-00001	5	10	air	0.30	0.26	0.47	53		NC				
	with grilles-between-the-glass	PEL-N-278-00482-00001				0.30	0.24	0.42	53		NC	SC	S		
1"	SunDefense IG	PEL-N-278-00465-00001	4	7	air	0.30	0.20	0.44	55		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00466-00001				0.30	0.18	0.40	55		NC	SC	S		
1"	SunDefense IG	PEL-N-278-00477-00001	5	10	air	0.30	0.20	0.44	53		NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00478-00001				0.30	0.18	0.39	53		NC	SC	S		

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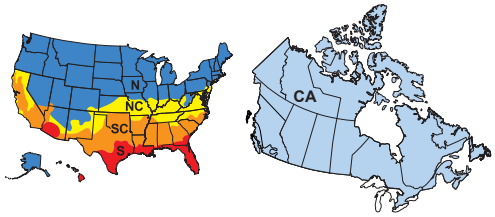
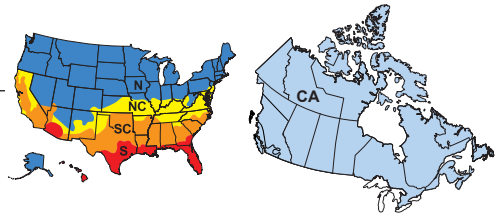


Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Middle	Int.		U-Factor	SHGC	VLT	CR	U. S.				Canada[2]	
											Zone				ER	Zone
Vent - Triple Pane											N	NC	SC	S		CA
1"	Advanced Low-E IG	PEL-N-278-00167-00001	3	3	3	argon	0.23	0.24	0.43	68	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00168-00001					0.24	0.22	0.39	68	N	NC	SC	S		
1"	SunDefense™ Low-E IG	PEL-N-278-00179-00001	3	3	3	argon	0.23	0.18	0.40	68	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00180-00001					0.24	0.17	0.36	68	N	NC	SC	S		
1"	NaturalSun Low-E IG	PEL-N-278-00155-00001	3	3	3	argon	0.24	0.40	0.49	67	N	NC				
	with grilles-between-the-glass	PEL-N-278-00156-00001					0.24	0.36	0.44	67	N	NC				
Vent - Triple Pane with Foam Insulation																
1"	Advanced Low-E IG	PEL-N-278-00499-00001	3	3	3	argon	0.22	0.24	0.43	68	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00500-00001					0.23	0.22	0.39	68	N	NC	SC	S		
1"	SunDefense™ Low-E IG	PEL-N-278-00511-00001	3	3	3	argon	0.22	0.18	0.40	68	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-278-00512-00001					0.23	0.17	0.36	68	N	NC	SC	S		
1"	NaturalSun Low-E IG	PEL-N-278-00487-00001	3	3	3	argon	0.23	0.40	0.49	67	N	NC			34	CA
	with grilles-between-the-glass	PEL-N-278-00488-00001					0.23	0.36	0.44	67	N	NC				

R-Value = 1/U-Factor SHGC = Solar Heat Gain Coefficient VLT % = Visible Light Transmission
CR = Condensation Resistance ER = Canadian Energy Rating

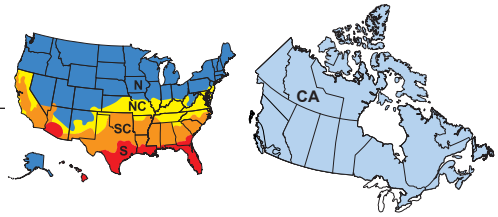


(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500.
ENERGY STAR® values are updated to 2016 (Version 6) criteria.
(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.
For center-glass values, see the Product Performance section.
See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Middle	Int.		U-Factor	SHGC	VLT	CR	U. S.				Canada[2]	
											Zone				ER	Zone
Vent - Triple Pane with High Altitude Glazing											N	NC	SC	S		CA
1"	Advanced Low-E IG	PEL-N-278-00165-00001	3	3	3	air	0.27	0.24	0.43	64	N	S	SC	S		
	with grilles-between-the-glass	PEL-N-278-00166-00001					0.27	0.22	0.39	64	N	S	SC	S		
1"	SunDefense Low-E IG	PEL-N-278-00177-00001	3	3	3	air	0.27	0.18	0.40	64	N	S	SC	S		
	with grilles-between-the-glass	PEL-N-278-00178-00001					0.27	0.17	0.36	64	N	S	SC	S		
1"	NaturalSun Low-E IG	PEL-N-278-00153-00001	3	3	3	air	0.27	0.40	0.49	63	N	S				
	with grilles-between-the-glass	PEL-N-278-00154-00001					0.27	0.36	0.44	64	N	S				
Vent - Triple Pane with High Altitude Glazing and Foam Insulation																
1"	Advanced Low-E IG	PEL-N-278-00497-00001	3	3	3	air	0.26	0.24	0.43	64	N	S	SC	S		
	with grilles-between-the-glass	PEL-N-278-00498-00001					0.26	0.22	0.39	64	N	S	SC	S		
1"	SunDefense Low-E IG	PEL-N-278-00509-00001	3	3	3	air	0.26	0.18	0.40	64	N	S	SC	S		
	with grilles-between-the-glass	PEL-N-278-00510-00001					0.26	0.17	0.36	64	N	S	SC	S		
1"	NaturalSun Low-E IG	PEL-N-278-00485-00001	3	3	3	air	0.26	0.40	0.49	64	N	S				
	with grilles-between-the-glass	PEL-N-278-00486-00001					0.26	0.36	0.44	64	N	S				

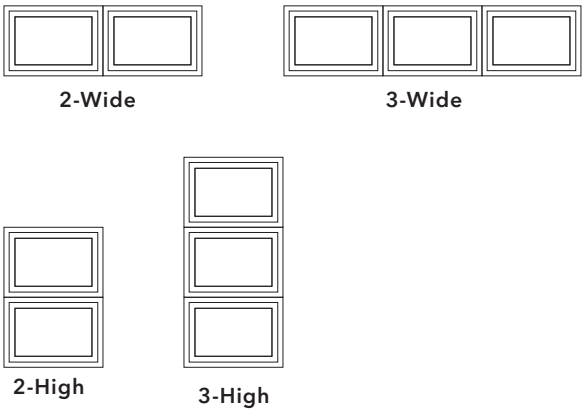
R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating



(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500.
ENERGY STAR® values are updated to 2016 (Version 6) criteria.
(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.
For center-glass values, see the Product Performance section.
See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

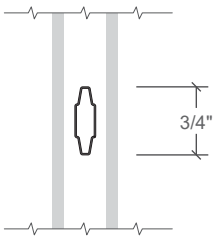
A combination is defined as an assembly formed by two or more separate windows or doors whose frames are mulled together utilizing a combination mullion or reinforcing mullion.

Below are available factory-assembled combinations. See the Combination section for requirements and limitations related to mulling various combinations plus configuration size range information.



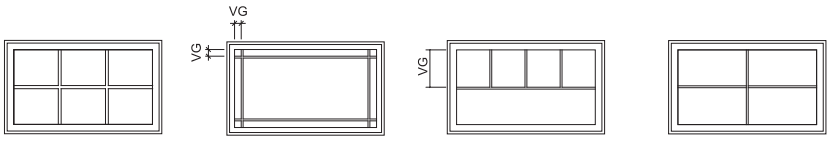
Grille Profiles

Grilles-Between-the-Glass



3/4" Contour

Grille Patterns



Standard corner lite dimension for Prairie patterns = 4" visible glass (VG).

(1) Standard visible glass to center line of separator bar dimension = 14" or half of total visible glass height, whichever is smaller.

Multiple rows are available up to 50% glass size.

Pattern availability may vary depending on size of unit.

Size Tables

Vent and Fixed Units

Opening	(521) (508)	(610) (597)	(711) (699)	(762) (749)	(813) (800)	(914) (902)	(1 067) (1 054)	(1 219) (1 207)	(1 372) (1 359)	(1 524) (1 511)
	1' 8 1/2"	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 6"	4' 0"	4' 6"	5' 0"
Frame	1' 8"	1' 11 1/2"	2' 3 1/2"	2' 5 1/2"	2' 7 1/2"	2' 11 1/2"	3' 5 1/2"	3' 11 1/2"	4' 5 1/2"	4' 11 1/2"

SPECIAL NARROWER SIZES AVAILABLE

SPECIAL SHORTER AND TALLER SIZES AVAILABLE

(457) (445) 1' 6"	(610) (597) 2' 0"	(762) (749) 2' 6"	(914) (902) 3' 0"	(1 067) (1 054) 3' 6"	(1 219) (1 207) 4' 0"	(1 372) (1 359) 4' 6"	(1 524) (1 511) 5' 0"
1' 5 1/2"	1' 11 1/2"	2' 5 1/2"	2' 11 1/2"	3' 5 1/2"	3' 11 1/2"	4' 5 1/2"	4' 11 1/2"
1-8.5/1-6	2-0/1-6	2-4/1-6	2-6/1-6	2-8/1-6	3-0/1-6	3-6/1-6	4-0/1-6	4-6/1-6	5-0/1-6
1-8.5/2-0	2-0/2-0	2-4/2-0	2-6/2-0	2-8/2-0	3-0/2-0	3-6/2-0	4-0/2-0	4-6/2-0	5-0/2-0
1-8.5/2-6	2-0/2-6	2-4/2-6	2-6/2-6	2-8/2-6	3-0/2-6	3-6/2-6	4-0/2-6	4-6/2-6	5-0/2-6
1-8.5/3-0	2-0/3-0	2-4/3-0	2-6/3-0	2-8/3-0	3-0/3-0	3-6/3-0	4-0/3-0	4-6/3-0	5-0/3-0
1-8.5/3-6	2-0/3-6	2-4/3-6	2-6/3-6	2-8/3-6	3-0/3-6	3-6/3-6	4-0/3-6	4-6/3-6	5-0/3-6
1-8.5/4-0	2-0/4-0	2-4/4-0	2-6/4-0	2-8/4-0	3-0/4-0	3-6/4-0	4-0/4-0	4-6/4-0	5-0/4-0
1-8.5/4-6	2-0/4-6	2-4/4-6	2-6/4-6	2-8/4-6	3-0/4-6	3-6/4-6	4-0/4-6	4-6/4-6	5-0/4-6
1-8.5/5-0	2-0/5-0	2-4/5-0	2-6/5-0	2-8/5-0	3-0/5-0	3-6/5-0	4-0/5-0	4-6/5-0	5-0/5-0

Not to scale.

Keep frame dimensions to the nearest 1/8" increment.

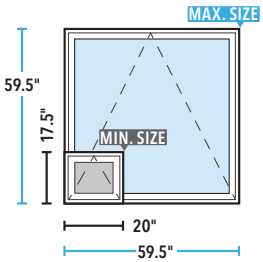
Traditional grille patterns shown. See Grilles in the Overview section for additional patterns and profiles.

Special Size Frame Dimensions*

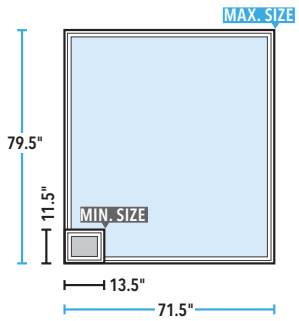
	Minimum	Maximum
Vent	1'8" W x 1'5-1/2" H (20" x 17-1/2") (508 x 444)	4'11-1/2" W x 4'11-1/2" H (59-1/2" x 59-1/2") (1 511 x 1 511)
Fixed	1'1-1/2" W x 11-1/2" H (13-1/2" x 11-1/2") (342 x 292)	5'11-1/2" W x 6'7-1/2" H (71-1/2" x 79-1/2") (1 816 x 2 019)

Awning

Vent Sizes



Fixed Sizes



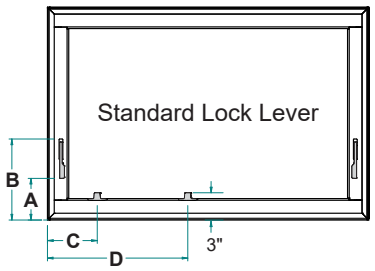
Miscellaneous Formulas - Awning

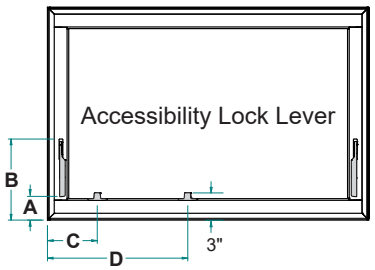
	Formula
Visible Glass	Width = Frame Width – 5-7/16" Height = Frame Height – 5-7/16"
Actual Glass	Width = Frame Width – 4-3/8" Height = Frame Height – 4-3/8"
Vent Area	Sill Opening x (FW - 2.562 + FH - 2.562) ÷ 144

Easy Slide Operator units Frame Width < 26.75, Sill Opening = 3"
Easy Slide Operator units Frame Width ≥ 26.75, Sill Opening = 5.75"
All Roto Operator units, Sill Opening = 5.25"

Lock Handle Operator Height

Frame Height	Standard Locked Location (A)	Standard Unlocked Location (B)	Accessibility Locked Location (A)	Accessibility Unlocked Location (B)
≥ 17.50" to < 24"	9-5/8"	14-3/8"	7-1/2"	14-7/8"
≥ 24" to ≤ 59.5"	4-5/8"	9-3/8"	2-1/2"	9-7/8"





Easy-Slide Operator Travel

Frame Width	Closed Location (C)	Open Location (D)
≥ 23.5" to < 34.75"	3-7/8"	15-1/2"
≥ 34.75" to ≤ 59.5"	3-7/8"	19-7/8"

Height is measured from the bottom of the frame, proper installation height is required for ADA compliance.

* Available within size range shown.
See Impervia Casement section for additional fixed window standard size tables and performance information.

Vent - Awning

Unit	Max Opening Angle		Sill Opening (in)		Vent Area Ft²		Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade [1]
	Roto Operator	Easy Slide Operator	Roto Operator	Easy Slide Operator	Roto Operator	Easy Slide Operator		Annealed	Tempered	Vent
1-8/1-6	21°	-	5-1/4	-	1.2	-	1.2	3	3	LC+50/-60
1-8/2-0	15°	-	5-1/4	-	1.4	-	1.8	3	3	LC+50/-60
1-8/2-6	11°	-	5-1/4	-	1.6	-	2.4	3	3	LC+50/-60
1-8/3-0	9°	-	5-1/4	-	1.8	-	3.0	3	3	LC+50/-60
1-8/3-6	8°	-	5-1/4	-	2.1	-	3.6	3	3	LC+50/-60
1-8/4-0	7°	-	5-1/4	-	2.3	-	4.3	3	3	LC+50/-60
1-8/4-6	6°	-	5-1/4	-	2.5	-	4.9	3	3	LC+50/-60
1-8/5-0	5°	-	5-1/4	-	2.7	-	5.5	3	3	LC+50/-60
2-0/1-6	21°	12°	5-1/4	3	1.3	0.7	1.5	3	3	LC+50/-60
2-0/2-0	15°	8°	5-1/4	3	1.5	0.9	2.3	3	3	LC+50/-60
2-0/2-6	11°	6°	5-1/4	3	1.7	1.0	3.0	3	3	LC+50/-60
2-0/3-0	9°	5°	5-1/4	3	2.0	1.1	3.8	3	3	LC+50/-60
2-0/3-6	8°	4°	5-1/4	3	2.2	1.2	4.5	3	3	LC+50/-60
2-0/4-0	7°	4°	5-1/4	3	2.4	1.4	5.3	3	3	LC+50/-60
2-0/4-6	6°	3°	5-1/4	3	2.6	1.5	6.0	3	3	LC+50/-60
2-0/5-0	5°	3°	5-1/4	3	2.8	1.6	6.8	3	3	LC+50/-60
2-4/1-6	21°	23°	5-1/4	5-3/4	1.5	1.6	1.8	3	3	LC+50/-60
2-4/2-0	15°	16°	5-1/4	5-3/4	1.7	1.8	2.8	3	3	LC+50/-60
2-4/2-6	11°	12°	5-1/4	5-3/4	1.9	2.1	3.7	3	3	LC+50/-60
2-4/3-0	9°	10°	5-1/4	5-3/4	2.1	2.3	4.6	3	3	LC+50/-60
2-4/3-6	8°	8°	5-1/4	5-3/4	2.3	2.6	5.5	3	3	LC+50/-60
2-4/4-0	7°	7°	5-1/4	5-3/4	2.5	2.8	6.4	3	3	LC+50/-60
2-4/4-6	6°	6°	5-1/4	5-3/4	2.8	3.0	7.4	3	3	LC+50/-60
2-4/5-0	5°	6°	5-1/4	5-3/4	3.0	3.3	8.3	3	3	LC+50/-60
2-6/1-6	21°	23°	5-1/4	5-3/4	1.5	1.7	2.0	3	3	LC+50/-60
2-6/2-0	15°	16°	5-1/4	5-3/4	1.7	1.9	3.0	3	3	LC+50/-60
2-6/2-6	11°	12°	5-1/4	5-3/4	2.0	2.2	4.0	3	3	LC+50/-60
2-6/3-0	9°	10°	5-1/4	5-3/4	2.2	2.4	5.0	3	3	LC+50/-60
2-6/3-6	8°	8°	5-1/4	5-3/4	2.4	2.6	6.0	3	3	LC+50/-60
2-6/4-0	7°	7°	5-1/4	5-3/4	2.6	2.9	7.0	3	3	LC+50/-60
2-6/4-6	6°	6°	5-1/4	5-3/4	2.8	3.1	8.0	3	3	LC+50/-60
2-6/5-0	5°	6°	5-1/4	5-3/4	3.1	3.3	9.0	3	3	LC+50/-60
2-8/1-6	21°	23°	5-1/4	5-3/4	1.6	1.8	2.2	3	3	LC+50/-60
2-8/2-0	15°	16°	5-1/4	5-3/4	1.8	2.0	3.3	3	3	LC+50/-60
2-8/2-6	11°	12°	5-1/4	5-3/4	2.0	2.2	4.4	3	3	LC+50/-60
2-8/3-0	9°	10°	5-1/4	5-3/4	2.3	2.5	5.4	3	3	LC+50/-60
2-8/3-6	8°	8°	5-1/4	5-3/4	2.5	2.7	6.5	3	3	LC+50/-60
2-8/4-0	7°	7°	5-1/4	5-3/4	2.7	2.9	7.6	3	3	LC+50/-60
2-8/4-6	6°	6°	5-1/4	5-3/4	2.9	3.2	8.7	3	3	LC+50/-60
2-8/5-0	5°	6°	5-1/4	5-3/4	3.1	3.4	9.8	3	3	LC+50/-60

(1) Maximum performance when glazed with the appropriate glass thickness.

