Planning, Development & Transportation

Community Development & Neighborhood Services
281 North College Avenue
P.O. Box 580
Fort Collins, CO 80522.0580

970.416.2740
970.224.6134- fax
fcgov.com

CERTIFICATE OF APPROPRIATENESS
ISSUED: January 15, 2020
EXPIRATION: January 15, 2021

Henry P. Thode, III
PO Box 1824
Fort Collins, CO 80521-1824

Dear Mr. Thode:

As you are aware, last Wednesday, January 15th, the Landmark Preservation Commission gave Final Design Review approval for the work you are proposing for the Ault/Thode Property at 714 W. Mountain Avenue.

More specifically, the Commission approved the following items from your Design Review application:

C. Supplement existing roof framing with additional ridge beam, rafters, and collar ties
D. Replacement of wood shingle wall cladding in-kind.
E. Alteration of south (primary) garage door opening including installation of a new header beam, repainting of the frame, and specifically the option to rehabilitate the existing barn door hardware to make doors operable.
F. Re-opening of north garage door opening with operable overhead door. Fill and paint frame and casing white.
G. Re-install new wood casement windows in existing frames in south gable end and paint white.
H. Re-open north gable end window opening and install a casement window to match design for south gable end (Item G)
I. Repair hopper windows on west wall of historic carriage house.
J. Remove non-historic (c.1988) roof awning over trash bin area.
K. Construction of addition onto west elevation of historic carriage house

Note: Items A and B for in-kind roof replacement and trim painting were approved by staff on January 3, 2020.

Applicable Code Standard	Summary of Code Requirement and Analysis – Rehabilitation (In General)	Standard Met (Y/N)
SOI #1	*A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.* **There is no proposed change in use as a result of this project.**	**Y**
SOI #2	*The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.* **Overall, distinctive spaces and spatial relationships of the property are being retained. The primary impositions on historic character are the covering of the 9-lite hopper windows along the west elevation by the addition, and the potential replacement of the garage doors. While not ideal, the constraints of the site and property lines require an addition onto the west elevation, and the project will retain and repair the windows in place. Project will retain the historic garage doors.**	**Y**
SOI #3	*Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.* **The proposed addition appears to meet this Standard, being sufficiently differentiated from the original building to avoid a false sense of history.**	**Y**
SOI #4	*Changes to a property that have acquired historic significance in their own right will be retained and preserved.* **The proposed addition does not appear to be affecting any alterations to the building that would be historic in their own right.**	**Y**
SOI #5	*Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.* **As noted above, distinctive spaces and spatial relationships of the property are being retained. The historic garage doors are being retained under the approved option.**	**Y**
SOI #6	*Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.* **Historic features are being retained or replaced in-kind.**	**Y**
SOI #7	*Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.*	**N/A**
SOI #8	*Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.* **Excavation for the proposed addition is anticipated to be minor, and based on the significance of the property, archaeological discoveries made during construction are not anticipated to provide important information.**	**Y**

SOI #9	*New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.* **The addition itself appears compatible, distinguishable, and subordinate to the historic carriage house, meeting this Standard.**	**Y**
SOI #10	*New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.* **The demolition of west wall of carriage house to provide access to the proposed addition is minimal and appears consistent with this Standard. Anchoring methods into the carriage house's west elevation appear minimal and easily reversible.**	**Y**

The Commission found that the proposed work meets the criteria and standards in Chapter 14, Article IV of the Fort Collins Municipal Code. Notice of the approved application has been forwarded to building and zoning staff to facilitate the processing of any permits that are needed for the work.

Please note that all ensuing work must conform to the approved plans. Any non-conforming alterations are subject to stop-work orders, denial of Certificate of Occupancy, and restoration requirements and penalties.

If the approved work is not completed prior to the expiration date noted above, you may apply for an extension by contacting staff at least 30 days prior to expiration. Extensions may be granted for up to 12 additional months, based on a satisfactory staff review of the extension request.

You may appeal this decision within two weeks by submitting a written notice of appeal to the City Clerk within fourteen (14) calendar days of this decision. Grounds and process for appeals are enumerated in Chapter 2, Division 3 of the Fort Collins Municipal Code.

If you have any questions regarding this approval, or if I may be of any assistance, please do not hesitate to contact me. I may be reached at jbertolini@fcgov.com or at (970) 416-4250.

Sincerely,

Jim Bertolini
Historic Preservation Planner

Design Review Application
Historic Preservation Division

Fill this form out for all applications regarding designated historic buildings within the city limits of the City of Fort Collins. Review is required for these properties under Chapter 14, Article IV of the Fort Collins Municipal Code.

Applicant Information

Jeff Gaines/HighCraft Builders	970-472-8100	
Applicant's Name	Daytime Phone	Evening Phone
429 South Howes St. Fort Collins	CO	80521
Mailing Address (for receiving application-related correspondence)	State	Zip Code
jeff@highcraft.net		
Email		

Property Information (put N/A if owner is applicant)

Hank Thode	970-482-8577	970-482-8577
Owner's Name	Daytime Phone	Evening Phone
714 W. Mountain Ave. Fort Collins	CO	80521
Mailing Address (for receiving application-related correspondence)	State	Zip Code
NA		
Email		

Project Description

Provide an overview of your project. Summarize work elements, schedule of completion, and other information as necessary to explain your project.

The property owner wishes to add an indoor parking space to an existing 18' by 24' landmarked carriage house. This space would be accommodated by an addition to the west of the existing structure. A person opening would be made in the west wall of the carriage house to connect these spaces. Existing windows on the west wall would be protected in place. New windows would be installed in existing upper level openings, as well as a garage door in the existing alley opening. Two options are included for the south garage door.

The following attachments are REQUIRED:

- ☐ Complete Application for Design Review
- ☐ Detailed Scope of Work (and project plans, if available)
- ☐ Color photos of existing conditions

Reminders:
Complete application would need all of checklist items as well as both pages of this document.

Detailed scope of work should include measurements of existing and proposed.

Please note: if the proposal includes partial or full demolition of an existing building or structure, a separate demolition application will need to be approved.

Additional documentation may be required to adequately depict the project, such as plans, elevations, window study, or mortar analysis. If there is insufficient documentation on the property, the applicant may be required to submit an intensive-level survey form (at the applicant's expense).

Detail of Proposed Rehabilitation Work (*Required)
If your project includes multiple features (e.g. roof repair and foundation repair), you must describe each feature separately and provide photographs and other information on each feature.

Feature A Name: ROOFING	
Describe property feature and its condition: Composition Shingle. Poor condition.	Describe proposed work on feature: Replace roofing with new composition shingles.
Feature B Name: EAVES	
Describe property feature and its condition: 1X8 starter board over approximately 2X2 lookouts. 1X3 fascia. Previously painted white, paint mostly peeled off. Some splitting in lookouts and fascia and weathering of starter board.	Describe proposed work on feature: Fill and repaint white.

Use Additional Worksheets as needed.

Required Additional information

The following items must be submitted with this completed application. Digital submittals preferred for photographs, and for other items where possible.

- ■ At least one current photo for each side of the house. Photo files or prints shall be named/labeled with applicant name and elevation. For example, smitheast.jpg, smithwest.jpg, etc. If submitted as prints, photos shall be labeled
- ■ Photos for each feature as described in the section "Detail of Proposed Rehabilitation Work". Photo files or prints shall be named or labeled with applicant name and feature letter. For example, smitha1.jpg, smitha2.jpg, smithb.jpg, smithc.jpg, etc.

Depending on the nature of the project, one or more of the following items shall be submitted. Your contractor should provide these items to you for attachment to this loan application.

- ■ Drawing with dimensions.
- ■ Product specification sheet(s).
- ■ Description of materials included in the proposed work.
- ☐ Color sample(s) or chip(s) of all proposed paint colors.

□ **Partial or full demolition** is a part of this project.
Partial demolition could include scopes such as taking off existing rear porches to create space for a new addition or removing an existing wall or demolishing a roof. If you are taking away pieces of the existing residence, you are likely undergoing some partial demolition.

Jeff Gaines Digitally signed by Jeff Gaines Date: 2019.12.23 15:38:38 -07'00' 12/23/2019

Signature of Applicant Date

Detail of Proposed Rehabilitation Work (*Required) [Continuation Sheet]
If your project includes multiple features (e.g. roof repair and foundation repair), you must describe each feature separately and provide individual costs for each feature.