To convert areas to square meters (m²), multiply square feet by 0.0929.

Vent - Awning

Unit	Max Opening Angle		Sill Opening (in)		Vent Area Ft²		Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade [1]
	Roto Operator	Easy Slide Operator	Roto Operator	Easy Slide Operator	Roto Operator	Easy Slide Operator		Annealed	Tempered	Vent
3-0/1-6	21°	23°	5-1/4	5-3/4	1.7	1.9	2.5	3	3	LC+50/-60
3-0/2-0	15°	16°	5-1/4	5-3/4	2.0	2.2	3.8	3	3	LC+50/-60
3-0/2-6	11°	12°	5-1/4	5-3/4	2.2	2.4	5.0	3	3	LC+50/-60
3-0/3-0	9°	10°	5-1/4	5-3/4	2.4	2.6	6.3	3	3	LC+50/-60
3-0/3-6	8°	8°	5-1/4	5-3/4	2.6	2.9	7.5	3	3	LC+50/-60
3-0/4-0	7°	7°	5-1/4	5-3/4	2.8	3.1	8.8	3	3	LC+50/-60
3-0/4-6	6°	6°	5-1/4	5-3/4	3.1	3.3	10.0	3	3	LC+50/-60
3-0/5-0	5°	6°	5-1/4	5-3/4	3.3	3.6	11.3	3	3	LC+50/-60
3-6/1-6	21°	23°	5-1/4	5-3/4	2.0	2.2	3.0	3	3	LC+50/-60
3-6/2-0	15°	16°	5-1/4	5-3/4	2.2	2.4	4.5	3	3	LC+50/-60
3-6/2-6	11°	12°	5-1/4	5-3/4	2.4	2.6	6.0	3	3	LC+50/-60
3-6/3-0	9°	10°	5-1/4	5-3/4	2.6	2.9	7.5	3	3	LC+50/-60
3-6/3-6	8°	8°	5-1/4	5-3/4	2.8	3.1	9.0	3	3	LC+50/-60
3-6/4-0	7°	7°	5-1/4	5-3/4	3.1	3.3	10.5	3	3	LC+50/-60
3-6/4-6	6°	6°	5-1/4	5-3/4	3.3	3.6	12.0	3	3	LC+50/-60
3-6/5-0	5°	6°	5-1/4	5-3/4	3.5	3.8	13.5	3	3	LC+50/-60
4-0/1-6	21°	23°	5-1/4	5-3/4	2.2	2.4	3.5	3	3	LC50
4-0/2-0	15°	16°	5-1/4	5-3/4	2.4	2.6	5.3	3	3	LC50
4-0/2-6	11°	12°	5-1/4	5-3/4	2.6	2.9	7.0	3	3	LC50
4-0/3-0	9°	10°	5-1/4	5-3/4	2.8	3.1	8.8	3	3	LC50
4-0/3-6	8°	8°	5-1/4	5-3/4	3.1	3.3	10.5	3	3	LC50
4-0/4-0	7°	7°	5-1/4	5-3/4	3.3	3.6	12.3	3	3	LC50
4-0/4-6	6°	6°	5-1/4	5-3/4	3.5	3.8	14.0	3	3	LC50
4-0/5-0	5°	6°	5-1/4	5-3/4	3.7	4.1	15.8	3	3	LC50
4-6/1-6	21°	23°	5-1/4	5-3/4	2.4	2.6	4.0	3	3	LC50
4-6/2-0	15°	16°	5-1/4	5-3/4	2.6	2.9	6.0	3	3	LC50
4-6/2-6	11°	12°	5-1/4	5-3/4	2.8	3.1	8.0	3	3	LC50
4-6/3-0	9°	10°	5-1/4	5-3/4	3.1	3.3	10.0	3	3	LC50
4-6/3-6	8°	8°	5-1/4	5-3/4	3.3	3.6	12.0	3	3	LC50
4-6/4-0	7°	7°	5-1/4	5-3/4	3.5	3.8	14.0	3	3	LC50
4-6/4-6	6°	6°	5-1/4	5-3/4	3.7	4.1	16.0	4	3	LC50
4-6/5-0	5°	6°	5-1/4	5-3/4	3.9	4.3	18.0	4	4	LC50
5-0/1-6	21°	23°	5-1/4	5-3/4	2.6	2.9	4.5	3	3	LC30
5-0/2-0	15°	16°	5-1/4	5-3/4	2.8	3.1	6.8	3	3	LC30
5-0/2-6	11°	12°	5-1/4	5-3/4	3.1	3.3	9.0	3	3	LC30
5-0/3-0	9°	10°	5-1/4	5-3/4	3.3	3.6	11.3	3	3	LC30
5-0/3-6	8°	8°	5-1/4	5-3/4	3.5	3.8	13.5	3	3	LC30
5-0/4-0	7°	7°	5-1/4	5-3/4	3.7	4.1	15.8	3	3	LC30
5-0/4-6	6°	6°	5-1/4	5-3/4	3.9	4.3	18.0	4	4	LC30
5-0/5-0	5°	6°	5-1/4	5-3/4	4.2	4.5	20.3	4	4	LC30

(1) Maximum performance when glazed with the appropriate glass thickness.

To convert areas to square meters (m²), multiply square feet by 0.0929.

Frame

- Frame is Duracast® fiberglass composite – five-layer pultruded fiberglass material [with optional foam insulation[1]], reinforced with a Pella® patented interlocking mat.
- Overall frame depth is 3-1/4".
- Nominal wall thickness of Duracast fiberglass composite members is .050" to .090" thick.
- Frame corners are mitered, joined and bonded with corner lock and injected sealant.
- Jambs contain factory-drilled (counter-bored) installation screw holes on block frame and flush flange only.

Sash

- Sash is Duracast fiberglass composite – five-layer pultruded fiberglass material, reinforced with a Pella patented interlocking mat.
- All sash members have mitered corners bonded with corner lock and sealed with injected sealant.

Exterior / Interior

- Frame Interior cover made from a proprietary blend of mineral filled polyvinyl chloride (PVC) with an acrylic cap that matches the interior color of the product.
- Duracast fiberglass composite surfaces with powder-coat paint finish.
  - Color is [White] [Brown] [Black] [Tan] [Morning Sky Gray].

  - or -

  - Dual-color option [Brown] [Black] exterior with White interior[2].

Glazing System

- Quality float glass complying with ASTM C 1036.
- 11/16" dual-pane insulating glass [annealed] [tempered] [obscure[3]] [clear] [[Advanced] [SunDefense™] [AdvancedComfort] [NaturalSun] Low-E coated, [with argon]]] [[bronze] [gray] [green] Advanced Low-E [with Argon]] sealed and bonded to sash.

  – or –

- 1" Triple-pane insulating glass [annealed] [tempered] [obscure[3]] [clear] [[Advanced] [SunDefense™] [AdvancedComfort] [NaturalSun] Low-E coated, [with argon]]] [[bronze] [gray] [green] Advanced Low-E [with Argon]] sealed and bonded to sash.
- High altitude glazing available.

Dual Weatherstripping

- Continuous, flexible ThermoPlastic Vulcanizate material in dual durometer design, compressed between frame and sash for positive seal on all four sides.
- Secondary ThermoPlastic Vulcanizate leaf-type weatherstrip between edge of sash and frame.

Hardware

- Easy-Slide operator assembly
  - Hardened nickel-coated Steel worm and wheel gears, 5 ball bearings.
  - Zinc-magnesium alloy hub and gearbox housing with a corrosion-protecting ultra-clear finish.
  - Stainless steel swing arm and hinge pin for extra corrosion protection of exposed components.
  - Kevlar-reinforced drive belt.
  - Harsh environment approved – ASTM B117 salt chamber and debris cycling, 20,000 life cycle test approved.
- Optional Easy-Slide operator with Accessibility Lock Lever assembly.
  - 6" elongated lock lever.
  - 5 lb operational forces available on sizes when FW is ≤ 59.5" and FH is ≤ 59.5".

  – or –

- Roto operator assembly
  - Steel worm gear sash operator with hardened gears.
  - Operator base is zinc die cast with painted finish.
  - Operator linkage is 300 series stainless steel.
  - Exposed fasteners are stainless steel.
  - Hardware will exceed 1,000 hours salt spray exposure per ASTM B 117.
  - Hinge slide and hinge arms are 300 series stainless steel.
- Finish of integrated folding crank is [baked enamel [White] [Brown] [Tan] [Matte Black] [Morning Sky Gray]] [Satin Nickel (Roto operator only)].
- All vent units are available with operator located on the sill.
- Lock handle finish is [[baked enamel [White] [Brown] [Matte Black] [Tan] [Morning Sky Gray]] [Satin Nickel (roto operator only)].

Optional Products

Screens

- InView™ screens
  - Vinyl-coated 18/18 mesh fiberglass screen cloth complying with SMA 1201, set in aluminum frame fitted to inside of window, supplied complete with all necessary hardware.
  - Screen frame finish is baked enamel, color to match interior.

Grilles

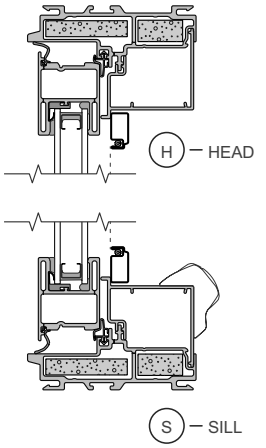
- Grilles-Between-the-Glass
  - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass.
  - Grilles are factory prefinished [White] [Brown] [Black] [Tan] [Morning Sky Gray]. to match interior and exterior finish.

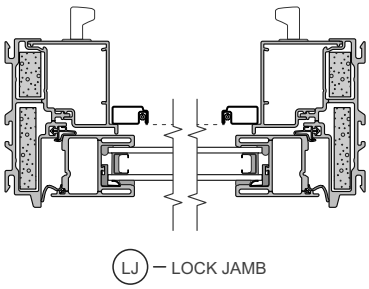
Hardware

- Optional limited opening hardware available for vent units in stainless steel; nominal 3" opening.

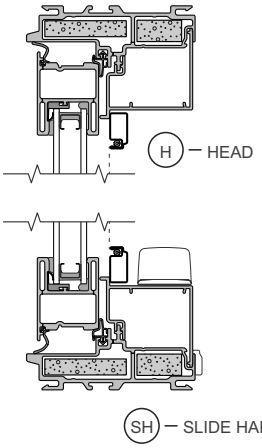
Foam Insulation Inserts[1]

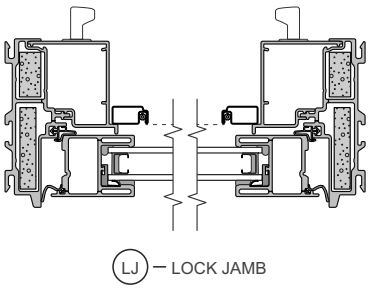
Crank Handle





Easy Slide





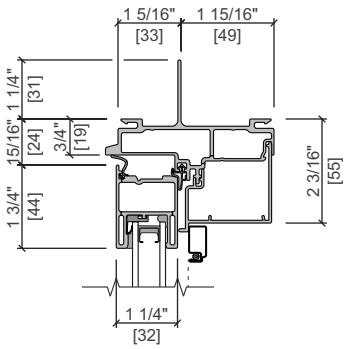
(1) Foam insulation inserts are not available with clear glazing. (2) Dual-color finish is not available on products with integral nailing fin.

(3) Obscure glazing is not available when AdvancedComfort Low-E coated IG is specified.

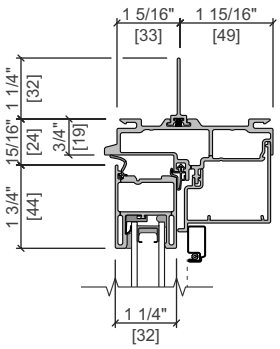
Unit Sections - Frame Types

NEW CONSTRUCTION FRAME

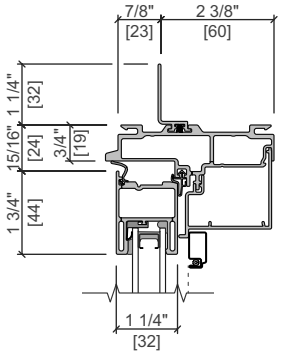
Integral Nailing Fin



Standard Block Frame with Standard Fin

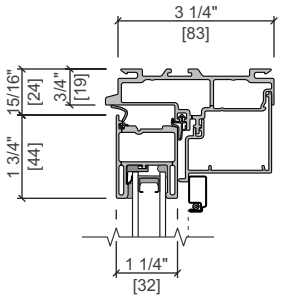


Standard Block Frame with Off Set Fin



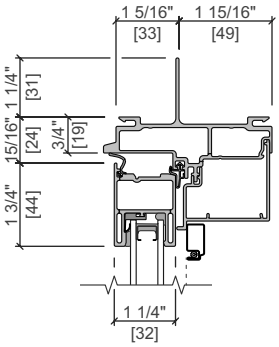
REPLACEMENT FRAME

Standard Block Frame

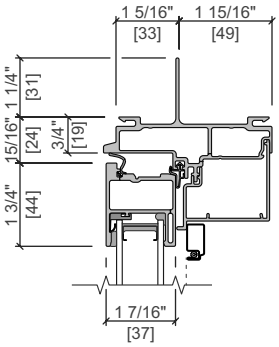


GLAZING OPTIONS

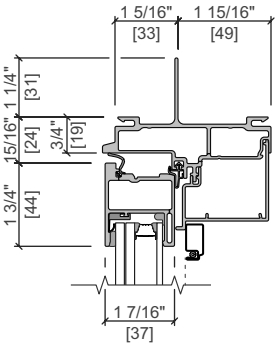
11/16" IG



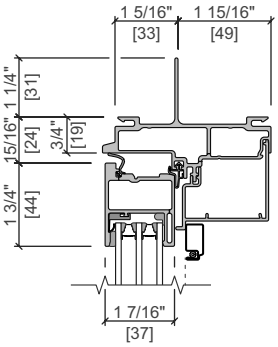
1" IG



1" Sound IG



1" Triple IG

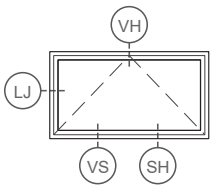


Scale 3" = 1' 0"

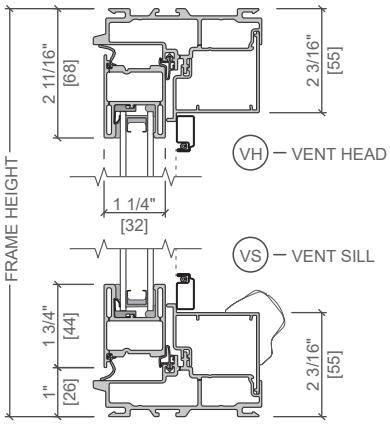
All dimensions are approximate.