Feature C **Name:** ROOF FRAMING	
Describe property feature and its condition: 2X4 stick framing with 1X ridge board and several 2X4 collar ties. Ridge sagging and walls bowing out.	Describe proposed work on feature: Supplement existing structure with rafters, collar ties, and ridge beam as required to make roof structure sound.
Feature D **Name:** SIDING	
Describe property feature and its condition: Wood shingles. Poor condition at east, north, and west walls. Likely replaced in 80's at south wall concurrent with construction of carport. Previously painted with exception of stained newer shingles at south wall. Paint almost entirely worn off.	Describe proposed work on feature: Replace shingles with new wood shingles, exposure and coursing to closely match existing. Shingles may be stained brown or painted (color TBD, would be different from addition color).

Use Additional Worksheets as needed.

Detail of Proposed Rehabilitation Work (*Required) [Continuation Sheet]
If your project includes multiple features (e.g. roof repair and foundation repair), you must describe each feature separately and provide individual costs for each feature.

Feature E **Name:** SOUTH GARAGE DOOR OPENING	
Describe property feature and its condition: Sliding barn doors - partially inoperable due to failing hardware and sagging of top of opening. No header exists over opening - support is assumed to be rim joist only. Doors and exterior of bucks/frame painted white, some wear.	Describe proposed work on feature: Install header above door opening as recommended by engineer. Repaint bucks/frame white. Option 1: Replace sliding barn doors with operable overhead garage door, and save barn doors on-site inside carriage house. Option 2: Replace barn door hardware to make barn doors operable, and install automatic opener on inside of garage. Repaint doors white.

Feature F **Name:** NORTH GARAGE DOOR OPENING	
Describe property feature and its condition: Infilled with shingles. Exposed portion of frame/casing heavily weathered.	Describe proposed work on feature: Remove infill and install new operable overhead garage door. Fill and paint frame/casing white.

Use Additional Worksheets as needed.

Detail of Proposed Rehabilitation Work (*Required) [Continuation Sheet]
If your project includes multiple features (e.g. roof repair and foundation repair), you must describe each feature separately and provide individual costs for each feature.

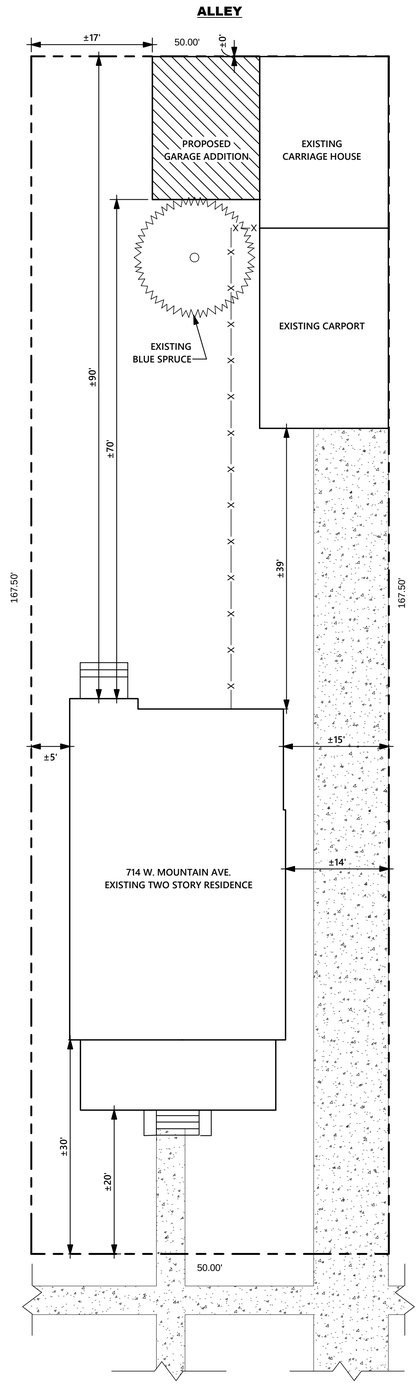
Feature G Name: SOUTH GABLE WINDOW	
Describe property feature and its condition: Windows removed and opening covered with interior mounted hardware cloth screen. Frame, sill, and casing heavily weathered - white paint peeling.	Describe proposed work on feature: Remove existing screen. Install new wood pocket replacement casement windows in existing frames. Fill and repaint casing and exposed portion of frame and sill white.
Feature H Name: NORTH GABLE WINDOW	
Describe property feature and its condition: Windows and center mullion removed and opening filled in with sheet of plywood. Frame, sill, and casing heavily weathered - all paint peeled off.	Describe proposed work on feature: Remove infill. Install new wood pocket replacement casement windows in existing frame. Rebuild center mullion to match window set at south gable. Fill and repaint casing and exposed portion of frame and sill white.

Use Additional Worksheets as needed.

Detail of Proposed Rehabilitation Work (*Required) [Continuation Sheet]
If your project includes multiple features (e.g. roof repair and foundation repair), you must describe each feature separately and provide individual costs for each feature.

Feature I Name: 9-LITE HOPPER WINDOWS AT WEST WALL	
Describe property feature and its condition: Heavily weathered and one pane missing at southern window.	Describe proposed work on feature: Windows to be protected in place. Putty to be repaired, and sashes, frame, sill and casing to be filled and painted white.
Feature J Name: ROOF AWNING OVER TRASH BINS	
Describe property feature and its condition: Added after construction of carport in 80's to keep snow off trash cans.	Describe proposed work on feature: Remove.

Use Additional Worksheets as needed.



SITE PLAN
1" = 10'-0"

BUILDING ENVELOPE

ATTIC AND CRAWLSPACE VENTILATION:

UNLESS MEETING REQ'S OF R806.5, ENCLOSED ATTICS AND RAFTER SPACES SHALL HAVE A NET AREA OF OPENINGS FOR CROSS VENTILATION OF MIN. 1/150 OF THE AREA OF THE VENTED SPACE, OR MIN. 1/300 IF BETWEEN 40% AND 50% OF THE AREA OF THE VENTED SPACE IS LOCATED AT THE UPPER PORTION (WITHIN 3' OF RIDGE) OF THE ATTIC, AND REMAINDER IN BOTTOM THIRD.

UNDERFLOOR AREAS SHALL HAVE VENTILATION OPENINGS OF MIN. 1/150 OF THE FLOOR AREA, AND DISTRIBUTED WITHIN 3' OF CORNERS. WHERE VAPOR BARRIER IS INSTALLED, OR UNDERFLOOR AREA IS UNVENTED TO THE OUTSIDE (REQUIRED UNLESS OTHERWISE APPROVED BY BUILDING OFFICIAL, F.C.), VENTILATION IS TO BE PER R408.

VENTILATED OPENINGS SHALL BE COVERED WITH CORROSION-RESISTANT METAL MESH WITH MIN. 1/16"/MAX. 1/4" OPENINGS.

THERMAL ENVELOPE:

FENESTRATION: U 0.30, MAX. (0.32, L.C.)
CEILINGS: R49 MIN. (R38 LOV.), OR R38 MIN. WHERE UNCOMPRESSED OVER EAVES. R30 MIN., UNCOMPRESSED, AT CEILING WITHOUT ATTIC THAT IS UNDER 500 SF/ 20% OF TOTAL INSULATED AREA.
WALLS: R20 MIN., ENCAPSULATED, AND R38 AT ATTIC KNEE WALLS.
FLOORS: R30 MIN., OR SUFFICIENT TO FILL CAVITY DOWN TO R19 MIN.
BASEMENT AND UNVENTED CRAWLSPACE WALLS: R13 MIN., ENCAPSULATED (IN F.C. AND L.C. RIM TO BE SPRAY FOAMED TO R15 (R13 L.C.) MIN, OR R19 MIN. AND AIR SEALED)
SLABS: R10 MIN., 2 FT. MIN. DEPTH AT PERIMETER.

WATER PROTECTION:

ALL ROOFING TO BE INSTALLED PER CODE AND MANUFACTURER'S RECOMMENDATIONS OVER APPROPRIATE AND TO CODE UNDERLAYMENT AND ICE & WATER SHIELD.

ALL SIDING TO BE INSTALLED PER CODE AND MFR'S RECOMMENDATIONS OVER APPROPRIATE AND TO CODE W.R.B. INSTALLED PER MFR'S RECOMMENDATIONS , WITH APPROPRIATE AND TO CODE CLEARANCES TO GRADE/HARDSCAPE.

WINDOWS AND EXTERIOR DOORS TO BE INSTALLED PER MFR'S RECOMMENDATIONS.

PROVIDE ALL ROOF FLASHING, FLASHING AT LEDGERS/BANDS/HEADERS IN SIDING, HEAD FLASHING, CAP FLASHING, PENETRATION FLASHING/COLLARS, AND FLASHING BETWEEN DISSIMILAR MATERIALS TO CODE AND MANUFACTURER'S RECOMMENDATIONS, AND AS REQUIRED FOR WATERTIGHT CONSTRUCTION.

SITE PLAN NOTES

PROPERTY LINE
SETBACK/EASEMENT
(N) ADDITION

FOR SURVEY INFORMATION, PLEASE REFER TO SURVEY DATED XXXXXXX, BY KING SURVEYORS.

DOOR SCHEDULE

DOOR STYLE	
A	GARAGE DOOR
B	GARAGE PERSON DOOR

DOOR HARDWARE		QTY

STYLE	TYPE	SIZE	QTY
B		32" x 80"	1
A		96" x 84"	2
A		188" x 84"	1

VERIFY UNITS MEET EGRESS REQ'S AND MATCH EXIST. OPG. SIZES AS SHOWN ON PLANS

WINDOW SCHEDULE

MATL	TYPE	SIZE	TEMP	QTY
W	DC	54" x 32"		2
W	DH	60" x 42"		2

VERIFY UNITS MEET EGRESS REQ'S AND MATCH EXIST. OPG. SIZES AS SHOWN ON PLANS

PLAN NOTES

FIRE RESISTANCE:

- DOORS BETWEEN GARAGE AND DWELLING: SOLID WOOD OR SOLID/HONEYCOMB STEEL OF MIN. 1-3/8" THICKNESS, OR MIN. 20 MINUTE FIRE RATED, EQUIPPED W/ SELF OR AUTOMATIC CLOSING DEVICE. (R302.5.1)
- FIRE SEPARATION BETWEEN HOUSE AND GARAGE (ANY UTILITY AREA, L.C.) SHALL BE PER R302.6
- AT ENCLOSED ACCESSIBLE SPACE UNDER STAIRS, UNDERSIDE OF STAIRS TO BE PROTECTED W/ MIN. 1/2" GYP. BD. (R302.7)
- FIREBLOCKING TO BE PER CODE, INCLUDING @ INTERSECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS SOFFITS. (R302.11)
- FLOOR FRAMING TO BE PROTECTED BY MIN. 1/2" GYP. BD. EXCEPT: (R302.13)
  - OVER CRAWLSPACE NOT INTENDED FOR STORAGE OR HEATING APPLIANCES.
  - WHERE AREA PER FLOOR IS UNDER 80SF AND PERIMETER IS FIREBLOCKED.
  - WHERE FLOOR IS OF DIMENSIONAL OR COMPOSITE LUMBER OF MIN. 2X10.
  - WHERE SPRINKLER IS INSTALLED AT APPLIANCE (F.C.)
  - (SEE ADDTL. EXCEPTIONS L.C.)

SAFETY GLASS:

PROVIDE SAFETY GLASS AS REQ'D PER R308:
- IN FIXED AND OPERABLE DOOR PANELS, GUARDS, AND RAILINGS.
- ADJACENT TO OPERABLE DOOR PANELS WHERE BOT. OF GLASS UNDER 60" A.F.F. AND SIDE OF GLASS WITHIN 24" OF PANEL, EXCEPT WHERE ON LATCH SIDE AND IN DIFFERENT WALL PLANE FROM DOOR.
- WHERE PANE IS MIN. 9 SF, AND BOT. OF GLASS UNDER 18" A.F.F., AND TOP OF GLASS OVER 36" A.F.F., AND WALKING SURFACE WITHIN 36" HORIZONTALLY.
- AT WET LOCATIONS WITHIN 60" HORIZONTALLY OF WATER'S EDGE WHERE BOT. OF GLASS IS UNDER 60" A.F.F.
- AT STAIRS, LANDINGS, AND RAMPS, WHERE BOT. OF GLASS UNDER 36" ABOVE PLANE OF WALKING SURFACE, AND WHERE GLASS IS WITHIN 60" OF HORIZONTAL ARC FROM NOSING OF BOTTOM (AND TOP, F.C.) STEP.

EMERGENCY ESCAPE (EGRESS) OPENINGS:

REQUIRED AT BASEMENTS, HABITABLE ATTICS, AND SLEEPING ROOMS, (AND HABITABLE LOFTS AND MEZZANINES, F.C.) AND SHALL MEET THE FOLLOWING:
- MIN. NET CLEAR OPENING OF 5.7 SF, OR 5.0 SF WHERE BOTTOM OF CLEAR OPG. IS LESS THAN 44" ABOVE OUTSIDE GROUND LEVEL.
- MIN. 24" CLEAR HEIGHT AND MIN. 20" CLEAR WIDTH.
- MAX. 44" INTERIOR SILL HEIGHT TO CLEAR OPG. (24" MIN. WHERE EXTERIOR SILL EXCEEDS 72", FORT COLLINS).
- WINDOW WELL INTERIORS MIN. 36" BOTH DIRECTIONS.
- WELL COVERS SHALL MEET ESCAPE OPG. REQ'S AND BE OPERABLE WITHOUT TOOLS, KEYS OR SPECIAL KNOWLEDGE, AND BY FORCE NO GREATER THAN NORMAL OPERATION OF AN ESCAPE OPG.
- WHERE WINDOW WELL IS OVER 44" HIGH, LADDER IS REQ'D:
  - LADDER MAY PROJECT 6" MAX. INTO REQ'D WELL DIMENSIONS, SHALL PROJECT MIN. 3" FROM WALL, AND SHALL HAVE AN INSIDE WIDTH OF MIN. 12" W/ RUNGS MAX. 18" O/C.

MEANS OF EGRESS:

DWELLINGS SHALL BE PROVIDED WITH MIN. 1 EGRESS DOOR, WHICH IS TO BE SIDE HINGED AND PROVIDE A CLEAR OPG. OF MIN. 32" WIDE AND 78" HIGH.

LANDINGS AND THRESHOLDS:
- LANDINGS SHALL BE 36" WIDE, OR WIDTH OF STAIR/DOOR SERVED, MIN., AND 36" DEEP, MIN. LANDINGS REQ'D AT TOP AND BOTTOM OF STAIRS, AND AT BOTH SIDES OF DOORS EXCEPT FOR THE FOLLOWING:
  - ONE OR TWO RISES AT OUTSIDE OF EXTERIOR DOOR NOT REQ'D FOR EGRESS IF INSWING DOOR
  - AN INTERIOR DOOR MAY BE PLACED AT TOP STEP OF A STAIRWAY, PROVIDED IT DOES NOT SWING OVER STAIRWAY.
- AT THE REQ'D EGRESS DOOR, THRESHOLD SHALL NOT EXCEED 1-1/2" ABOVE FLOOR OR LANDING, EXCEPT AT EXTERIOR OF AN INSWING DOOR, WHERE THRESHOLD MAY BE UP TO 7-3/4". AT OTHER EXTERIOR DOORS THRESHOLD SHALL BE 7-3/4" MAX.

STAIRWAYS:
- MIN. 36" CLEAR WIDTH ABOVE HANDRAIL HEIGHT AND BELOW HEADROOM HEIGHT.
- MIN. 31-1/2" CLEAR WIDTH BELOW HANDRAIL HEIGHT W/ HANDRAIL ON ONE SIDE, AND 27" WIDE W/ HANDRAIL ON BOTH SIDES.
- MIN. 80" CLEAR HEADROOM ABOVE LINE CONNECTING NOSINGS.
- MAX. 7-3/4" RISE (MIN. 4", LARIMER COUNTY AND FORT COLLINS), MIN. 10" TREAD.
- 3/4" MIN., 1-1/4" MAX. NOSING REQUIRED WHERE TREAD DEPTH IS UNDER 11". NOSING RADIUS 9/16" MAX.
- WINDER TREADS MIN. 6" DEEP AT ANY POINT, AND MIN. 10" DEEP AT WALKLINE (12" FROM NARROW EDGE OF STAIR).
- MAX 4" GAP AT OPEN RISES.