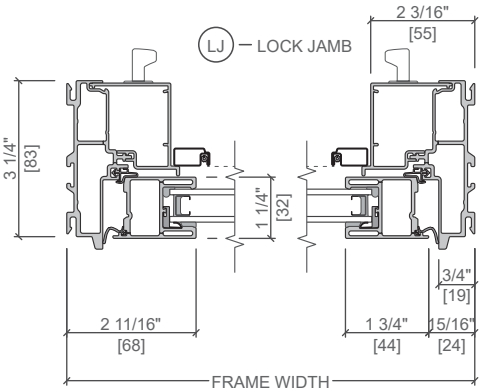
Unit Sections

VENT

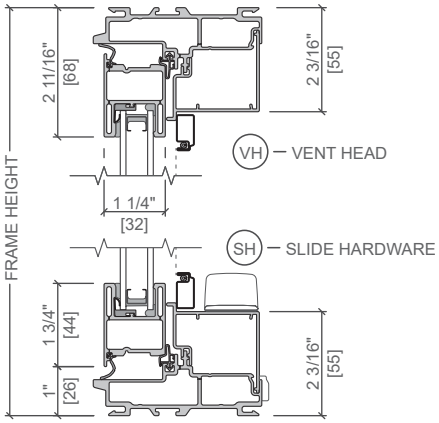


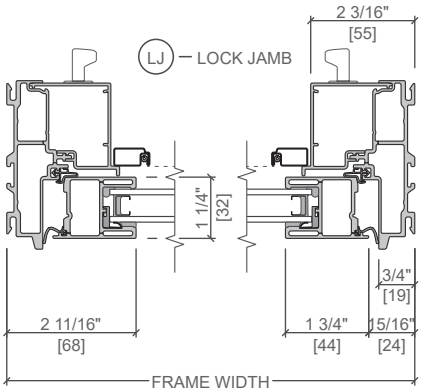
CRANK HARDWARE





EASY SLIDE HARDWARE





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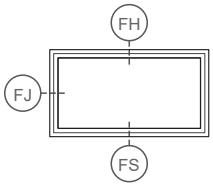
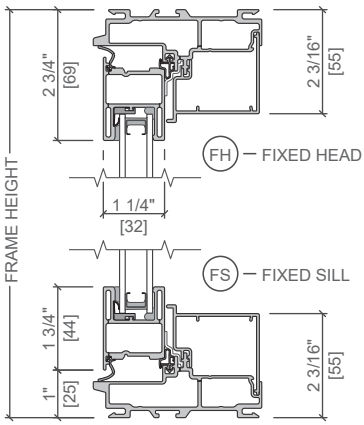
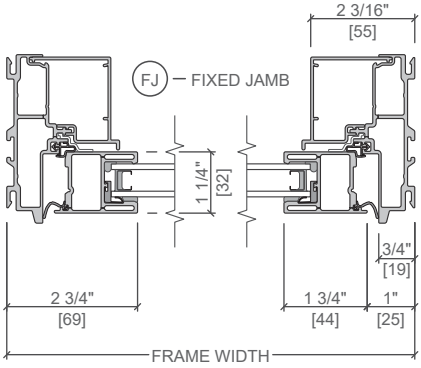




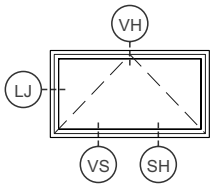


Scale 3" = 1' 0"

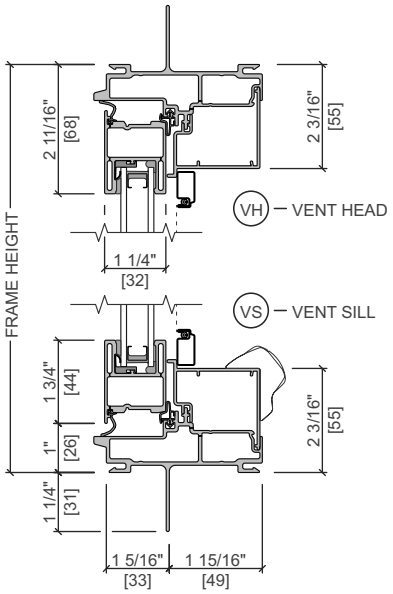
All dimensions are approximate.

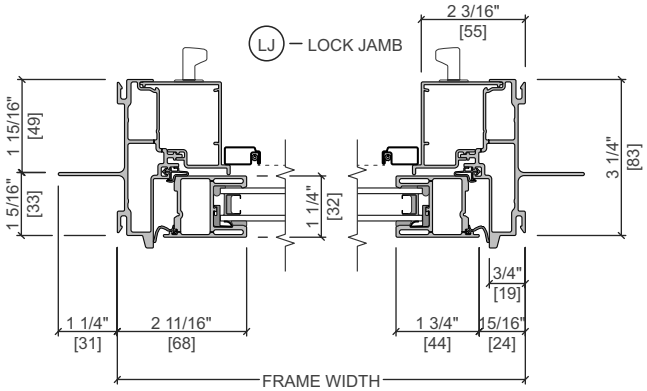
Unit Sections - Integral Fin

VENT

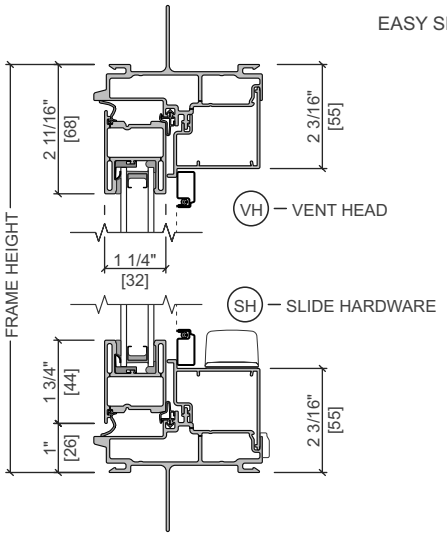


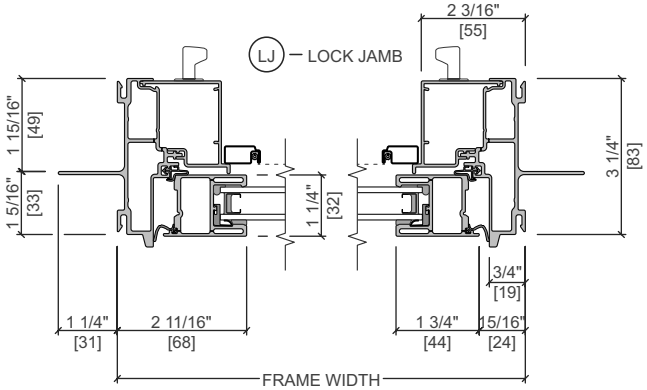
CRANK HARDWARE





EASY SLIDE HARDWARE





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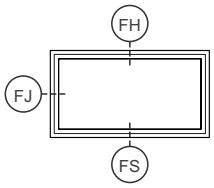

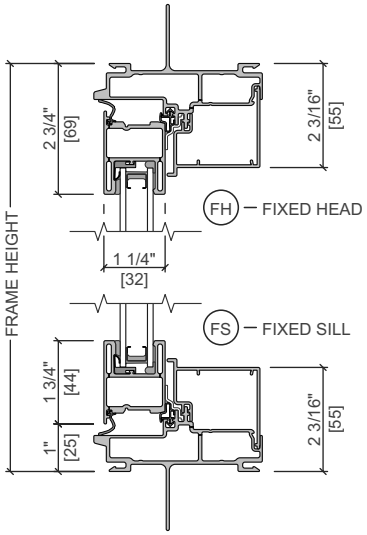

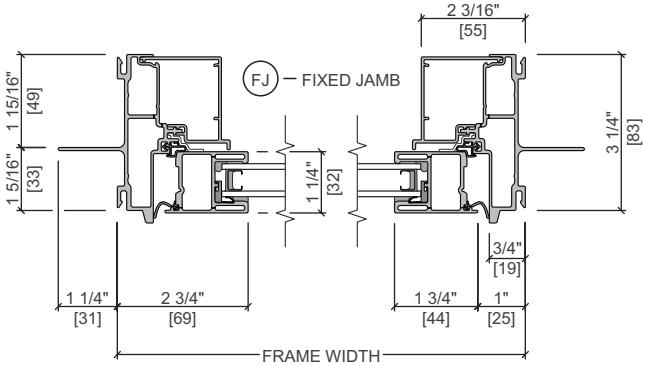

Scale 3" = 1' 0"

All dimensions are approximate.

Product Selection Guide

Unit Sections

Document Navigation Tips:

Items listed in the table of contents above are active links that will take you to the corresponding page.
The Pella logo on each page is a link back to this table of contents.
Bookmarks are also included in this PDF document and are available as an additional navigation option.

Supporting documents for this product:

Test Reports:
https://media.pella.com/professional/adm/CertificationReports/Test_Reports_IMP.pdf

CSI Specs (readable using Microsft Word or other text editing application):
https://media.pella.com/professional/adm/Fiberglass-CSI_Specs/08572_DH.rtf

AIA Masterspec (readable using Microsft Word or other text editing application):
https://media.pella.com/professional/adm/Fiberglass-CSI_Specs/085413_fl.doc

Detailed Product Description (readable using Microsft Word or other text editing application):
https://media.pella.com/professional/adm/Fiberglass/F2-DH.rtf

Size Tables (requires appropriate CAD software to read and use):
https://media.pella.com/professional/adm/Fiberglass/IMP-DH-Elev_D.dwg

CAD cross sections (requires appropriate CAD software to read and use):
https://media.pella.com/professional/adm/Fiberglass/IMP-DH-Detail_D.dwg

3D & BIM (requires appropriate software to read and use):
https://media.pella.com/professional/adm/RevitFiles/Imp-Revit/Window-Double_Hung-Pella-Impervia.zip

Sketchup (requires appropriate software to read and use):
https://media.pella.com/professional/adm/Fiberglass/PellaSKP_Impervia_Double-Hung.zip

Combination Recommendations:
https://media.pella.com/professional/adm/Fiberglass/F2_Combinations.pdf

Installation Details:
https://media.pella.com/professional/adm/Fiberglass/Pella-Impervia_InstallationDetails.pdf

Size and Performance Data

	Block Frame	Precision Fit	Integral Nailing Fin
Sizes			
Standard Vent – Equal Sash, Cottage and Contemporary Sash	●	●	●
Special Fixed	●	●	●
Special Fixed Companion	●	●	●
Special Sizes Available	●	●	●
Performance [1]			
Meets or Exceeds AAMA/WDMA Ratings	H-LC30 – H-LC50 Hallmark Certified	H-LC30 – H-LC50 Hallmark Certified	H-LC30 – H-LC50 Hallmark Certified
Air Infiltration (cfm/ft² of frame @ 1.57 psf wind pressure)	0.3	0.3	0.3
Water Resistance	4.5 psf	4.5 psf	4.5 psf
Design Pressure	30 – 50 psf	30 – 50 psf	30 – 50 psf
Other Performance Criteria			
Forced Entry Resistance Level (Minimum Security Grade)[2]	10	10	10
Maximum Operating Force (lb) Initiate Motion/Maintain Motion	20/30 for units with sash ≤ 12 ft² 30/45 for units with sash > 12 ft²		
Maximum Locking Force (lb) Lock/Unlock	6/7	6/7	6/7

Sound Transmission Class and Outdoor-Indoor Transmission Class

Frame Size Tested [4]	Glazing System			STC Rating	OITC Rating
	Overall Glazing Thickness	Exterior Glass Thickness	Interior Glass Thickness		
Double-Hung – Dual pane insulating Glass					
47-1/2" x 59-1/2"	11/16"	2.5mm	2.5mm	26	22
47-1/2" x 59-1/2"	11/16"	3mm	5mm	29	26
47-1/2" x 59-1/2"	11/16"	3mm	6mm Laminated	29	26

(1) See Design Data pages in this section for specific product performance class and grade values.
(2) The higher the level, the greater the product's ability to resist forced entry.
(3) Glazing configurations may result in higher operational forces
(4) ASTM E 1425 defines standard sizes for acoustical testing. Ratings achieved at that size are representative of all sizes of the same configuration.

	Block Frame	Precision Fit	Integral Nailing Fin
Glazing			
Glazing Type			
Dual-pane Insulating Glass	S	S	S
Insulated Glass Options / Low-E Types			
Clear Insulating Glass (no Low-E coating)	S	S	S
Advanced Low-E Insulating Glass	O	O	O
SunDefense™ Low-E Insulating Glass	O	O	O
AdvancedComfort Low-E Insulating Glass	O	O	O
NaturalSun Low-E Insulating Glass	O	O	O
Additional Glass Options			
Annealed Glass	S	S	S
Tempered Glass	O	O	O
Noise reduction glass (3/5mm, 4/6mm combinations)	O	O	O
Noise reduction laminated glass (non-impact)	O	O	O
Tinted glass (Bronze, Gray, Green) Advanced Low-E	O	O	O
Obscure Glass[1]	O	O	O
Gas Fill / High Altitude			
Argon	S	S	S
High Altitude	O	O	O
High Altitude with argon	O	O	O
Exterior / Interior Factory Pre-finish Colors			
Powder-Coat White	S	S	S
Powder-Coat Brown, Black, Tan or Morning Sky Gray	O	O	O
Powder-Coat Dual-color (Black or Brown Exterior with White interior)	O	O	–
Hardware			
Match interior finish	S	S	S
Satin Nickel, Bright Brass or Oil-Rubbed Bronze	O	O	O
Sash Locks			
Self-aligning sash lock	S	S	S
Screens			
Full or Half-Size Inview™ screens	O	O	O
Grilles			
Grilles-Between-the-Glass			
3/4" Contoured - White, Brown, Black	O	O	O
Patterns			
Traditional	O	O	O
Prairie	O	O	O
Top Row	O	O	O
Special	O	O	O
Tilt-Wash Cleaning			
Both sashes tilt at bottom	S	S	S

S = Standard; O = Optional; (–) = Not available

(1) Contact your local Pella sales representative for current offering.

Glazing Performance – Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values [1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S. Zone				Canada [2] ER	Canada [2] Zone
Vent										N	NC	SC	S		CA
11/16"	Clear IG	PEL-N-126-01137-00004	2.5	2.5	air	0.48	0.59	0.62	43						
	with grilles-between-the-glass	PEL-N-126-01138-00004				0.48	0.53	0.55	43						
11/16"	Clear IG	PEL-N-126-01137-00002	3	3	air	0.48	0.58	0.61	43						
	with grilles-between-the-glass	PEL-N-126-01138-00002				0.48	0.52	0.54	43						
11/16"	Advanced Low-E IG	PEL-N-126-01229-00004	2.5	2.5	argon	0.31	0.28	0.53	57						
	with grilles-between-the-glass	PEL-N-126-01230-00004				0.31	0.25	0.47	57				S		
11/16"	Advanced Low-E IG	PEL-N-126-01229-00002	3	3	argon	0.31	0.28	0.52	57						
	with grilles-between-the-glass	PEL-N-126-01230-00002				0.31	0.25	0.46	57				S		
11/16"	SunDefense™ IG	PEL-N-126-01269-00004	2.5	2.5	argon	0.30	0.21	0.49	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-126-01270-00004				0.30	0.19	0.43	58		NC	SC	S		
11/16"	SunDefense™ IG	PEL-N-126-01269-00002	3	3	argon	0.30	0.21	0.48	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-126-01270-00002				0.30	0.19	0.43	58		NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-126-01305-00004	2.5	2.5	argon	0.27	0.28	0.51	44	N	NC				
	with grilles-between-the-glass	PEL-N-126-01306-00004				0.27	0.25	0.46	44	N	NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-126-01305-00002	3	3	argon	0.27	0.27	0.51	44	N	NC				
	with grilles-between-the-glass	PEL-N-126-01306-00002				0.27	0.25	0.45	44	N	NC	SC	S		
11/16"	NaturalSun Low-E IG	PEL-N-126-01193-00004	2.5	2.5	argon	0.31	0.52	0.59	57						
	with grilles-between-the-glass	PEL-N-126-01194-00004				0.31	0.47	0.53	57						
11/16"	NaturalSun Low-E IG	PEL-N-126-01193-00002	3	3	argon	0.31	0.51	0.59	57						
	with grilles-between-the-glass	PEL-N-126-01194-00002				0.31	0.46	0.52	57						
Vent with Foam Insulation															
11/16"	Advanced Low-E IG	PEL-N-126-00997-00004	2.5	2.5	argon	0.29	0.28	0.53	58		NC				
	with grilles-between-the-glass	PEL-N-126-00998-00004				0.29	0.25	0.47	58		NC	SC	S		
11/16"	Advanced Low-E IG	PEL-N-126-00997-00002	3	3	argon	0.29	0.28	0.52	58		NC				
	with grilles-between-the-glass	PEL-N-126-00998-00002				0.29	0.25	0.46	58		NC	SC	S		
11/16"	SunDefense IG	PEL-N-126-01037-00004	2.5	2.5	argon	0.28	0.21	0.49	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-126-01038-00004				0.28	0.19	0.43	58		NC	SC	S		
11/16"	SunDefense IG	PEL-N-126-01037-00002	3	3	argon	0.28	0.21	0.48	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-126-01038-00002				0.28	0.19	0.43	58		NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-126-01073-00004	2.5	2.5	argon	0.25	0.28	0.51	45	N	NC				
	with grilles-between-the-glass	PEL-N-126-01074-00004				0.25	0.25	0.46	45	N	NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-126-01073-00002	3	3	argon	0.25	0.27	0.51	45	N	NC				
	with grilles-between-the-glass	PEL-N-126-01074-00002				0.25	0.25	0.45	45	N	NC	SC	S		
11/16"	NaturalSun Low-E IG	PEL-N-126-00961-00004	2.5	2.5	argon	0.30	0.52	0.59	57	N					
	with grilles-between-the-glass	PEL-N-126-00962-00004				0.30	0.47	0.53	57	N					
11/16"	NaturalSun Low-E IG	PEL-N-126-00961-00002	3	3	argon	0.30	0.51	0.59	57	N					
	with grilles-between-the-glass	PEL-N-126-00962-00002				0.30	0.46	0.52	57	N					

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SHGC = Solar Heat Gain Coefficient
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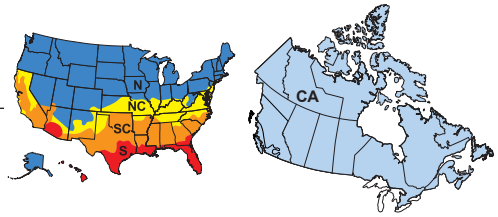

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For center-glass values, see the Product Performance section.