HANDRAILS:
- REQ'D AT ONE SIDE OF STAIRWAYS OF 4 OR MORE RISERS.
- TOP OF HANDRAIL SHALL BE 34"-38" ABOVE LINE CONNECTING NOSINGS.
- HANDRAIL SHALL BE CONTINUOUS FROM TOP RISER TO BOTTOM RISER WITH MIN. 1-1/2" GAP TO WALL, AND RETURN/TERMINATE TO WALL OR POST AT ENDS.
- TYPE I RAILS - CIRCULAR RAILS SHALL HAVE DIAM. BETWEEN 1-1/4" AND 2", OTHER PROFILES SHALL HAVE A PERIMETER BETWEEN 4" AND 6-1/4" AND MAX. CROSS SECTION OF 2-1/4" AND EDGES WITH MIN. 0.01" RADIUS.
- TYPE II RAILS - REFER TO R311.7.8.3-2 WHERE PERIMETER EXCEEDS 6-1/4".

FALL PROTECTION:

GUARDRAILS:
- REQ'D AT PORTION OF EDGE OF WALKING SURFACES, INCLUDING STAIRWAYS, LANDINGS, AND RAMPS THAT ARE LOCATED MORE THAN 30" ABOVE FLOORS OR GRADE WITHIN 36" HORIZONTALLY OF EDGE.
- HEIGHT: MIN. 36" A.F.F., EXCEPT AT OPEN SIDES OF STAIR WHERE SHALL BE MIN. 34" ABOVE LINE CONNECTING NOSINGS, AND BETWEEN 34" AND 38" ABOVE LINE CONNECTING NOSINGS IF ALSO SERVING AS HANDRAIL.
- UP TO REQ'D HEIGHT, SHALL NOT PERMIT PASSAGE OF A 4" DIAM. SPHERE, EXCEPT AT OPEN SIDE OF STAIR, WHERE SHALL NOT PERMIT PASSAGE OF A 4-3/8" DIAM. SPHERE, AND AT TRIANGULAR OPENING FORMED BY STAIR RISE/TREAD/GUARD WHERE SHALL NOT PERMIT PASSAGE OF 6" DIAM. SPHERE.

WINDOWS:
- SHALL MEET THE REQUIREMENTS OF R312.2 WHERE TOP OF OPERABLE WINDOW SILL IS LESS THAN 24" ABOVE INTERIOR FLOOR AND MORE THAN 72" ABOVE EXTERIOR FLOOR/GRADE.

ATTIC AND CRAWLSPACE ACCESS:

ATTICS W/ MIN. VERTICAL HEIGHT OF 30" (INSIDE FRAMING) AND AREA OVER 30 SF REQUIRE ACCESS LOCATED IN A HALLWAY OR OTHER READILY ACCESSIBLE LOCATION.
- MIN. ROUGH FRAMED ACCESS OPG. 22"X30".
- MIN. CLEAR HEADROOM (INSIDE FRAMING) SHALL BE 30" AT SOME POINT ABOVE ACCESS OPG.

ALL UNDERFLOOR AREAS SHALL BE ACCESSIBLE BY MIN. 18"X24" FLOOR OR 16"X24" PERIMETER WALL HATCH.

FIREPLACES:

ALL FIREPLACES ARE TO BE INSTALLED IN COMPLIANCE WITH MANUFACTURER'S INSTALLATION REQUIREMENTS. MANUFACTURER'S REQUIREMENTS SHALL SUPERSEDE ANY CONFLICTING ELEMENT OF PLANS.

GENERAL NOTES

1. ALL WORK IS TO CONFORM TO ADOPTED CODES OF THE AUTHORITY HAVING JURISDICTION:
   - LARIMER COUNTY: 2018 IRC AND IECC, 2017 NEC, WITH LOCAL AMENDMENTS
   - LOVELAND: 2012 IRC AND IECC, 2017 NEC, WITH LOCAL AMENDMENTS
   - FORT COLLINS: 2018 IRC AND IECC, 2017 NEC, WITH LOCAL AMENDMENTS
2. PLAN NOTES, BUILDING ENVELOPE NOTES, AND ELECTRICAL NOTES ARE INTENDED ONLY TO SUMMARIZE SOME ELEMENTS OF APPLICABLE CODES. THESE NOTES CONTAIN ITEMS THAT MAY OR MAY NOT PERTAIN TO THIS PARTICULAR PROJECT.
3. VERIFY ALL DIMENSIONS IN THE FIELD. WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED DIMENSIONS. ALL DRAWINGS SCALED AS NOTED.
4. REFER TO STRUCTURAL DOCUMENTS FOR SPECIFIC STRUCTURAL REQUIREMENTS AND SPECIFICATIONS.

ABBREVIATIONS

(D)	DEMOLITION	HT.	HEIGHT
(E)	EXISTING	I.D.	INTERIOR DESIGN
(N)	NEW	MAX.	MAXIMUM
B/	BOTTOM OF	MFR.	MANUFACTURER
T/	TOP OF	MIN.	MINIMUM
@	AT	MTL.	METAL
A.D.	ARCHITECTURAL DESIGN	N.T.S.	NOT TO SCALE
BM.	BEAM	O/C	ON CENTER
BRG.	BEARING	OPG.	OPENING
CLG.	CEILING	OPP.	OPPOSITE
CANT.	CANTILEVER	PT.	PAINT
CONT.	CONTINUOUS	PTD.	PAINTED
C.O.	CASED OPENING	P.T.	PRESSURE TREATED
DBL.	DOUBLE	R.O.	ROUGH OPENING
DIA.	DIAMETER	SIM.	SIMILAR
DIM.	DIMENSION	STD.	STANDARD
DN.	DOWN	T.B.D.	TO BE DETERMINED
EA.	EACH	TMPD.	TEMPERED
EXT.	EXTERIOR	TYP	TYPICAL
F.C.	CITY OF FORT COLLINS	U.N.O.	UNLESS NOTED OTHERWISE
F.F.	FINISH FLOOR	VERT.	VERTICAL
FND.	FOUNDATION	V.I.F.	VERIFY IN FIELD
G.S.M.	GALVANIZED SHEET METAL	W/	WITH
H.C.	HIGHCRAFT	WD.	WOOD
H.D.G.	HOT DIP GALVANIZED	WH	WATER HEATER
HOR.	HORIZONTAL	W.P.	WATER PROOF
L.C.	LARIMER COUNTY	W.R.B.	WEATHER RESISTIVE BARRIER
LOV.	CITY OF LOVELAND		

SITE DATA

APN:	9711306033
YEAR BUILT:	1908 (HOUSE)
ZONE:	NCL
LOT AREA:	8366
HOUSE AREA TOTAL:	2648
BASEMENT:	990

ALL AREAS IN SQUARE FEET U.N.O.

SCOPE OF WORK

SEE SEPARATE SCOPE OF WORK DOCUMENT FOR DETAILS.

PROJECT CONTACTS

ARCHITECT - JEFF GAINES, HIGHCRAFT BUILDERS
970-472-8100 (OFFICE) 970-412-6927 (CELL)
jeff@highcraft.net

PROJECT DRAFTSMAN - MIKE HUTSELL, HIGHCRAFT BUILDERS
970-472-8100 (OFFICE) 970-632-0029 (CELL)
mike@highcraft.net

STRUCTURAL ENGINEER - JASON BAKER, ADVANCED ENGINEERING
229 12TH STREET SW LOVELAND, CO 80537
970-278-1909 (OFFICE) 970-690-4616 (CELL)
jason@advancedengineeringllc.com

SHEET LIST

HIGHCRAFT BUILDERS
429 S. HOWES STREET
FORT COLLINS, CO 80521
970.472.8100

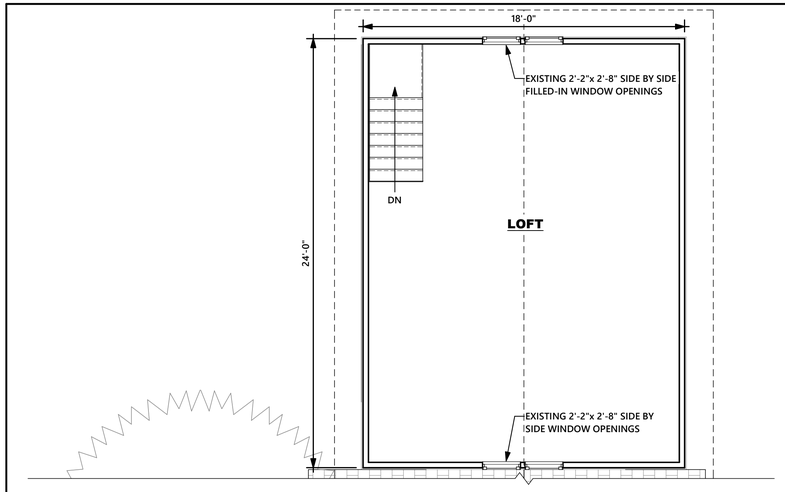
A GARAGE FOR:
HANK THODE
714 WEST MOUNTAIN AVENUE, FORT COLLINS, 80521

NOT FOR CONSTRUCTION
HISTORIC REV.
NOT FOR CONSTRUCTION

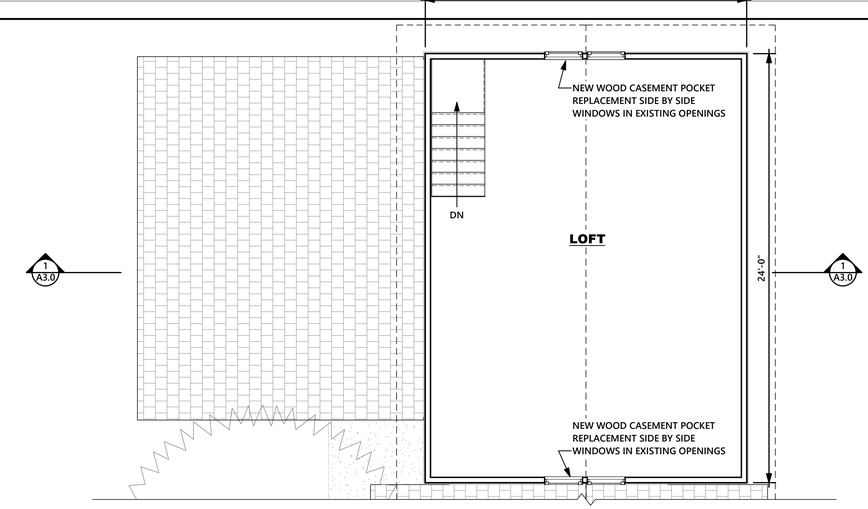
DRAWN: Author
CHECKED: Checker
DATE: 12/23/2019

A1.0
1" SCALE CHECK

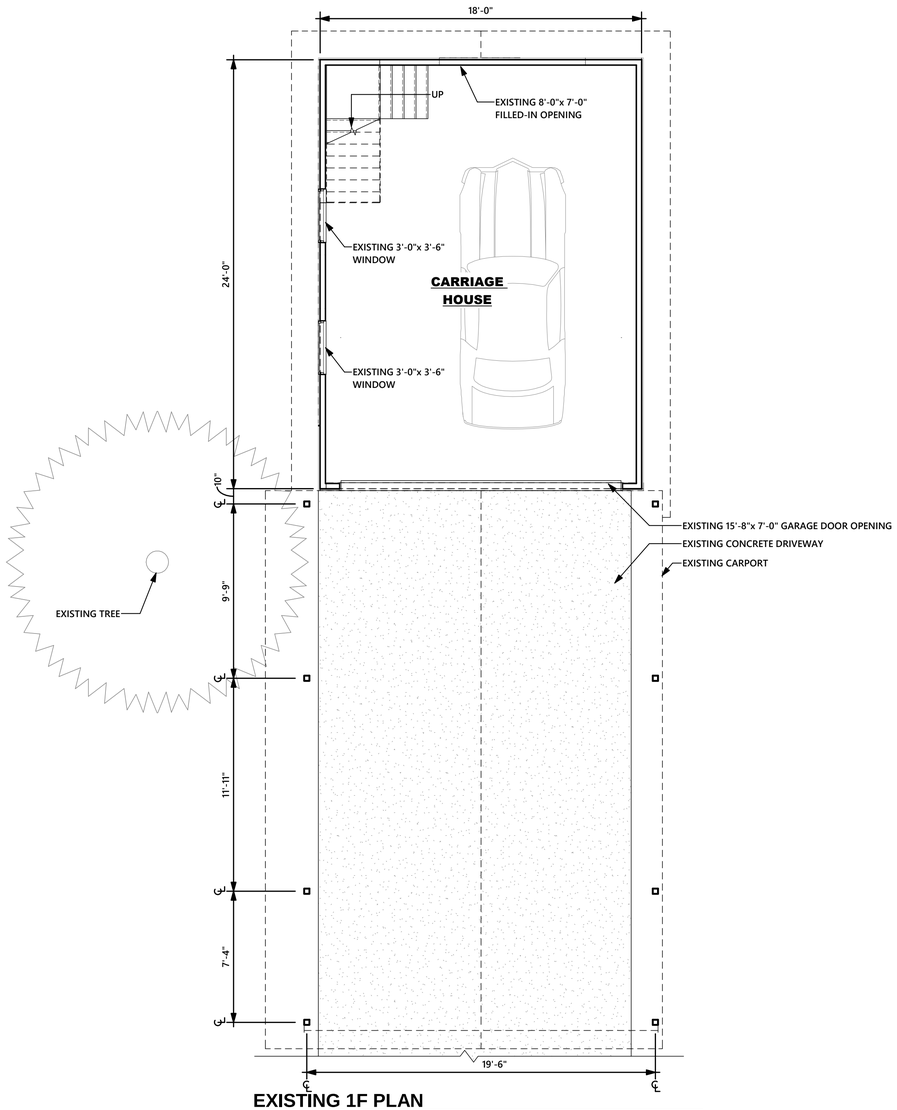
SITE PLAN



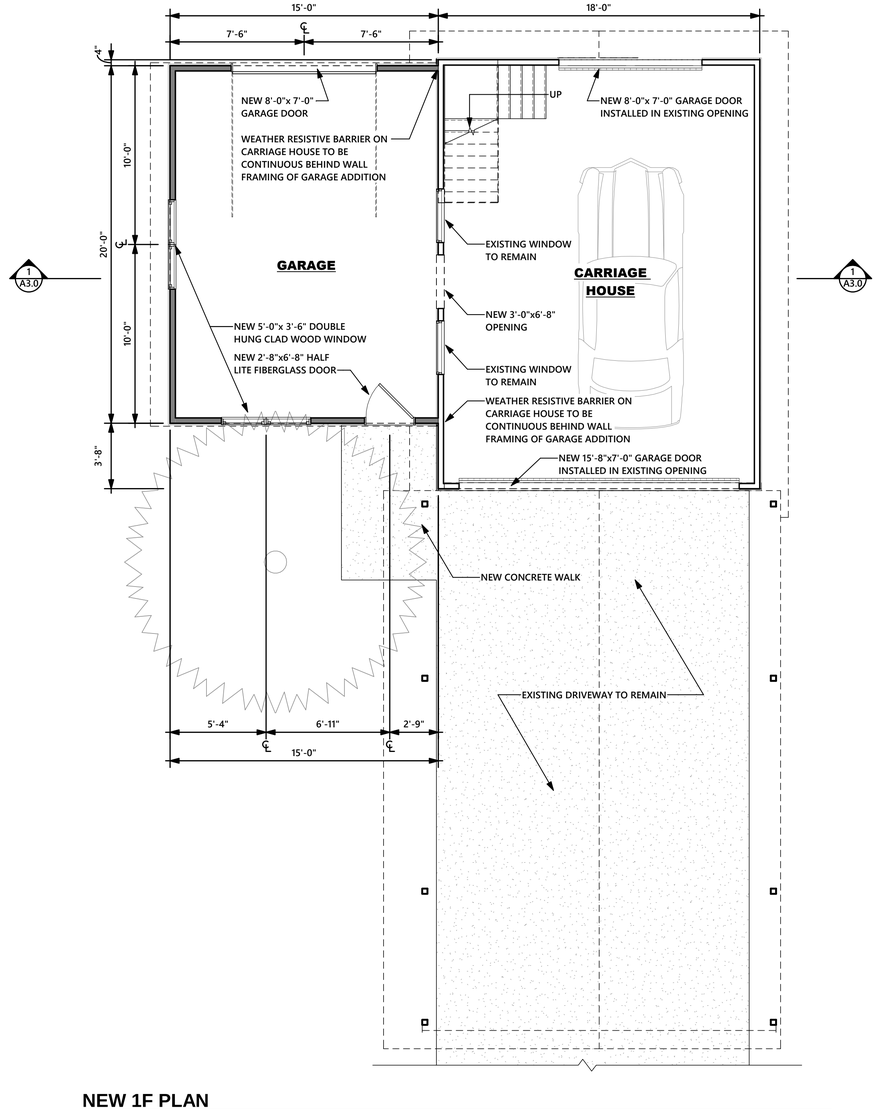
EXISTING 2F PLAN
1/4" = 1'-0"