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Glazing Performance – Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values [1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S. Zone				Canada [2] ER	Canada [2] Zone
Vent with High Altitude Glazing										N	NC	SC	S		CA
11/16"	(HA) Advanced Low-E IG	PEL-N-126-01209-00004	2.5	2.5	air	0.34	0.28	0.53	54						
	with grilles-between-the-glass	PEL-N-126-01210-00004				0.34	0.25	0.47	54				S		
11/16"	(HA) Advanced Low-E IG	PEL-N-126-01209-00002	3	3	air	0.34	0.28	0.52	54						
	with grilles-between-the-glass	PEL-N-126-01210-00002				0.34	0.25	0.46	54				S		
11/16"	(HA) SunDefense IG	PEL-N-126-01249-00004	2.5	2.5	air	0.34	0.21	0.49	54				S		
	with grilles-between-the-glass	PEL-N-126-01250-00004				0.34	0.19	0.43	54				S		
11/16"	(HA) SunDefense IG	PEL-N-126-01249-00002	3	3	air	0.34	0.21	0.48	54				S		
	with grilles-between-the-glass	PEL-N-126-01250-00002				0.34	0.19	0.43	54				S		
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-126-01289-00004	2.5	2.5	air	0.29	0.28	0.51	41		NC				
	with grilles-between-the-glass	PEL-N-126-01290-00004				0.29	0.25	0.46	41		NC	SC	S		
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-126-01289-00002	3	3	air	0.29	0.27	0.51	41		NC				
	with grilles-between-the-glass	PEL-N-126-01290-00002				0.29	0.25	0.45	41		NC	SC	S		
11/16"	(HA) NaturalSun Low-E IG	PEL-N-126-01177-00004	2.5	2.5	air	0.35	0.52	0.59	53						
	with grilles-between-the-glass	PEL-N-126-01178-00004				0.35	0.47	0.53	53						
11/16"	(HA) NaturalSun Low-E IG	PEL-N-126-01177-00002	3	3	air	0.35	0.51	0.59	53						
	with grilles-between-the-glass	PEL-N-126-01178-00002				0.35	0.46	0.52	53						
Vent High Altitude Glazing with Foam Insulation															
11/16"	(HA) Advanced Low-E IG	PEL-N-126-00977-00004	2.5	2.5	air	0.33	0.28	0.53	54						
	with grilles-between-the-glass	PEL-N-126-00978-00004				0.33	0.25	0.47	54				S		
11/16"	(HA) Advanced Low-E IG	PEL-N-126-00977-00002	3	3	air	0.33	0.28	0.52	54						
	with grilles-between-the-glass	PEL-N-126-00978-00002				0.33	0.25	0.46	54				S		
11/16"	(HA) SunDefense IG	PEL-N-126-01017-00004	2.5	2.5	air	0.32	0.21	0.49	54				S		
	with grilles-between-the-glass	PEL-N-126-01018-00004				0.32	0.19	0.43	54				S		
11/16"	(HA) SunDefense IG	PEL-N-126-01017-00002	3	3	air	0.32	0.21	0.48	54				S		
	with grilles-between-the-glass	PEL-N-126-01018-00002				0.32	0.19	0.43	54				S		
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-126-01057-00004	2.5	2.5	air	0.28	0.28	0.51	41		NC				
	with grilles-between-the-glass	PEL-N-126-01058-00004				0.28	0.25	0.46	41		NC	SC	S		
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-126-01057-00002	3	3	air	0.28	0.27	0.51	41		NC				
	with grilles-between-the-glass	PEL-N-126-01058-00002				0.28	0.25	0.45	41		NC	SC	S		
11/16"	(HA) NaturalSun Low-E IG	PEL-N-126-00945-00004	2.5	2.5	air	0.33	0.52	0.59	53						
	with grilles-between-the-glass	PEL-N-126-00946-00004				0.33	0.47	0.53	53						
11/16"	(HA) NaturalSun Low-E IG	PEL-N-126-00945-00002	3	3	air	0.33	0.51	0.59	53						
	with grilles-between-the-glass	PEL-N-126-00946-00002				0.33	0.46	0.52	53						

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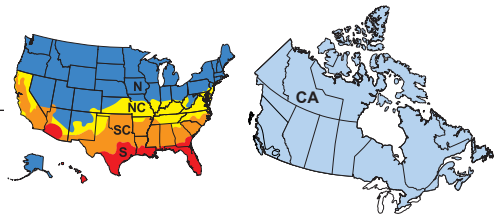

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Glazing Performance – Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm) Ext.	Glass (mm) Int.	Gap Fill	Performance Values [1] U-Factor	SHGC	VLT	CR	Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown U. S. Zone N	NC	SC	S	Canada [2] ER	Canada [2] Zone CA
Vent with 3mm / 5mm Glazing															
11/16"	Clear IG	PEL-N-126-01139-00002	3	5	air	0.48	0.57	0.61	42						
	with grilles-between-the-glass	PEL-N-126-01140-00002				0.48	0.51	0.54	42						
11/16"	Advanced Low-E IG	PEL-N-126-01231-00002	3	5	argon	0.31	0.28	0.51	56						
	with grilles-between-the-glass	PEL-N-126-01232-00002				0.31	0.25	0.46	56				S		
11/16"	SunDefense™ IG	PEL-N-126-01271-00002	3	5	argon	0.31	0.21	0.48	56				S		
	with grilles-between-the-glass	PEL-N-126-01272-00002				0.31	0.19	0.42	56				S		
11/16"	AdvancedComfort Low-E IG	PEL-N-126-01307-00002	3	5	argon	0.27	0.27	0.50	43	N	NC				
	with grilles-between-the-glass	PEL-N-126-01308-00002				0.27	0.25	0.45	43	N	NC	SC	S		
11/16"	NaturalSun Low-E IG	PEL-N-126-01195-00002	3	5	argon	0.32	0.51	0.58	55						
	with grilles-between-the-glass	PEL-N-126-01196-00002				0.32	0.46	0.52	55						
Vent 3mm / 5mm Glazing with Foam Insulation															
11/16"	Advanced Low-E IG	PEL-N-126-00999-00002	3	5	argon	0.30	0.28	0.51	56		NC				
	with grilles-between-the-glass	PEL-N-126-01000-00002				0.30	0.25	0.46	56		NC	SC	S		
11/16"	SunDefense IG	PEL-N-126-01039-00002	3	5	argon	0.29	0.21	0.48	56		NC	SC	S		
	with grilles-between-the-glass	PEL-N-126-01040-00002				0.29	0.19	0.42	56		NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-126-01075-00002	3	5	argon	0.26	0.27	0.50	43	N	NC				
	with grilles-between-the-glass	PEL-N-126-01076-00002				0.26	0.25	0.45	43	N	NC	SC	S		
11/16"	NaturalSun Low-E IG	PEL-N-126-00963-00002	3	5	argon	0.31	0.51	0.58	56						
	with grilles-between-the-glass	PEL-N-126-00964-00002				0.31	0.46	0.52	56						
Vent 3mm / 5mm High Altitude Glazing															
11/16"	(HA) Advanced Low-E IG	PEL-N-126-01211-00002	3	5	air	0.36	0.28	0.51	52						
	with grilles-between-the-glass	PEL-N-126-01212-00002				0.36	0.25	0.46	52				S		
11/16"	(HA) SunDefense IG	PEL-N-126-01251-00002	3	5	air	0.35	0.21	0.48	52				S		
	with grilles-between-the-glass	PEL-N-126-01252-00002				0.35	0.19	0.42	52				S		
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-126-01291-00002	3	5	air	0.30	0.27	0.50	39		NC				
	with grilles-between-the-glass	PEL-N-126-01292-00002				0.30	0.25	0.45	39		NC	SC	S		
11/16"	(HA) NaturalSun Low-E IG	PEL-N-126-01179-00002	3	5	air	0.36	0.51	0.58	51						
	with grilles-between-the-glass	PEL-N-126-01180-00002				0.36	0.45	0.52	51						
Vent 3mm / 5mm High Altitude Glazing with Foam Insulation															
11/16"	(HA) Advanced Low-E IG	PEL-N-126-00979-00002	3	5	air	0.34	0.28	0.51	52						
	with grilles-between-the-glass	PEL-N-126-00980-00002				0.34	0.25	0.46	52				S		
11/16"	(HA) SunDefense IG	PEL-N-126-01019-00002	3	5	air	0.34	0.21	0.48	53				S		
	with grilles-between-the-glass	PEL-N-126-01020-00002				0.34	0.19	0.42	53				S		
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-126-01059-00002	3	5	air	0.29	0.27	0.50	39		NC				
	with grilles-between-the-glass	PEL-N-126-01060-00002				0.29	0.25	0.45	39		NC	SC	S		
11/16"	(HA) NaturalSun Low-E IG	PEL-N-126-00947-00002	3	5	air	0.35	0.51	0.58	52						
	with grilles-between-the-glass	PEL-N-126-00948-00002				0.35	0.45	0.52	52						

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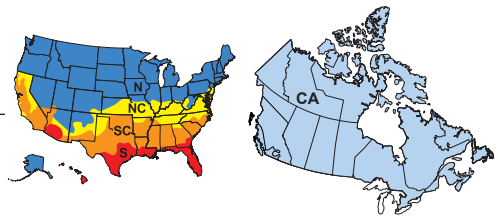

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Glazing Performance – Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm) Ext.	Glass (mm) Int.	Gap Fill	Performance Values [1] U-Factor	SHGC	VLT	CR	Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown U. S. Zone N	NC	SC	S	Canada [2] ER	Canada [2] Zone CA
Vent with Tinted Glazing															
11/16"	Bronze Advanced Low-E IG	PEL-N-126-01345-00002	5	3	argon	0.31	0.25	0.33	56				S		
	with grilles-between-the-glass	PEL-N-126-01346-00002				0.31	0.22	0.30	56				S		
11/16"	Gray Advanced Low-E IG	PEL-N-126-01349-00002	5	3	argon	0.31	0.23	0.29	56				S		
	with grilles-between-the-glass	PEL-N-126-01350-00002				0.31	0.21	0.26	56				S		
11/16"	Green Advanced Low-E IG	PEL-N-126-01353-00002	5	3	argon	0.31	0.28	0.45	56						
	with grilles-between-the-glass	PEL-N-126-01354-00002				0.31	0.25	0.40	56				S		
Vent Tinted Glazing with Foam Insulation															
11/16"	Bronze Advanced Low-E IG	PEL-N-126-01113-00002	5	3	argon	0.30	0.25	0.33	57		NC	SC	S		
	with grilles-between-the-glass	PEL-N-126-01114-00002				0.30	0.22	0.30	57		NC	SC	S		
11/16"	Gray Advanced Low-E IG	PEL-N-126-01117-00002	5	3	argon	0.30	0.23	0.29	57		NC	SC	S		
	with grilles-between-the-glass	PEL-N-126-01118-00002				0.30	0.21	0.26	57		NC	SC	S		
11/16"	Green Advanced Low-E IG	PEL-N-126-01121-00002	5	3	argon	0.30	0.28	0.45	57		NC				
	with grilles-between-the-glass	PEL-N-126-01122-00002				0.30	0.25	0.40	57		NC	SC	S		
Vent Tinted High Altitude Glazing															
11/16"	Bronze Advanced Low-E IG	PEL-N-126-01321-00002	5	3	air	0.36	0.25	0.33	53				S		
	with grilles-between-the-glass	PEL-N-126-01322-00002				0.36	0.23	0.30	53				S		
11/16"	Gray Advanced Low-E IG	PEL-N-126-01325-00002	5	3	air	0.36	0.24	0.29	53				S		
	with grilles-between-the-glass	PEL-N-126-01326-00002				0.36	0.21	0.26	53				S		
11/16"	Green Advanced Low-E IG	PEL-N-126-01329-00002	5	3	air	0.36	0.28	0.45	53						
	with grilles-between-the-glass	PEL-N-126-01330-00002				0.36	0.26	0.40	53						
Vent Tinted High Altitude Glazing with Foam Insulation															
11/16"	Bronze Advanced Low-E IG	PEL-N-126-01089-00002	5	3	air	0.34	0.25	0.33	53				S		
	with grilles-between-the-glass	PEL-N-126-01090-00002				0.34	0.23	0.30	53				S		
11/16"	Gray Advanced Low-E IG	PEL-N-126-01093-00002	5	3	air	0.34	0.24	0.29	53				S		
	with grilles-between-the-glass	PEL-N-126-01094-00002				0.34	0.21	0.26	53				S		
11/16"	Green Advanced Low-E IG	PEL-N-126-01097-00002	5	3	air	0.34	0.28	0.45	53						
	with grilles-between-the-glass	PEL-N-126-01098-00002				0.34	0.26	0.40	53						

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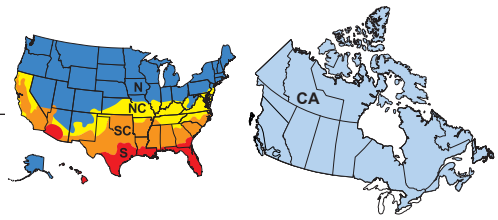

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Glazing Performance – Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm) Ext.	Glass (mm) Int.	Gap Fill	Performance Values [1] U-Factor	SHGC	VLT	CR	Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown U. S. Zone N	NC	SC	S	Canada [2] ER	Canada [2] Zone CA
Vent with Laminated Glazing															
11/16"	Advanced Low-E IG	PEL-N-126-01233-00002	3	6	argon	0.33	0.28	0.51	55						
	with grilles-between-the-glass	PEL-N-126-01234-00002				0.34	0.25	0.45	55				S		
11/16"	SunDefense™ IG	PEL-N-126-01273-00002	3	6	argon	0.33	0.21	0.47	56				S		
	with grilles-between-the-glass	PEL-N-126-01274-00002				0.34	0.19	0.42	56				S		
Vent Laminated Glazing with Foam Insulation															
11/16"	Advanced Low-E IG	PEL-N-126-01001-00002	3	6	argon	0.32	0.28	0.51	56						
	with grilles-between-the-glass	PEL-N-126-01002-00002				0.32	0.25	0.45	56				S		
11/16"	SunDefense™ IG	PEL-N-126-01041-00002	3	6	argon	0.31	0.21	0.47	56				S		
	with grilles-between-the-glass	PEL-N-126-01042-00002				0.32	0.19	0.42	56				S		
Vent Laminated High Altitude Glazing															
11/16"	Advanced Low-E IG	PEL-N-126-01213-00002	3	6	air	0.38	0.28	0.51	51						
	with grilles-between-the-glass	PEL-N-126-01214-00002				0.39	0.25	0.45	51				S		
11/16"	SunDefense IG	PEL-N-126-01253-00002	3	6	air	0.38	0.21	0.47	51				S		
	with grilles-between-the-glass	PEL-N-126-01254-00002				0.39	0.19	0.42	51				S		
Vent Laminated High Altitude Glazing with Foam Insulation															
11/16"	Advanced Low-E IG	PEL-N-126-00981-00002	3	6	air	0.36	0.28	0.51	51						
	with grilles-between-the-glass	PEL-N-126-00982-00002				0.37	0.25	0.45	51				S		
11/16"	SunDefense IG	PEL-N-126-01021-00002	3	6	air	0.36	0.21	0.47	52				S		
	with grilles-between-the-glass	PEL-N-126-01022-00002				0.37	0.19	0.42	52				S		

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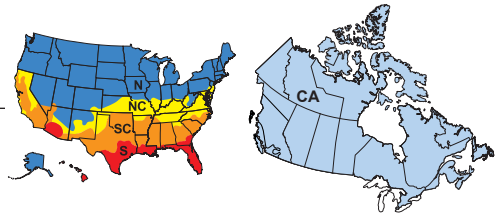

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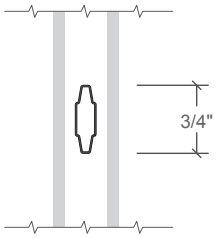
Grille Profiles

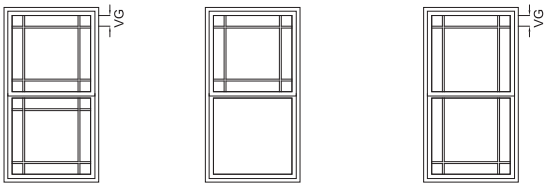
Grilles-Between-the-Glass



3/4" Contour

Grille Patterns

Prairie Lite Patterns



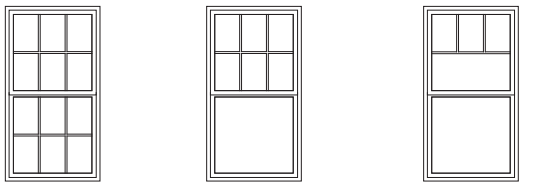
9-Lite Prairie

6-Lite Prairie

Prairie

- Standard corner lite dimension for Prairie patterns = 4" visible glass (VG).
- Pattern availability may vary depending on size of unit.

Other Patterns



Traditional

Special

Top Row (1)

- Pattern availability may vary depending on size of unit.

(1) Standard visible glass to center line of separator bar = 14" or half of total visible glass height, whichever is smaller. Multiple rows are available up to 50% glass size.

Size Tables

Fixed Transoms

Opening (mm)	Opening	Frame (mm)	Frame	1-6/1-2	2-0/1-2	2-4/1-2	2-6/1-2	2-8/1-2	3-0/1-2	3-4/1-2	3-6/1-2	4-0/1-2
(356) (343)	1' 2"	1' 1 1/2"	1' 1 1/2"									
(457) (446)	1' 6"	1' 5 1/2"	1' 5 1/2"	1-6/1-6	2-0/1-6	2-4/1-6	2-6/1-6	2-8/1-6	3-0/1-6	3-4/1-6	3-6/1-6	4-0/1-6
(610) (597)	2' 0"	1' 11 1/2"	1' 11 1/2"	1-6/2-0	2-0/2-0	2-4/2-0	2-6/2-0	2-8/2-0	3-0/2-0	3-4/2-0	3-6/2-0	4-0/2-0

Opening (mm)	Opening	Frame (mm)	Frame	1-6/1-2	2-0/1-2	2-4/1-2	2-6/1-2	2-8/1-2	3-0/1-2	3-4/1-2	3-6/1-2	4-0/1-2
(457) (445)	(457) (445)	(356) (343)	1' 2"									
(610) (597)	(610) (597)	(457) (446)	1' 6"	1-6/1-6	2-0/1-6	2-4/1-6	2-6/1-6	2-8/1-6	3-0/1-6	3-4/1-6	3-6/1-6	4-0/1-6
(762) (749)	(711) (699)	(610) (597)	2' 0"	1-6/2-0	2-0/2-0	2-4/2-0	2-6/2-0	2-8/2-0	3-0/2-0	3-4/2-0	3-6/2-0	4-0/2-0
(914) (902)	(762) (749)	(762) (749)	2' 6"	1-6/2-6	2-0/2-6	2-4/2-6	2-6/2-6	2-8/2-6	3-0/2-6	3-4/2-6		
(1 067) (1 054)	(914) (902)	(914) (902)	3' 0"	1-6/3-0	2-0/3-0	2-4/3-0	2-6/3-0	2-8/3-0	3-0/3-0	3-4/3-0	3-6/3-0	4-0/3-0
(1 168) (1 156)	(965) (953)	(965) (953)	3' 2"	1-6/3-2	2-0/3-2	2-4/3-2	2-6/3-2	2-8/3-2	3-0/3-2	3-4/3-2	3-6/3-2	4-0/3-2
(1 270) (1 257)	(1 067) (1 054)	(1 067) (1 054)	3' 6"	1-6/3-6	2-0/3-6	2-4/3-6	2-6/3-6	2-8/3-6	3-0/3-6	3-4/3-6	3-6/3-6	4-0/3-6
(1 372) (1 359)	(1 168) (1 156)	(1 168) (1 156)	3' 10"	1-6/3-10	2-0/3-10	2-4/3-10	2-6/3-10	2-8/3-10	3-0/3-10	3-4/3-10	3-6/3-10	4-0/3-10
(1 473) (1 461)	(1 219) (1 207)	(1 219) (1 207)	4' 0"	1-6/4-0	2-0/4-0	2-4/4-0	2-6/4-0	2-8/4-0	3-0/4-0	3-4/4-0	3-6/4-0	4-0/4-0
	(1 270) (1 257)	(1 270) (1 257)	4' 2"	1-6/4-2	2-0/4-2	2-4/4-2	2-6/4-2	2-8/4-2	3-0/4-2	3-4/4-2	3-6/4-2	4-0/4-2
	(1 372) (1 359)	(1 372) (1 359)	4' 6"	1-6/4-6	2-0/4-6	2-4/4-6	2-6/4-6	2-8/4-6	3-0/4-6	3-4/4-6	3-6/4-6	4-0/4-6
	(1 473) (1 461)	(1 473) (1 461)	4' 10"	1-6/4-10	2-0/4-10	2-4/4-10	2-6/4-10	2-8/4-10	3-0/4-10 E1	3-4/4-10 E	3-6/4-10 E	4-0/4-10 E

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

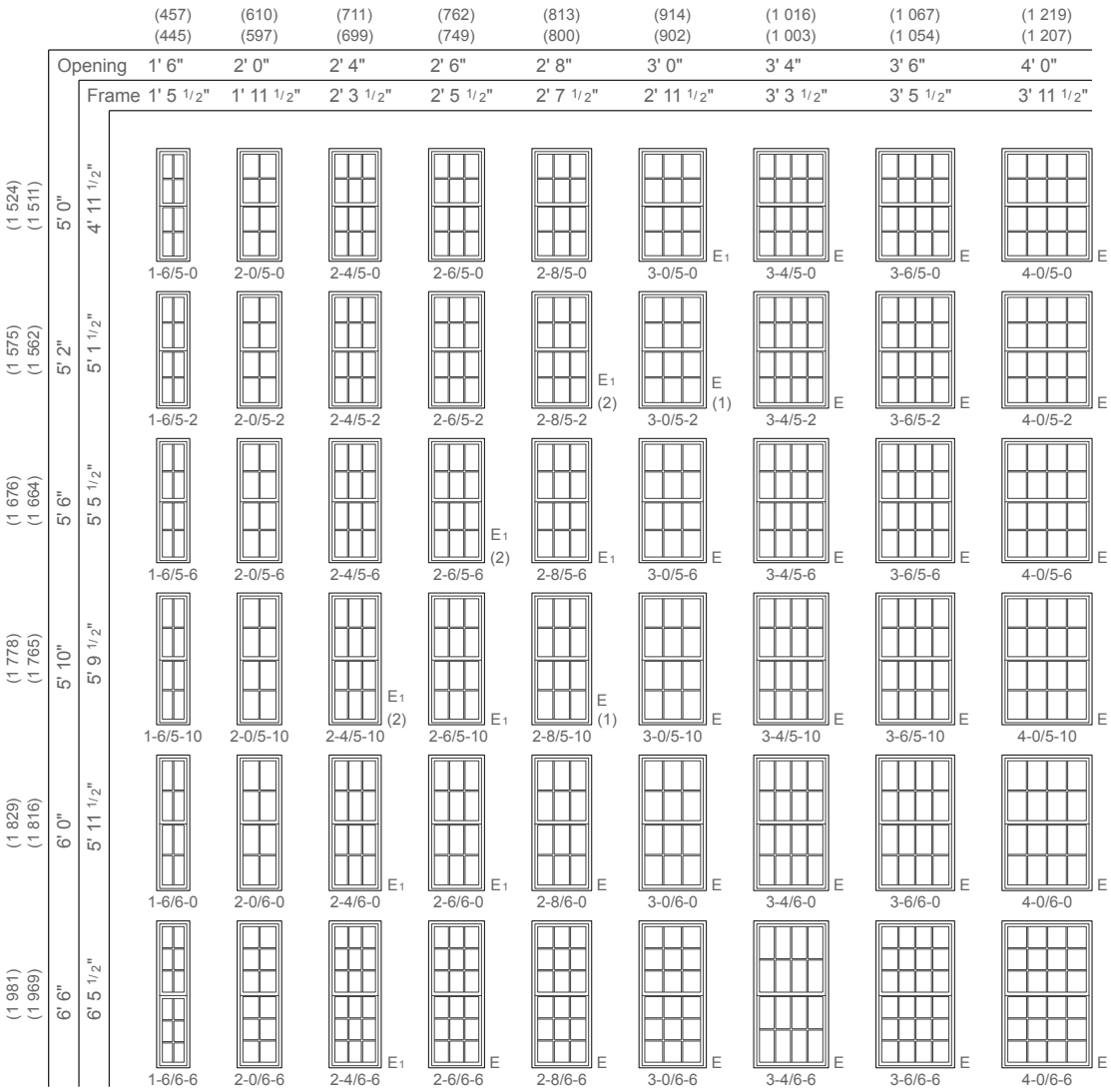
See Design Data pages in this section for clear opening dimensions.

Not to scale.

Special size units are available in 1/8" increments.

Size Tables

Vent Units



Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

(1) Unit meets E1 with High Performance sill adapter kit installed.

(2) Does not meet egress with High Performance sill adapter kit installed.

See Design Data pages in this section for clear opening dimensions

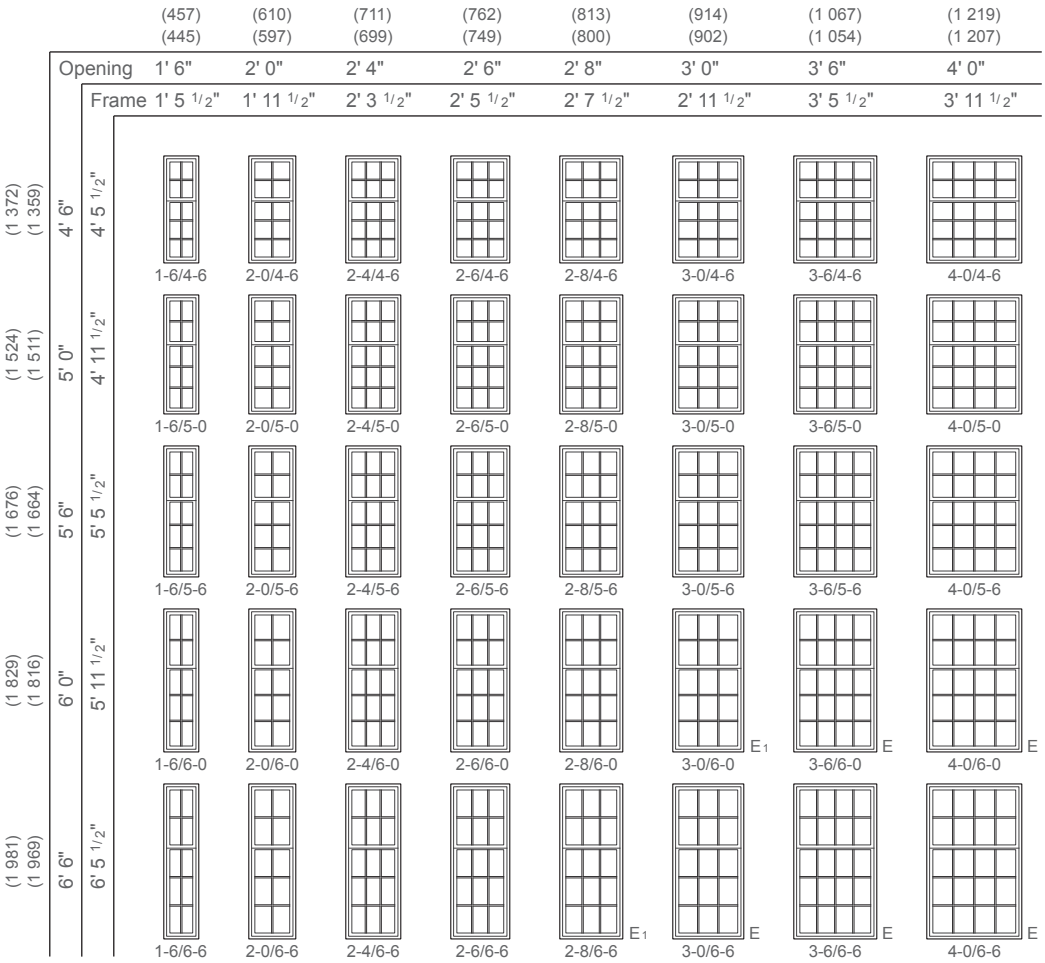
Not to scale.

Special size units are available in 1/8" increments.

Subtract 1/2" from opening height to calculate vent area for High Performance unit.

Size Tables

Vent Cottage Units



Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

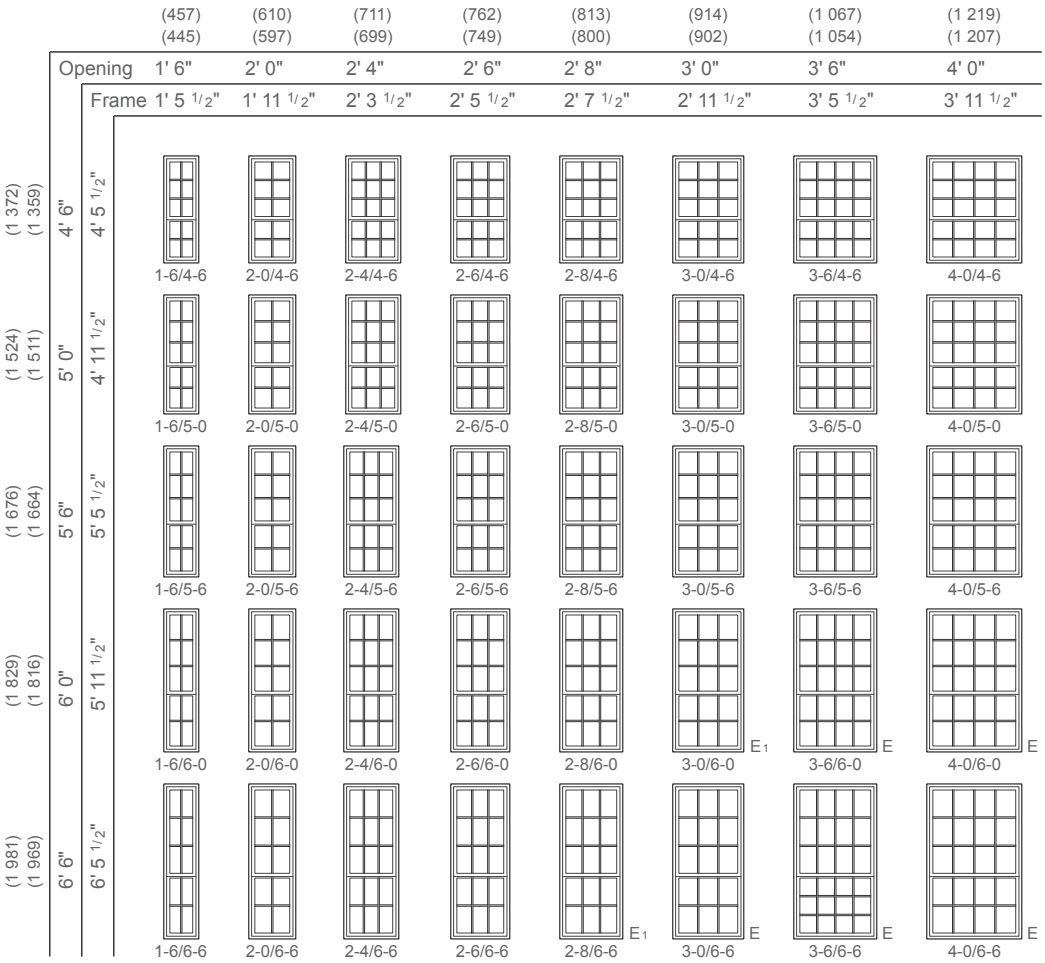
See Design Data pages in this section for clear opening dimensions

Cottage units have unequal sash. Sash glass ratio is 40% upper sash to 60% lower sash.

Special size units are available in 1/8" increments.

Size Tables

Vent Contemporary Units



Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

See Design Data pages in this section for clear opening dimensions.

Contemporary units have unequal sash. Sash glass ratio is 60% upper sash to 40% lower sash.

Special size units are available in 1/8" increments.