NEW 2F PLAN
1/4" = 1'-0"



EXISTING 1F PLAN
1/4" = 1'-0"



NEW 1F PLAN
1/4" = 1'-0"

KEYNOTES

FLOOR PLAN NOTES

FRAMING:

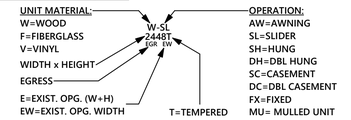
DIMENSIONS ARE TO FACE OF STRUCTURAL ELEMENT (STUDS, CONCRETE WALLS, ETC.) EXCEPT TO CENTERLINE OF POSTS AND COLUMNS, U.N.O.

DOOR AND WINDOW SIZES ARE UNIT DIMENSIONS. ROUGH OPENINGS WILL VARY DEPENDENT ON FINAL MANUFACTURER. VERIFY ROUGH OPENING SIZES WITH MANUFACTURER.

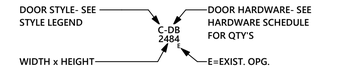
WALL FRAMING TO BE @16" O/C HEM FIR #2 U.N.O.

- NEW WALL-2x6
- NEW WALL-2x4 U.N.O.
- WALL TO REMAIN
- WALL TO BE REMOVED

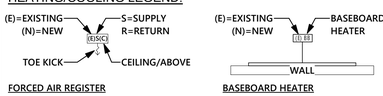
WINDOW TAG LEGEND:



DOOR TAG LEGEND:



HEATING/COOLING LEGEND:



FORCED AIR REGISTER

BASEBOARD HEATER

NOTE: HEATING/COOLING SYMBOLS ON PLANS ARE FOR PRELIMINARY COORDINATION ONLY AND ARE NOT A COMPLETE OR FINAL SYSTEM LAYOUT.

HIGHCRAFT BUILDERS
429 S. HOWES STREET
FORT COLLINS, CO 80521
970.472.8100

A GARAGE FOR:
HANK THODE
714 WEST MOUNTAIN AVENUE, FORT COLLINS, 80521

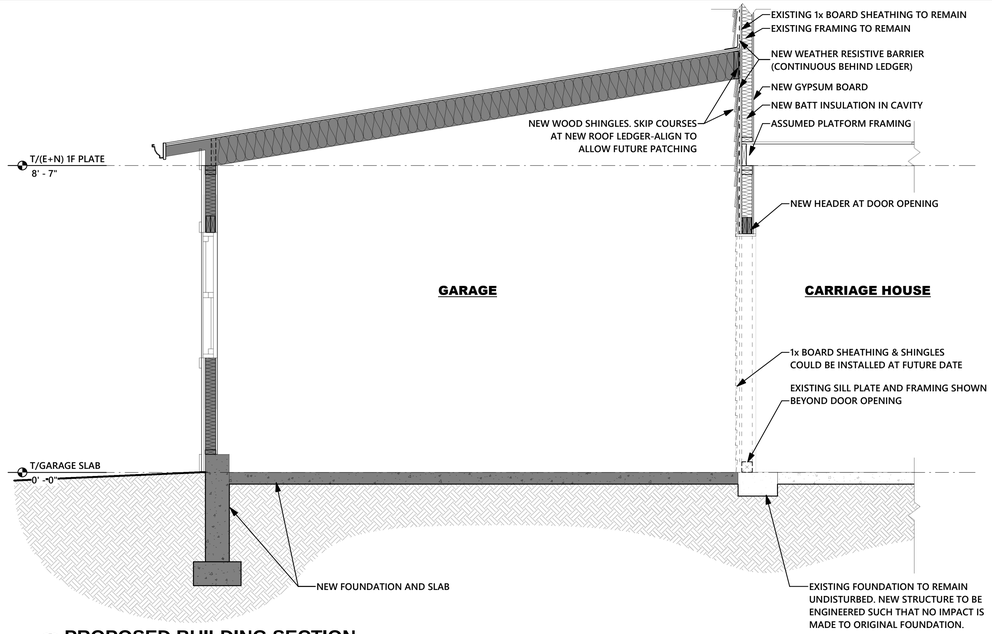
NOT FOR CONSTRUCTION
HISTORIC REV.
NOT FOR CONSTRUCTION

DRAWN: Author
CHECKED: Checker
DATE: 12/23/2019

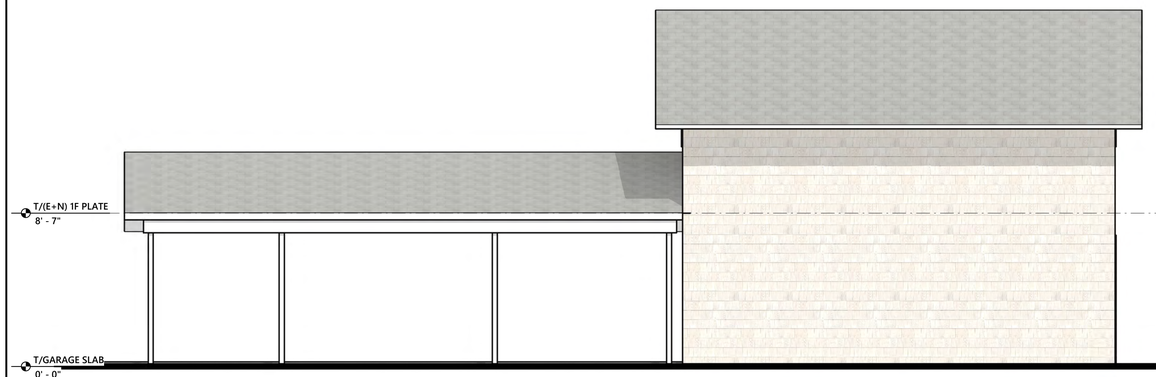
A2.0

1" SCALE CHECK

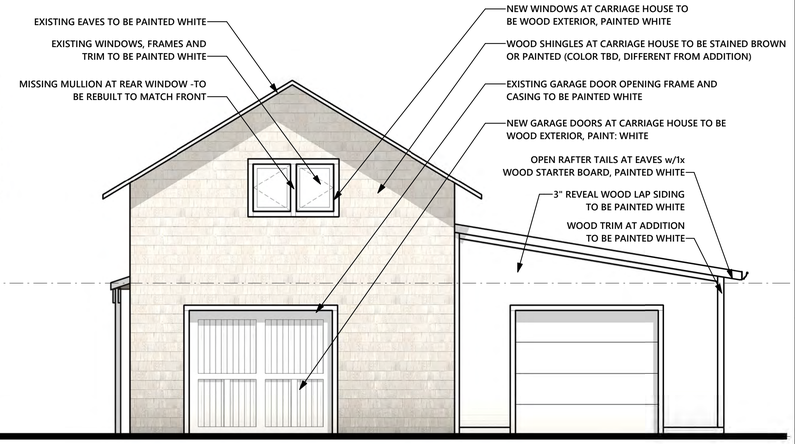
(N) PLAN



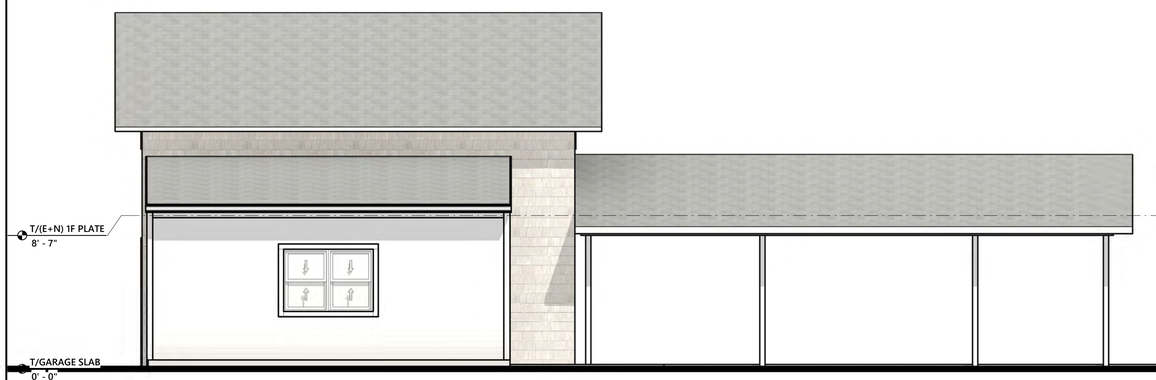
1 PROPOSED BUILDING SECTION
1/2" = 1'-0"