Fixed Transoms

Opening / Frame	1' 2" / 1' 1 1/2" (356) (343)	3' 0" / 2' 11 1/2" (914) (902)	3' 6" / 3' 5 1/2" (1 067) (1 054)	4' 0" / 3' 11 1/2" (1 219) (1 207)	4' 6" / 4' 5 1/2" (1 372) (1 359)	5' 0" / 4' 11 1/2" (1 524) (1 511)	6' 0" / 5' 11 1/2" (1 829) (1 816)
(356) (343) 1' 2" / 1' 1 1/2"		3-0/1-2	3-6/1-2	4-0/1-2	4-6/1-2	5-0/1-2	6-0/1-2
(457) (446) 1' 6" / 1' 5 1/2"		3-0/1-6	3-6/1-6	4-0/1-6	4-6/1-6	5-0/1-6	6-0/1-6
(610) (597) 2' 0" / 1' 11 1/2"		3-0/2-0	3-6/2-0	4-0/2-0	4-6/2-0	5-0/2-0	6-0/2-0

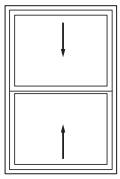
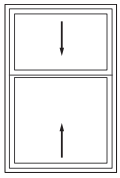
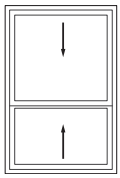
Fixed Units

Opening / Frame	1' 2" / 1' 1 1/2" (356) (343)	3' 0" / 2' 11 1/2" (914) (902)	3' 6" / 3' 5 1/2" (1 067) (1 054)	4' 0" / 3' 11 1/2" (1 219) (1 207)	4' 6" / 4' 5 1/2" (1 372) (1 359)	5' 0" / 4' 11 1/2" (1 524) (1 511)	6' 0" / 5' 11 1/2" (1 829) (1 816)
(762) (749) 2' 6" / 2' 5 1/2"	1-2/2-6	3-0/2-6	3-6/2-6	4-0/2-6	4-6/2-6	5-0/2-6	6-0/2-6
(914) (902) 3' 0" / 2' 11 1/2"	1-2/3-0	3-0/3-0	3-6/3-0	4-0/3-0	4-6/3-0	5-0/3-0	6-0/3-0
(1 067) (1 054) 3' 6" / 3' 5 1/2"	1-2/3-6	3-0/3-6	3-6/3-6	4-0/3-6	4-6/3-6	5-0/3-6	6-0/3-6
(1 219) (1 207) 4' 0" / 3' 11 1/2"	1-2/4-0	3-0/4-0	3-6/4-0	4-0/4-0	4-6/4-0	5-0/4-0	6-0/4-0
(1 372) (1 359) 4' 6" / 4' 5 1/2"	1-2/4-6	3-0/4-6	3-6/4-6	4-0/4-6	4-6/4-6	5-0/4-6	6-0/4-6
(1 524) (1 511) 5' 0" / 4' 11 1/2"	1-2/5-0	3-0/5-0	3-6/5-0	4-0/5-0	4-6/5-0	5-0/5-0	6-0/5-0
(1 676) (1 664) 5' 6" / 5' 5 1/2"		3-0/5-6	3-6/5-6	4-0/5-6	4-6/5-6	5-0/5-6	6-0/5-6
(1 829) (1 816) 6' 0" / 5' 11 1/2"		3-0/6-0	3-6/6-0	4-0/6-0	4-6/6-0	5-0/6-0	6-0/6-0

Not to scale.

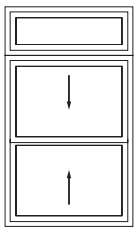
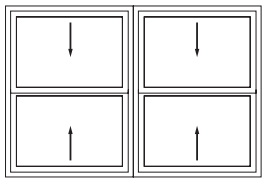
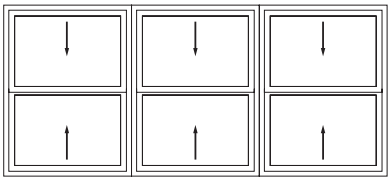
Special size units are available in 1/8" increments.

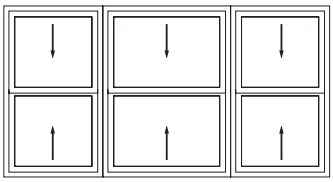
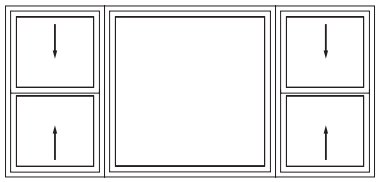
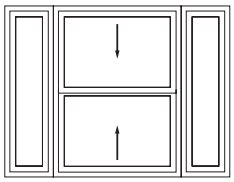
Special Sizes and Combinations

(Equal) Vent Unit	Cottage Vent Unit	Contemporary Vent Unit
		
MINIMUM 1' 5-1/2" W x 2' 5-1/2" H (445 x 739)	**MINIMUM** 1' 5-1/2" W x 4' 5-1/2" H (445 x 1 359)	**MINIMUM** 1' 5-1/2" W x 4' 5-1/2" H (445 x 1 359)
MAXIMUM 3' 11-1/2" W x 6' 5-1/2" H (1 207 x 1 968)	**MAXIMUM** 3' 11-1/2" W x 6' 5-1/2" H (1 207 x 1 968)	**MAXIMUM** 3' 11-1/2" W x 6' 5-1/2" H (1 207 x 1 968)

Below are available factory-assembled combination assemblies using joining mullions. See the Pella.com site, Installation Systems section for requirements and limitations related to mulling various combinations plus configurations size range information.

A combination is defined as an assembly formed by two or more separate windows or doors whose frames are mulled together utilizing a combination mullion or reinforcing mullion.

Transom over Double-Hung	2-Wide	3-Wide
		
MINIMUM 1' 5-1/2" W x 3' 7" H (445 x 1 092)	**MINIMUM** 2' 11-1/2" W x 2' 5-1/2" H (914 x 762)	**MINIMUM** 4' 4-1/2" W x 2' 5-1/2" H (1 346 x 762)
MAXIMUM 3' 11-1/2" W x 8' 5" H (1 219 x 2 565)	**MAXIMUM** 7' 11" W x 5' 5-1/2" H (2 413 x 1 676)	**MAXIMUM** 8' 10-1/2" W x 5' 5-1/2" H (2 718 x 1 676)

3-Wide with Unequal Center	3-Wide with Center Fixed	3-Wide with Fixed Flankers
		
MINIMUM 4' 1/2" W x 2' 5-1/2" H (1 245 x 762)	**MINIMUM** 4' 1/2" W x 2' 11-1/2" H (1 245 x 914)	**MINIMUM** 3' 8-1/2" W x 2' 11-1/2" H (1 143 x 914)
MAXIMUM 8' 10-1/2" W x 5' 5-1/2" H (2 718 x 1 676)	**MAXIMUM** 8' 11-1/2" W x 4' 11-1/2" H (2 743 x 1 524) Center Unit Width ≤ 4' 11-1/2"	**MAXIMUM** 6' 2-1/2" W x 4' 11-1/2" H (1 905 x 1 524)

General Notes:

- To convert areas to square meters (m2), multiply square feet by 0.0929.
- Rough Opening = Frame Dimension + 1/2".
- Keep frame dimensions to the nearest 1/8" increment

Special Sizes and Dimensions

Fixed Special Sizes
MINIMUM 1' 1-1/2" W x 2' 5-1/2" H (13-1/2" x 29-1/2") (343 x 739)
MAXIMUM 5' 11-1/2" W x 5' 11-1/2" H (71-1/2" x 71-1/2") (1 816 x 1 816) Max frame area 33.51 sq ft.

Clear Opening Formulas

	Width	Height[1]
Equal Vent	FW – 4.125"	FH ÷ 2 – 3.75"
Cottage Vent	FW – 4.125"	(FH – ALGH) – 7"
Contemporary Vent	FW – 4.125"	(FH – AUGH) – 7"

Miscellaneous Glass Formulas

	Actual Glass Width (AGW)	Actual Glass Height (Lower Sash) (ALGH)	Actual Glass Height (Upper Sash) (AUGH)	Visible Glass Width (VGW)	Visible Glass Height (Lower Sash) (VLGH)	Visible Glass Height (Upper Sash) (VUGH)
Equal Vent	FW – 5.5"	FH ÷ 2 – 3.25"	FH ÷ 2 – 3.25"	FW – 6.438"	FH ÷ 2 – 4.188"	FH ÷ 2 – 4.188"
Cottage Vent	FW – 5.5"	(FH – 6.5") x 0.6	(FH – 6.5") x 0.4	FW – 6.4375"	(FH – 6.5") x 0.6 – 0.938	(FH – 6.5") x 0.4 – 0.938
Contemporary Vent	FW – 5.5"	(FH – 6.5") x 0.4	(FH – 6.5") x 0.6	FW – 6.4375"	(FH – 6.5") x 0.4 – 0.938	(FH – 6.5") x 0.6 – 0.938
Fixed	FW – 5.125"	FH – 5.125"		FW – 6.0625"	FH – 5.125"	

KEY:
FW = Frame Width
FH = Frame Height

(1) Subtract one Inch from opening height to calculate vent area for performance upgrade units.

Equal Vent

Unit	Egress	Clear Opening [3] (Inches)		Vent Area Ft²	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade [4]	
		Width	Height			Annealed	Tempered	Standard	Upgrade
1-6/2-6		13-3/8	11	1.0	1.6	3	3	LC30	LC50
1-6/3-0		13-3/8	14	1.3	2.1	2.5	3	LC30	LC50
1-6/3-2		13-3/8	15	1.4	2.2	2.5	3	LC30	LC50
1-6/3-6		13-3/8	17	1.6	2.5	2.5	3	LC30	LC50
1-6/3-10		13-3/8	19	1.8	2.9	2.5	3	LC30	LC50
1-6/4-0		13-3/8	20	1.9	3.0	2.5	3	LC30	LC50
1-6/4-2		13-3/8	21	2.0	3.2	2.5	3	LC30	LC50
1-6/4-6		13-3/8	23	2.1	3.5	2.5	3	LC30	LC50
1-6/4-10		13-3/8	26	2.3	3.8	2.5	3	LC30	LC50
1-6/5-0		13-3/8	26	2.4	3.9	2.5	3	LC30	LC50
1-6/5-2		13-3/8	27	2.5	4.1	2.5	3	LC30	LC50
1-6/5-6		13-3/8	29	2.7	4.4	2.5	3	LC30	LC50
1-6/5-10		13-3/8	31	2.9	4.7	2.5	3	LC30	LC50
1-6/6-0		13-3/8	32	3.0	4.8	2.5	3	LC30	LC50
1-6/6-6		13-3/8	35	3.3	5.3	2.5	3	LC30	–
2-0/2-6		19-3/8	11	1.5	2.5	3	3	LC30	LC50
2-0/3-0		19-3/8	14	1.9	3.2	2.5	3	LC30	LC50
2-0/3-2		19-3/8	15	2.0	3.5	2.5	3	LC30	LC50
2-0/3-6		19-3/8	17	2.3	3.9	2.5	3	LC30	LC50
2-0/3-10		19-3/8	19	2.6	4.4	2.5	3	LC30	LC50
2-0/4-0		19-3/8	20	2.7	4.6	2.5	3	LC30	LC50
2-0/4-2		19-3/8	21	2.8	4.9	2.5	3	LC30	LC50
2-0/4-6		19-3/8	23	3.1	5.3	2.5	3	LC30	LC50
2-0/4-10		19-3/8	25	3.4	5.8	2.5	3	LC30	LC50
2-0/5-0		19-3/8	26	3.5	6.1	2.5	3	LC30	LC50
2-0/5-2		19-3/8	27	3.6	6.3	2.5	3	LC30	LC50
2-0/5-6		19-3/8	29	3.9	6.8	2.5	3	LC30	LC50
2-0/5-10		19-3/8	31	4.2	7.2	2.5	3	LC30	LC50
2-0/6-0		19-3/8	32	4.3	7.5	2.5	3	LC30	LC50
2-0/6-6		19-3/8	35	4.7	8.2	2.5	3	LC30	–
2-4/2-6		23-3/8	11	1.8	3.1	3	3	LC30	LC50
2-4/3-0		23-3/8	14	2.3	4.0	2.5	3	LC30	LC50
2-4/3-2		23-3/8	15	2.4	4.3	2.5	3	LC30	LC50
2-4/3-6		23-3/8	17	2.8	4.8	2.5	3	LC30	LC50
2-4/3-10		23-3/8	19	3.1	5.4	2.5	3	LC30	LC50
2-4/4-0		23-3/8	20	3.2	5.7	2.5	3	LC30	LC50
2-4/4-2		23-3/8	21	3.4	6.0	2.5	3	LC30	LC50
2-4/4-6		23-3/8	23	3.7	6.6	2.5	3	LC30	LC50
2-4/4-10		23-3/8	25	4.1	7.2	2.5	3	LC30	LC50
2-4/5-0		23-3/8	26	4.2	7.5	2.5	3	LC30	LC50
2-4/5-2		23-3/8	27	4.4	7.8	2.5	3	LC30	LC50
2-4/5-6		23-3/8	29	4.7	8.4	2.5	3	LC30	LC50
2-4/5-10	E1 (2)	23-3/8	31	5.0	8.9	2.5	3	LC30	LC50
2-4/6-0	E1	23-3/8	32	5.2	9.2	2.5	3	LC30	LC50
2-4/6-6	E1	23-3/8	35	5.7	10.1	2.5	3	LC30	–

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

(1) Unit meets E1 with High Performance sill adapter kit installed.

(2) Does not meet egress with High Performance sill adapter kit installed.

To convert areas to square meters (m²), multiply square feet (ft²) by 0.0929.

(3) Subtract one Inch from opening height to calculate vent area for performance upgrade units.

(4) The upgrade value, where shown, is maximum performance with upgrade kit installed. Both values are based on maximum performance when glazed with the appropriate glass thickness.

Equal Vent

Unit	Egress	Clear Opening [3] (Inches)		Vent Area Ft²	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade [4]	
		Width	Height			Annealed	Tempered	Standard	Upgrade
2-6/2-6		25-3/8	10	1.9	3.4	3	3	LC30	LC50
2-6/3-0		25-3/8	14	2.5	4.3	2.5	3	LC30	LC50
2-6/3-2		25-3/8	15	2.6	4.7	2.5	3	LC30	LC50
2-6/3-6		25-3/8	17	3.0	5.3	2.5	3	LC30	LC50
2-6/3-10		25-3/8	19	3.3	5.9	2.5	3	LC30	LC50
2-6/4-0		25-3/8	20	3.5	6.3	2.5	3	LC30	LC50
2-6/4-2		25-3/8	21	3.7	6.6	2.5	3	LC30	LC50
2-6/4-6		25-3/8	23	4.1	7.2	2.5	3	LC30	LC50
2-6/4-10		25-3/8	25	4.4	7.9	2.5	3	LC30	LC50
2-6/5-0		25-3/8	26	4.6	8.2	2.5	3	LC30	LC50
2-6/5-2		25-3/8	27	4.8	8.5	2.5	3	LC30	LC50
2-6/5-6	E1 (2)	25-3/8	29	5.1	9.1	2.5	3	LC30	LC50
2-6/5-10	E1	25-3/8	31	5.5	9.8	2.5	3	LC30	LC50
2-6/6-0	E1	25-3/8	32	5.6	10.1	2.5	3	LC30	LC50
2-6/6-6	E	25-3/8	35	6.2	11.1	2.5	3	LC30	–
2-8/2-6		27-3/8	11	2.1	3.7	3	3	LC30	LC50
2-8/3-0		27-3/8	14	2.7	4.7	2.5	3	LC30	LC50
2-8/3-2		27-3/8	15	2.9	5.1	2.5	3	LC30	LC50
2-8/3-6		27-3/8	17	3.2	5.8	2.5	3	LC30	LC50
2-8/3-10		27-3/8	19	3.6	6.5	2.5	3	LC30	LC50
2-8/4-0		27-3/8	20	3.8	6.8	2.5	3	LC30	LC50
2-8/4-2		27-3/8	21	4.0	7.2	2.5	3	LC30	LC50
2-8/4-6		27-3/8	23	4.4	7.9	2.5	3	LC30	LC50
2-8/4-10		27-3/8	25	4.8	8.5	2.5	3	LC30	LC50
2-8/5-0		27-3/8	26	4.9	8.9	2.5	3	LC30	LC50
2-8/5-2	E1 (2)	27-3/8	27	5.1	9.2	2.5	3	LC30	LC50
2-8/5-6	E1	27-3/8	29	5.5	9.9	2.5	3	LC30	LC50
2-8/5-10	E (1)	27-3/8	31	5.9	10.6	2.5	3	LC30	LC50
2-8/6-0	E	27-3/8	32	6.1	11.0	2.5	3	LC30	LC50
2-8/6-6	E	27-3/8	35	6.7	12.0	2.5	3	LC30	–
3-0/2-6		31-3/8	11	2.4	4.3	3	3	LC30	LC50
3-0/3-0		31-3/8	14	3.1	5.5	2.5	3	LC30	LC50
3-0/3-2		31-3/8	15	3.3	5.9	2.5	3	LC30	LC50
3-0/3-6		31-3/8	17	3.7	6.7	2.5	3	LC30	LC50
3-0/3-10		31-3/8	19	4.1	7.5	2.5	3	LC30	LC50
3-0/4-0		31-3/8	20	4.4	7.9	2.5	3	LC30	LC50
3-0/4-2		31-3/8	21	4.6	8.3	2.5	3	LC30	LC50
3-0/4-6		31-3/8	23	5.0	9.1	2.5	3	LC30	LC50
3-0/4-10	E1	31-3/8	25	5.4	9.9	2.5	3	LC30	LC50
3-0/5-0	E1	31-3/8	26	5.7	10.3	2.5	3	LC30	LC50
3-0/5-2	E (1)	31-3/8	27	5.9	10.7	2.5	3	LC30	LC50
3-0/5-6	E	31-3/8	29	6.3	11.5	2.5	3	LC30	LC50
3-0/5-10	E	31-3/8	31	6.8	12.3	2.5	3	LC30	LC50
3-0/6-0	E	31-3/8	32	7.0	12.7	2.5	3	LC30	LC50
3-0/6-6	E	31-3/8	35	7.6	14.0	2.5	3	LC30	–

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

(1) Unit meets E1 with High Performance sill adapter kit installed.

(2) Does not meet egress with High Performance sill adapter kit installed.

To convert areas to square meters (m²), multiply square feet (ft²) by 0.0929.

(3) Subtract one Inch from opening height to calculate vent area for performance upgrade units.

(4) The upgrade value, where shown, is maximum performance with upgrade kit installed. Both values are based on maximum performance when glazed with the appropriate glass thickness.

Equal Vent

Unit	Egress	Clear Opening [3] (Inches)		Vent Area Ft²	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade [4]	
		Width	Height			Annealed	Tempered	Standard	Upgrade
3-4/2-6		35-3/8	8	2.7	4.9	3	3	LC30	LC50
3-4/3-0		35-3/8	14	3.4	6.2	2.5	3	LC30	LC50
3-4/3-2		35-3/8	15	3.7	6.7	2.5	3	LC30	LC50
3-4/3-6		35-3/8	17	4.2	7.6	2.5	3	LC30	LC50
3-4/3-10		35-3/8	19	4.7	8.5	2.5	3	LC30	LC50
3-4/4-0		35-3/8	20	4.9	9.0	2.5	3	LC30	LC50
3-4/4-2		35-3/8	21	5.2	9.4	2.5	3	LC30	LC50
3-4/4-6		35-3/8	23	5.7	10.4	2.5	3	LC30	LC50
3-4/4-10	E	35-3/8	25	6.1	11.3	2.5	3	LC30	LC50
3-4/5-0	E	35-3/8	26	6.4	11.7	2.5	3	LC30	LC50
3-4/5-2	E	35-3/8	27	6.6	12.2	2.5	3	LC30	LC50
3-4/5-6	E	35-3/8	29	7.1	13.1	2.5	3	LC30	–
3-4/5-10	E	35-3/8	31	7.6	14.0	2.5	3	LC30	–
3-4/6-0	E	35-3/8	32	7.9	14.5	2.5	3	LC30	–
3-4/6-6	E	35-3/8	35	8.6	15.9	2.5	3	LC30	–
3-6/3-0		37-3/8	14	3.6	6.6	2.5	3	LC30	LC50
3-6/3-2		37-3/8	15	3.9	7.1	2.5	3	LC30	LC50
3-6/3-6		37-3/8	17	4.4	8.1	2.5	3	LC30	LC50
3-6/3-10		37-3/8	19	4.9	9.0	2.5	3	LC30	LC50
3-6/4-0		37-3/8	20	5.2	9.5	2.5	3	LC30	LC50
3-6/4-2		37-3/8	21	5.5	10.0	2.5	3	LC30	LC50
3-6/4-6		37-3/8	23	6.0	11.0	2.5	3	LC30	LC50
3-6/4-10	E	37-3/8	25	6.5	12.0	2.5	3	LC30	LC50
3-6/5-0	E	37-3/8	26	6.7	12.4	2.5	3	LC30	LC50
3-6/5-2	E	37-3/8	27	7.0	12.9	2.5	3	LC30	–
3-6/5-6	E	37-3/8	29	7.5	13.9	2.5	3	LC30	–
3-6/5-10	E	37-3/8	31	8.0	14.9	2.5	3	LC30	–
3-6/6-0	E	37-3/8	32	8.3	15.4	2.5	3	LC30	–
3-6/6-6	E	37-3/8	35	9.1	16.8	2.5	3	LC30	–
4-0/3-0		43-3/8	14	4.2	7.7	2.5	3	LC30	LC50
4-0/3-2		43-3/8	15	4.5	8.3	2.5	3	LC30	LC50
4-0/3-6		43-3/8	17	5.1	9.4	2.5	3	LC30	LC50
4-0/3-10		43-3/8	19	5.7	10.6	2.5	3	LC30	LC50
4-0/4-0		43-3/8	20	6.0	11.2	2.5	3	LC30	LC50
4-0/4-2		43-3/8	21	6.3	11.7	2.5	3	LC30	LC50
4-0/4-6		43-3/8	23	6.9	12.9	2.5	3	LC30	LC50
4-0/4-10	E	43-3/8	25	7.5	14.0	2.5	3	LC30	–
4-0/5-0	E	43-3/8	26	7.8	14.6	2.5	3	LC30	–
4-0/5-2	E	43-3/8	27	8.1	15.1	2.5	3	LC30	–
4-0/5-6	E	43-3/8	29	8.7	16.3	2.5	3	LC30	–
4-0/5-10	E	43-3/8	31	9.3	17.4	2.5	3	LC30	–
4-0/6-0	E	43-3/8	32	9.6	18.0	2.5	3	LC30	–
4-0/6-6	E	43-3/8	35	10.5	19.7	2.5	3	LC30	–

3 of 3

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

(1) Unit meets E1 with High Performance sill adapter kit installed.

(2) Does not meet egress with High Performance sill adapter kit installed.

To convert areas to square meters (m²), multiply square feet (ft²) by 0.0929.

(3) Subtract one Inch from opening height to calculate vent area for performance upgrade units.

(4) The upgrade value, where shown, is maximum performance with upgrade kit installed. Both values are based on maximum performance when glazed with the appropriate glass thickness.

Cottage Sash

Unit	Egress	Clear Opening[1] (Inches)		Vent Area Ft²	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade[2]	
		Width	Height			Annealed	Tempered	Standard	Upgrade
1-6/4-6		13-3/8	18-3/16	1.7	3.5	2.5	3	LC30	LC50
1-6/5-0		13-3/8	20-11/16	1.9	3.9	2.5	3	LC30	LC50
1-6/5-6		13-3/8	23-1/8	2.1	4.4	2.5	3	LC30	LC50
1-6/6-0		13-3/8	25-1/2	2.3	4.8	2.5	3	LC30	LC50
1-6/6-6		13-3/8	27-7/8	2.5	5.3	2.5	3	LC30	–
2-0/4-6		19-3/8	18-3/16	2.4	5.3	2.5	3	LC30	LC50
2-0/5-0		19-3/8	20-11/16	2.7	6.1	2.5	3	LC30	LC50
2-0/5-6		19-3/8	23-1/8	3.1	6.8	2.5	3	LC30	LC50
2-0/6-0		19-3/8	25-1/2	3.4	7.5	2.5	3	LC30	LC50
2-0/6-6		19-3/8	27-7/8	3.7	8.2	2.5	3	LC30	–
2-4/4-6		23-3/8	18-3/16	2.9	6.6	2.5	3	LC30	LC50
2-4/5-0		23-3/8	20-11/16	3.3	7.5	2.5	3	LC30	LC50
2-4/5-6		23-3/8	23-1/8	3.7	8.4	2.5	3	LC30	LC50
2-4/6-0		23-3/8	25-1/2	4.1	9.2	2.5	3	LC30	LC50
2-4/6-6		23-3/8	27-7/8	4.5	10.1	2.5	3	LC30	–
2-6/4-6		25-3/8	18-3/16	3.2	7.2	2.5	3	LC30	LC50
2-6/5-0		25-3/8	20-11/16	3.6	8.2	2.5	3	LC30	LC50
2-6/5-6		25-3/8	23-1/8	4.1	9.1	2.5	3	LC30	LC50
2-6/6-0		25-3/8	25-1/2	4.5	10.1	2.5	3	LC30	LC50
2-6/6-6		25-3/8	27-7/8	4.9	11.1	2.5	3	LC30	–
2-8/4-6		27-3/8	18-3/16	3.4	7.9	2.5	3	LC30	LC50
2-8/5-0		27-3/8	20-11/16	3.9	8.9	2.5	3	LC30	LC50
2-8/5-6		27-3/8	23-1/8	4.3	9.9	2.5	3	LC30	LC50
2-8/6-0		27-3/8	25-1/2	4.8	11.0	2.5	3	LC30	LC50
2-8/6-6	E1	27-3/8	27-7/8	5.3	12.0	2.5	3	LC30	–
3-0/4-6		31-3/8	18-3/16	3.9	9.1	2.5	3	LC30	LC50
3-0/5-0		31-3/8	20-11/16	4.5	10.3	2.5	3	LC30	LC50
3-0/5-6		31-3/8	23-1/8	5.0	11.5	2.5	3	LC30	LC50
3-0/6-0	E1	31-3/8	25-1/2	5.5	12.7	2.5	3	LC30	LC50
3-0/6-6	E	31-3/8	27-7/8	6.0	14.0	2.5	3	LC30	–
3-6/4-6		37-3/8	18-3/16	4.7	11.0	2.5	3	LC30	LC50
3-6/5-0		37-3/8	20-11/16	5.3	12.4	2.5	3	LC30	LC50
3-6/5-6		37-3/8	23-1/8	5.9	13.9	2.5	3	LC30	–
3-6/6-0	E	37-3/8	25-1/2	6.6	15.4	2.5	3	LC30	–
3-6/6-6	E	37-3/8	27-7/8	7.2	16.8	2.5	3	LC30	–
4-0/4-6		43-3/8	18-3/16	5.5	12.9	2.5	3	LC30	–
4-0/5-0		43-3/8	20-11/16	6.2	14.6	2.5	3	LC30	–
4-0/5-6		43-3/8	23-1/8	6.9	16.6	2.5	3	LC30	–
4-0/6-0	E	43-3/8	25-1/2	7.6	18.0	3	3	LC30	–
4-0/6-6	E	43-3/8	27-7/8	8.4	19.7	3	3	LC30	–

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

To convert areas to square meters (m²), multiply square feet (ft²) by 0.0929.

(1) Subtract one Inch from opening height to calculate vent area for performance upgrade units.

(2) The upgrade value, where shown, is maximum performance with upgrade kit installed. Both values are based on maximum performance when glazed with the appropriate glass thickness.

Contemporary Sash

Unit	Egress	Clear Opening[1] (Inches)		Vent Area Ft²	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade[2]	
		Width	Height			Annealed	Tempered	Standard	Upgrade
1-6/4-6		13-3/8	18-3/16	1.7	3.5	2.5	3	LC30	LC50
1-6/5-0		13-3/8	20-11/16	1.9	3.9	2.5	3	LC30	LC50
1-6/5-6		13-3/8	23-1/8	2.1	4.4	2.5	3	LC30	LC50
1-6/6-0		13-3/8	25-1/2	2.3	4.8	2.5	3	LC30	LC50
1-6/6-6		13-3/8	27-7/8	2.5	5.3	2.5	3	LC30	–
2-0/4-6		19-3/8	18-3/16	2.4	5.3	2.5	3	LC30	LC50
2-0/5-0		19-3/8	20-11/16	2.7	6.1	2.5	3	LC30	LC50
2-0/5-6		19-3/8	23-1/8	3.1	6.8	2.5	3	LC30	LC50
2-0/6-0		19-3/8	25-1/2	3.4	7.5	2.5	3	LC30	LC50
2-0/6-6		19-3/8	27-7/8	3.7	8.2	2.5	3	LC30	–
2-4/4-6		23-3/8	18-3/16	2.9	6.6	2.5	3	LC30	LC50
2-4/5-0		23-3/8	20-11/16	3.3	7.5	2.5	3	LC30	LC50
2-4/5-6		23-3/8	23-1/8	3.7	8.4	2.5	3	LC30	LC50
2-4/6-0		23-3/8	25-1/2	4.1	9.2	2.5	3	LC30	LC50
2-4/6-6		23-3/8	27-7/8	4.5	10.1	2.5	3	LC30	–
2-6/4-6		25-3/8	18-3/16	3.2	7.2	2.5	3	LC30	LC50
2-6/5-0		25-3/8	20-11/16	3.6	8.2	2.5	3	LC30	LC50
2-6/5-6		25-3/8	23-1/8	4.1	9.1	2.5	3	LC30	LC50
2-6/6-0		25-3/8	25-1/2	4.5	10.1	2.5	3	LC30	LC50
2-6/6-6		25-3/8	27-7/8	4.9	11.1	2.5	3	LC30	–
2-8/4-6		27-3/8	18-3/16	3.4	7.9	2.5	3	LC30	LC50
2-8/5-0		27-3/8	20-11/16	3.9	8.9	2.5	3	LC30	LC50
2-8/5-6		27-3/8	23-1/8	4.3	9.9	2.5	3	LC30	LC50
2-8/6-0		27-3/8	25-1/2	4.8	11.0	2.5	3	LC30	LC50
2-8/6-6	E1	27-3/8	27-7/8	5.3	12.0	2.5	3	LC30	–
3-0/4-6		31-3/8	18-3/16	3.9	9.1	2.5	3	LC30	LC50
3-0/5-0		31-3/8	20-11/16	4.5	10.3	2.5	3	LC30	LC50
3-0/5-6		31-3/8	23-1/8	5.0	11.5	2.5	3	LC30	LC50
3-0/6-0	E1	31-3/8	25-1/2	5.5	12.7	2.5	3	LC30	LC50
3-0/6-6	E	31-3/8	27-7/8	6.0	14.0	2.5	3	LC30	–
3-6/4-6		37-3/8	18-3/16	4.7	11.0	2.5	3	LC30	LC50
3-6/5-0		37-3/8	20-11/16	5.3	12.4	2.5	3	LC30	LC50
3-6/5-6		37-3/8	23-1/8	5.9	13.9	2.5	3	LC30	LC50
3-6/6-0	E	37-3/8	25-1/2	6.6	15.4	2.5	3	LC30	–
3-6/6-6	E	37-3/8	27-7/8	7.2	16.8	2.5	3	LC30	–
4-0/4-6		43-3/8	18-3/16	5.5	12.9	2.5	3	LC30	–
4-0/5-0		43-3/8	20-11/16	6.2	14.6	2.5	3	LC30	–
4-0/5-6		43-3/8	23-1/8	6.9	16.6	2.5	3	LC30	–
4-0/6-0	E	43-3/8	25-1/2	7.6	18	3	3	LC30	–
4-0/6-6	E	43-3/8	27-7/8	8.4	19.7	3	3	LC30	–

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

To convert areas to square meters (m²), multiply square feet (ft²) by 0.0929.

(1) Subtract one Inch from opening height to calculate vent area for performance upgrade units.

(2) The upgrade value, where shown, is maximum performance with upgrade kit installed. Both values are based on maximum performance when glazed with the appropriate glass thickness.

Fixed Units

Unit	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade [1]
		Annealed	Tempered	
3-0/2-6	4.8	2.5	3	CW50
3-0/3-0	6.0	2.5	3	CW50
3-0/3-6	7.2	2.5	3	CW50
3-0/4-0	8.5	2.5	3	CW50
3-0/4-6	9.7	2.5	3	CW45
3-0/5-0	10.9	3	3	CW45
3-0/5-6	12.2	3	3	CW45
3-0/6-0	13.4	3	3	CW40
3-6/2-6	5.8	2.5	3	CW50
3-6/3-0	7.2	2.5	3	CW50
3-6/3-6	8.7	2.5	5	CW45
3-6/4-0	10.2	3	5	CW45
3-6/4-6	11.7	3	5	CW40
3-6/5-0	13.2	3	5	CW40
3-6/5-6	14.6	3	5	CW40
3-6/6-0	16.1	3	5	CW40
4-0/2-6	6.7	2.5	3	CW50
4-0/3-0	8.5	2.5	3	CW50
4-0/3-6	10.2	3	3	CW45
4-0/4-0	11.9	3	3	CW40
4-0/4-6	13.7	3	3	CW40
4-0/5-0	15.4	3	3	CW40
4-0/5-6	17.1	3	3	CW35
4-0/6-0	18.8	5	5	CW35
4-6/2-6	7.7	2.5	3	CW50
4-6/3-0	9.7	2.5	3	CW45
4-6/3-6	11.7	3	5	CW40
4-6/4-0	13.7	3	5	CW40
4-6/4-6	15.6	3	5	CW35
4-6/5-0	17.6	5	5	CW35
4-6/5-6	19.6	5	5	CW35
4-6/6-0	21.6	5	5	CW35
5-0/2-6	8.7	2.5	3	CW45/CW50
5-0/3-0	10.9	3	3	CW45
5-0/3-6	13.2	3	5	CW40
5-0/4-0	15.4	3	5	CW40
5-0/4-6	17.6	5	5	CW35
5-0/5-0	19.8	5	5	CW35
5-0/5-6	22.1	5	5	CW30
5-0/6-0	24.3	5	5	CW30
6-0/2-6	10.7	3	3	CW45/CW50
6-0/3-0	13.4	3	3	CW45
6-0/3-6	16.1	3	5	CW40
6-0/4-0	18.8	5	5	CW35
6-0/4-6	21.6	5	5	CW35
6-0/5-0	24.3	5	5	CW30
6-0/5-6	27.0	5	5	CW30
6-0/6-0	29.7	5	–	CW30

Fixed Units

Unit	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade [1]
		Annealed	Tempered	
FLANKERS				
1-2/3-0	1.5	2.5	3	CW50
1-2/3-6	1.8	2.5	3	CW50
1-2/4-0	2.1	–	3	CW50
1-2/4-6	2.5	–	3	CW50
1-2/5-0	2.8	–	3	CW50
TRANSOM UNITS				
1-6/1-2	0.6	3	3	CW50
1-6/1-6	0.9	2.5	3	CW50
1-6/2-0	1.2	2.5	3	CW50
2-0/1-2	0.9	3	3	CW50
2-0/1-6	1.4	2.5	3	CW50
2-0/2-0	1.9	2.5	3	CW50
2-4/1-2	1.1	3	3	CW50
2-4/1-6	1.7	2.5	3	CW50
2-4/2-0	2.3	2.5	3	CW50
2-6/1-2	1.2	3	3	CW50
2-6/1-6	1.9	2.5	3	CW50
2-6/2-0	2.5	2.5	3	CW50
2-8/1-2	1.3	3	3	CW50
2-8/1-6	2.0	2.5	3	CW50
2-8/2-0	2.7	2.5	3	CW50
3-0/1-2	1.5	3	3	CW50
3-0/1-6	2.3	2.5	3	CW50
3-0/2-0	3.2	2.5	3	CW50
3-4/1-2	1.7	3	3	CW50
3-4/1-6	2.7	2.5	3	CW50
3-4/2-0	3.6	2.5	3	CW50
3-6/1-2	1.8	3	3	CW50
3-6/1-6	2.8	2.5	3	CW50
3-6/2-0	3.8	2.5	3	CW50
4-0/1-2	2.1	–	3	CW50
4-0/1-6	3.3	2.5	3	CW50
4-0/2-0	4.4	2.5	3	CW50
4-6/1-2	2.5	–	3	CW50
4-6/1-6	3.8	2.5	3	CW50
4-6/2-0	5.1	2.5	3	CW50
5-0/1-2	2.8	–	3	CW50
5-0/1-6	4.2	2.5	3	CW50
5-0/2-0	5.7	2.5	3	CW50
6-0/1-2	3.4	–	3	CW50
6-0/1-6	5.2	–	3	CW50
6-0/2-0	7.0	–	3	CW50

(1) Maximum performance when glazed with the appropriate glass thickness. Second value, where shown, requires tempered glass.