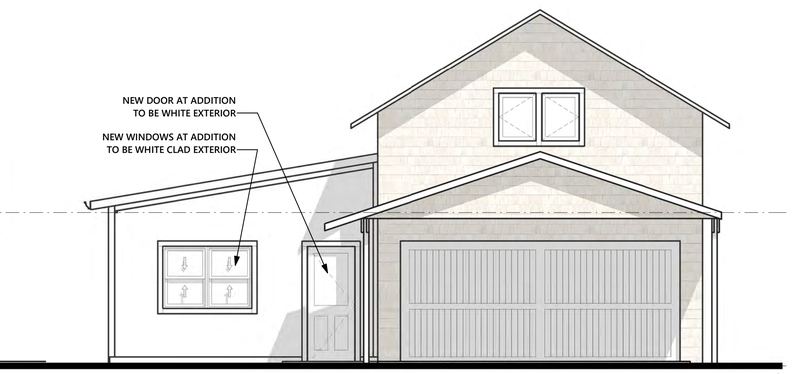
EAST ELEVATION
1/4" = 1'-0"



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



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



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

KEYNOTES

EXT. ELEVATION NOTES

EXTERIOR FINISHES

NOTE: SCHEDULE AREAS ARE INTENDED FOR ESTIMATING PURPOSES ONLY AND MAY NOT ACCURATELY REFLECT ACTUAL CONDITIONS 'IN THE FIELD'