To convert areas to square meters (m²), multiply square feet by 0.0929.

Frame

- Frame is Duracast® fiberglass composite – five-layer pultruded fiberglass material [with optional foam insulation[1]] reinforced with a Pella patented interlocking mat.
- Nominal wall thickness of Duracast fiberglass composite members is .050" to .080" thick.
- [Overall frame depth is 3" for [Block Frame] [Integral Nailing Fin] [Overall frame depth is 3-1/4" for Precision Fit].
- Frame corners are mitered, joined and bonded with corner locks and mechanically fastened with injected polyurethane adhesive.
- Block frame jambs contain factory drilled (counter-bored) installation screw holes.
- Frame has 10° slope sill.

Sash

- Sash is Duracast fiberglass composite–five-layer pultruded fiberglass material [with optional foam insulation[1]] reinforced with a Pella patented interlocking mat.
- All sash members have mitered corners bonded with corner locks and sealed with injected polyurethane adhesive.
- Both sashes tilt to interior for cleaning.

Exterior / Interior

- Duracast fiberglass composite surfaces with powder-coat paint finish.
  - Color is [White] [Brown] [Black] [Tan] [Morning Sky Gray].

– or –

  - Dual-color option [Brown] [Black] exterior with White interior[2].

Glazing System

- Quality float glass complying with ASTM C 1036.
- 11/16" insulating glass [[annealed] [tempered]] [obscure[3]] [clear] [[Advanced] [SunDefense™] [AdvancedComfort] [NaturalSun] Low-E coated, [with argon]]] [[bronze] [gray] [green] Advanced Low-E [with Argon]] sealed and bonded to sash.
- High altitude glazing [with argon] available.

Weatherstripping

- Fin-type pile on jambs, top rail and stile of upper sash.
- Vinyl-wrapped foam at sill on frame and bottom rail of lower sash.

Hardware

- Galvanized block-and-tackle balances connected to sash with polyester cord and concealed within the frame.
- Upper and lower sash are fully operable for ventilation.
- All fasteners are corrosion-resistant material.
- Two locks are installed on units 37" wide or greater.
- Locks are zinc die-cast, self-aligning cam action factory-installed on the interlocker [powder-coat painted [White] [Brown] [Matte Black] [Tan] [Morning Sky Gray] to match finish] [Satin Nickel] [Bright Brass] [Oil-Rubbed Bronze].

Optional Products

Screens

- InView™ Screens
  - [Half-size] [Full-size] with black vinyl coated 18/18 mesh fiberglass screen cloth complying with SMA 1201.
  - Set in aluminum frame and fitted to outside of window.
  - Supplied complete with all necessary hardware.
  - Screen frame finish is baked enamel, color to match exterior.

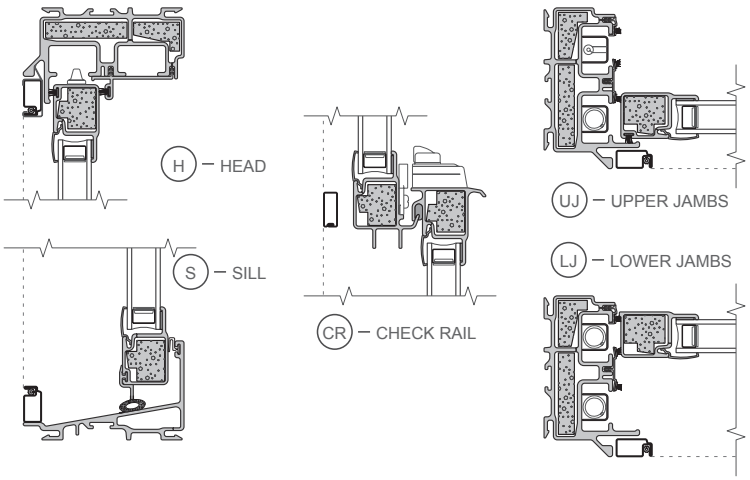
Grilles

- Grilles-Between-the-Glass
  - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass.
  - Grilles are factory prefinished [White] [Brown] [Black] [Tan] [Morning Sky Gray] to match interior and exterior finish

Hardware

- Optional limited opening device available for field installation on vent units in [White] [Brown] [Black] [Tan] [Morning Sky Gray] foamed PVC to match interior of unit; nominal 3-3/4" opening.
- Optional window opening control device available for field installation. Device allows window to open less than 4" with normal operation, with a release mechanism that allows the sash to open completely. Complies with ASTM F2090-10.
- Optional field applied Duracast sash lift available for vent units in [White] [Brown] [Black] [Tan] [Morning Sky Gray].

FOAM INSULATION INSERTS [1]



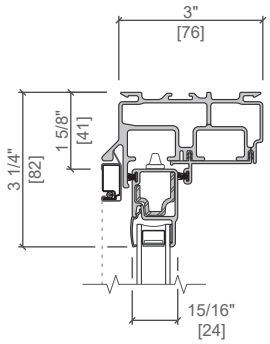
(1) Foam insulation inserts are not available with clear glazing.

(2) Dual-color finish is not available on products with integral nailing fin.

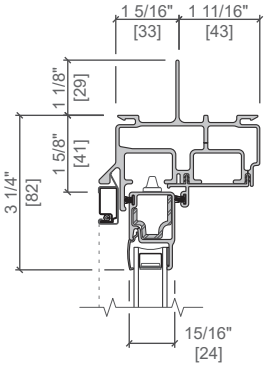
(3) Obscure glazing is not available when AdvancedComfort Low-E coated IG is specified.

Frame Types

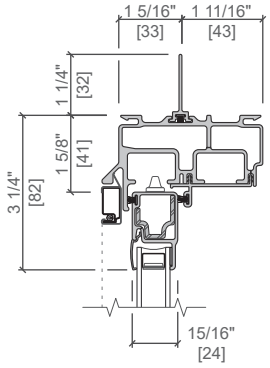
STANDARD
BLOCK FRAME



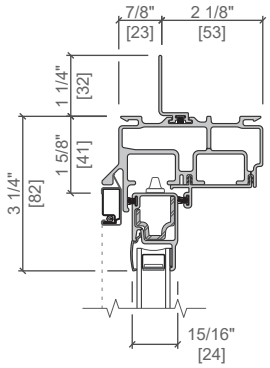
INTEGRAL
NAILING FIN



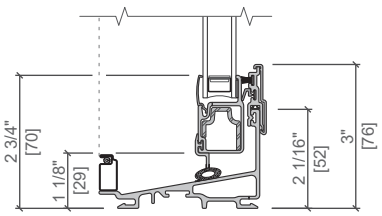
STANDARD
BLOCK FRAME
with STANDARD FIN



STANDARD
BLOCK FRAME
with OFF SET FIN

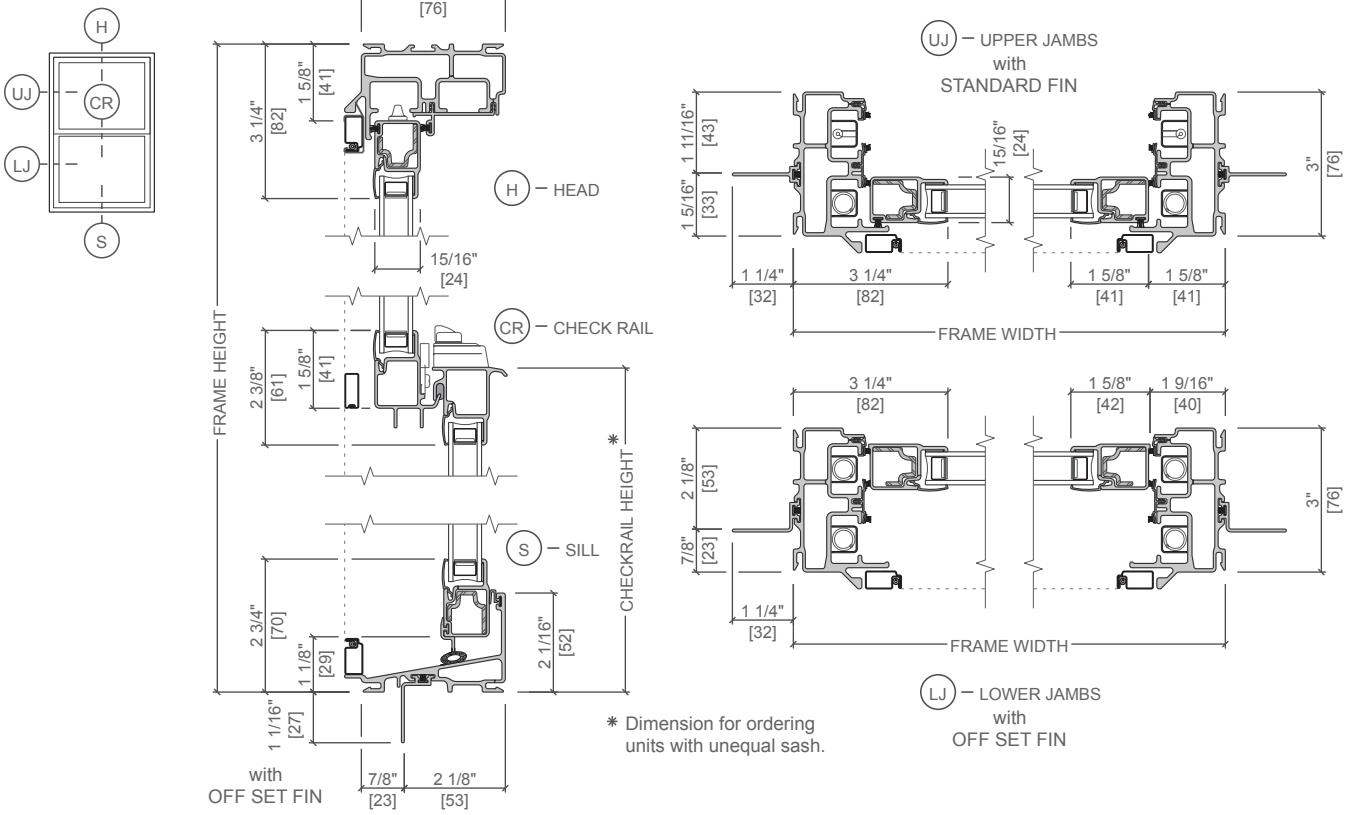


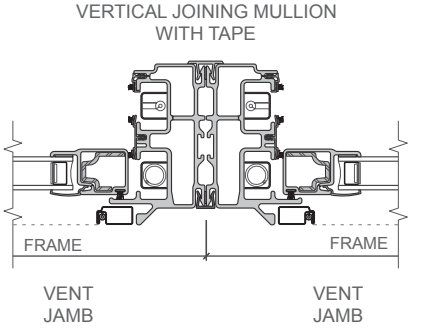
PERFORMANCE
UPGRADE

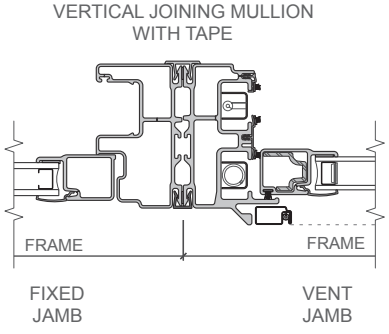


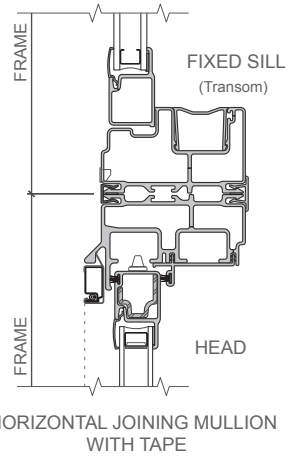
Scale 3" = 1' 0"
All dimensions are approximate.

Unit Sections



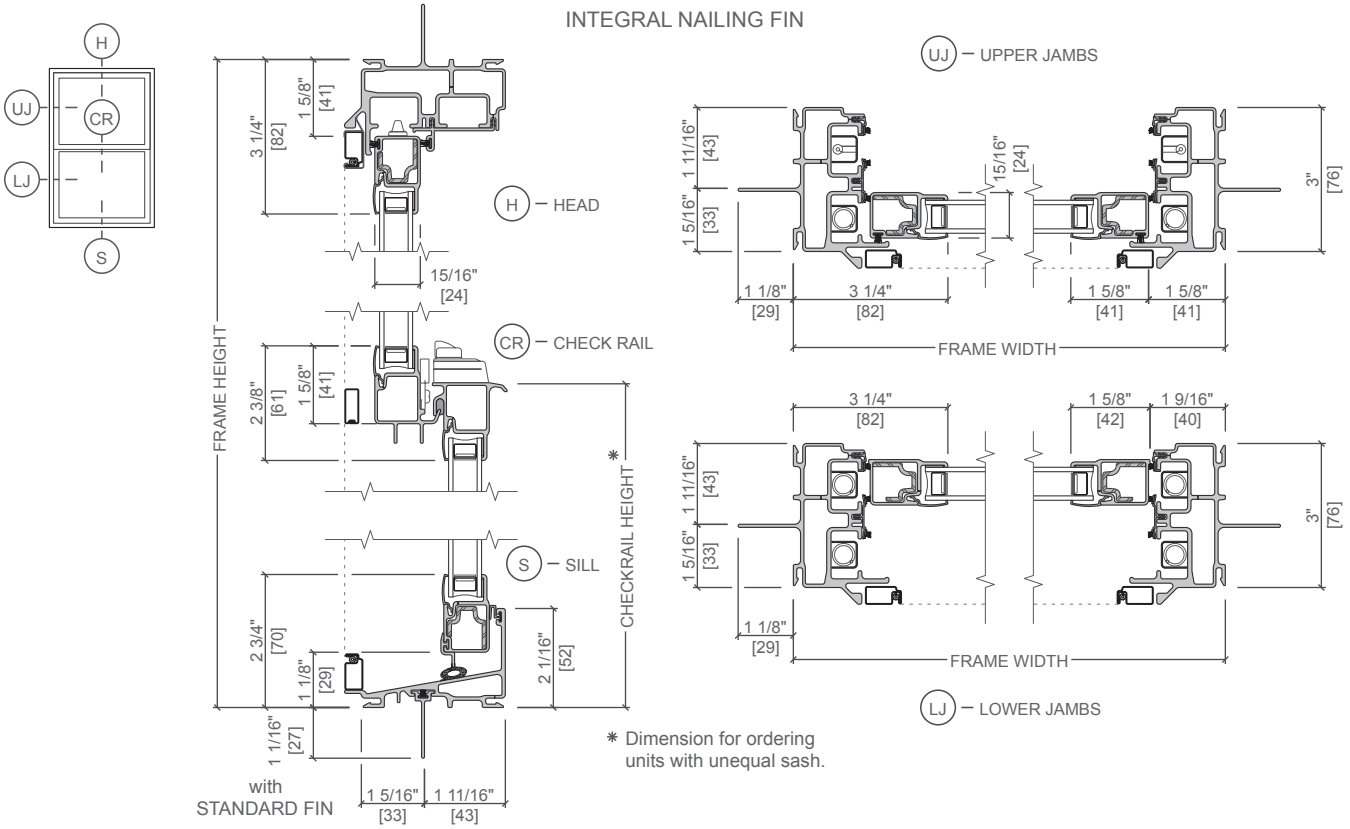






Scale 3" = 1' 0"
All dimensions are approximate.

Unit Sections



Scale 3" = 1' 0"
All dimensions are approximate.


DROP

TEAM FIRE
ENGINE NO
5

HARTFORD FIRE DEPT.

ASYLUM HILL
STATION
ENGINE CO. 5