EXT. DOOR & WIN. TRIM

Type Mark	Description

HIGHCRAFT BUILDERS
429 S. HOWES STREET
FORT COLLINS, CO 80521
970.472.8100

A GARAGE FOR:
HANK THODE
714 WEST MOUNTAIN AVENUE, FORT COLLINS, 80521

NOT FOR CONSTRUCTION
HISTORIC REV.
NOT FOR CONSTRUCTION

DRAWN: Author
CHECKED: Checker
DATE: 12/23/2019

A3.0

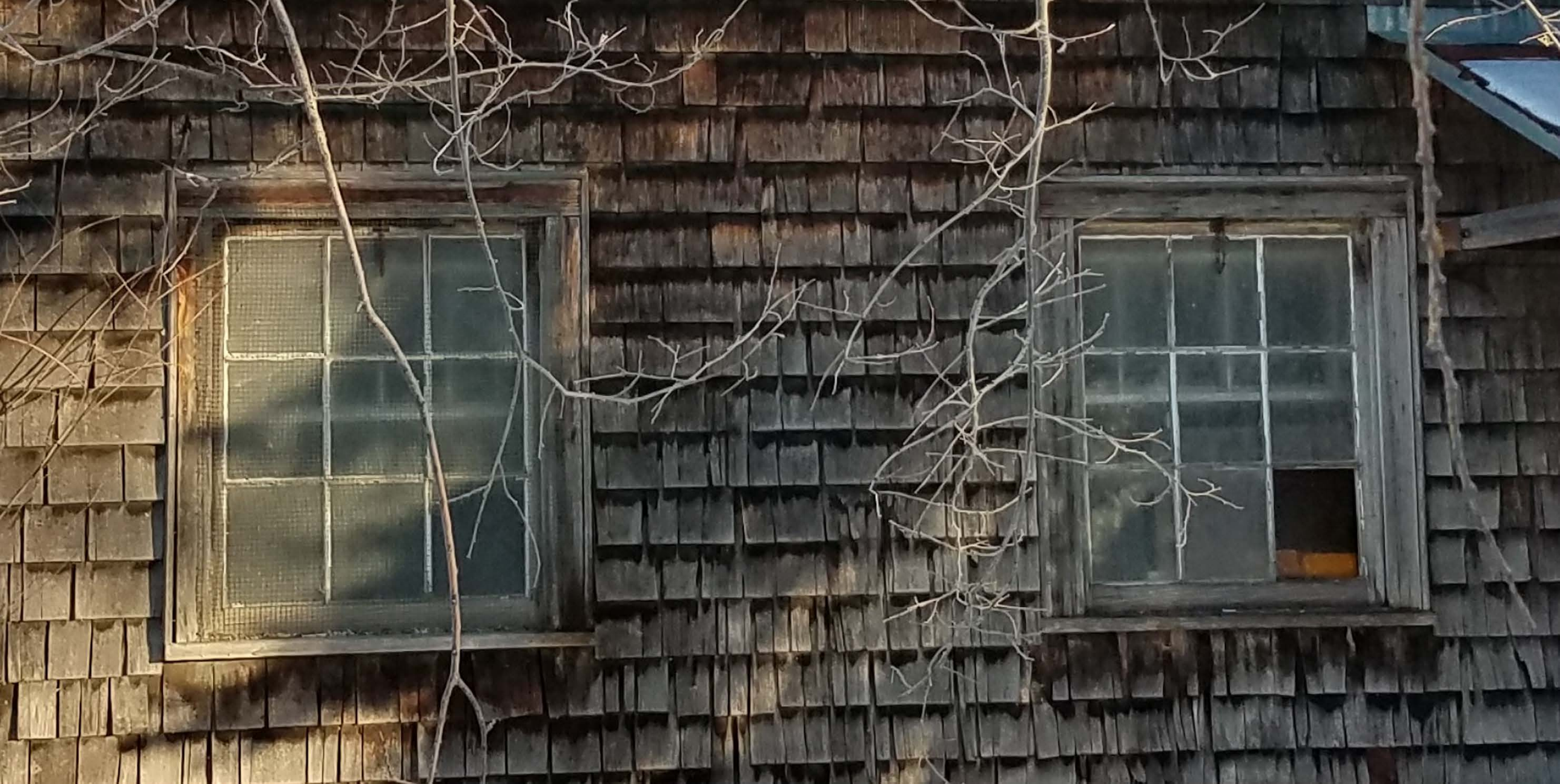
1" SCALE CHECK

(N) ELEVATIONS

Context Images 1-6

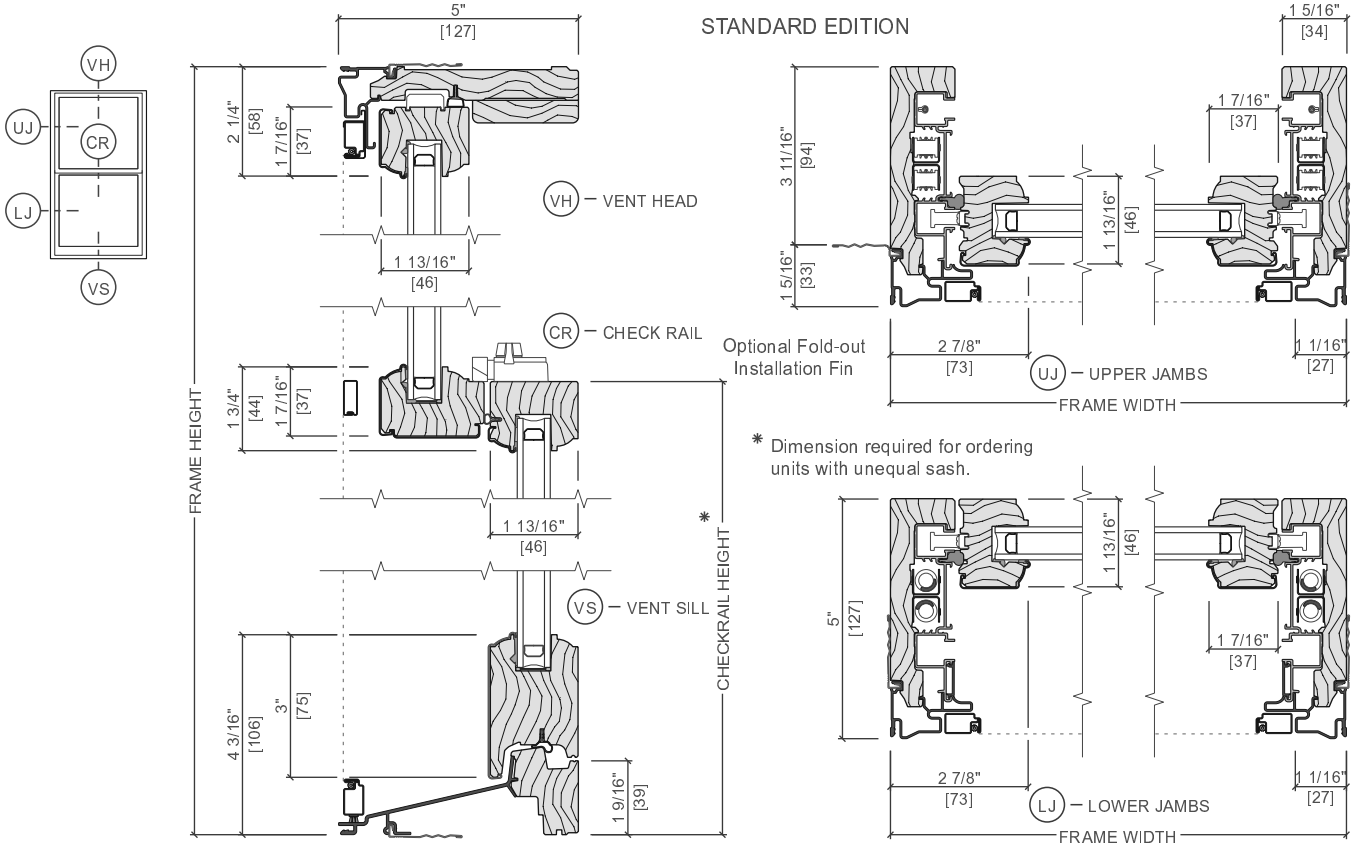
A123
113

Feature Images 1-18




GALLEGOS
SANITATION

SE Unit Sections - Aluminum-Clad Ogee Exterior Glazing Profile

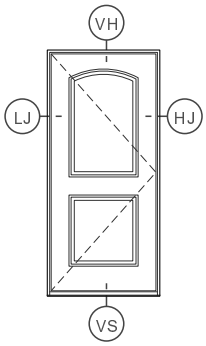


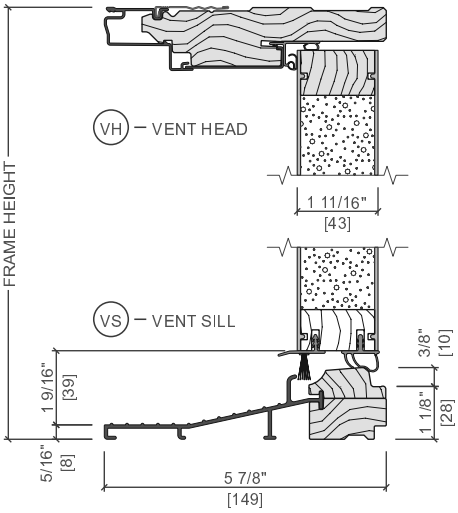
Scale 3" = 1' 0"

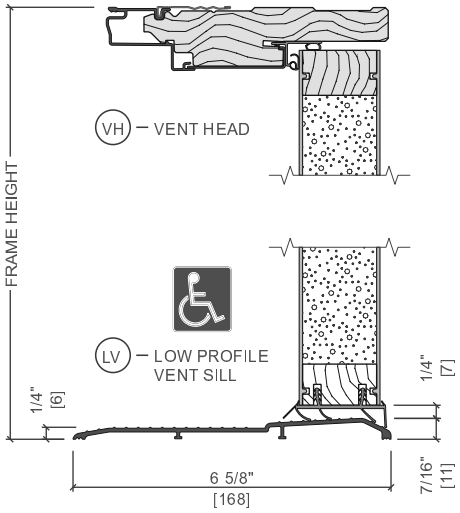
All dimensions are approximate.

Unit Sections – Aluminum-Clad Wood Frame In-Swing Doors

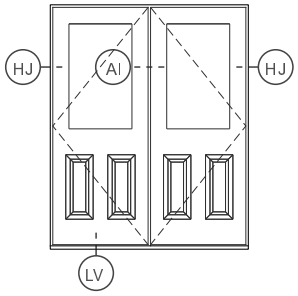
VENT
SINGLE PANEL

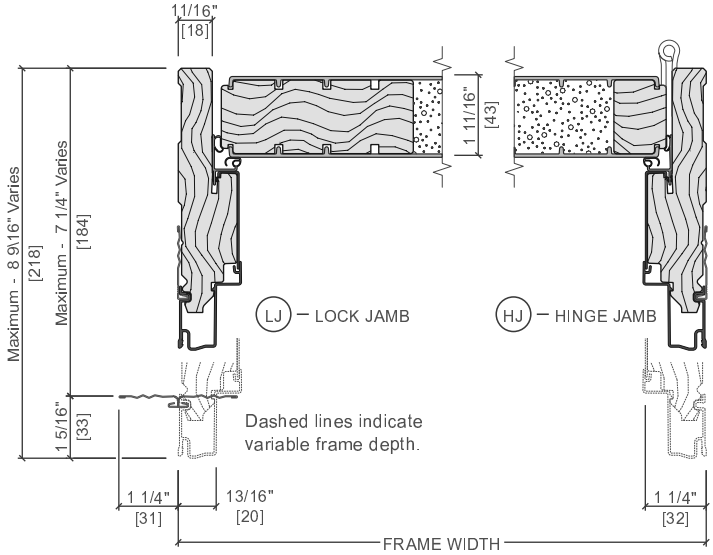


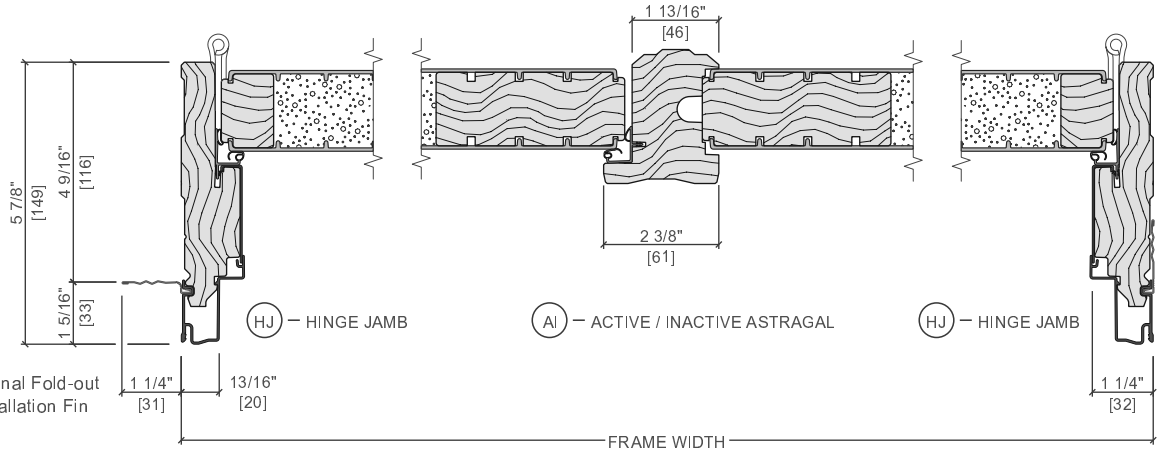




ACTIVE \ INACTIVE
DOUBLE PANEL

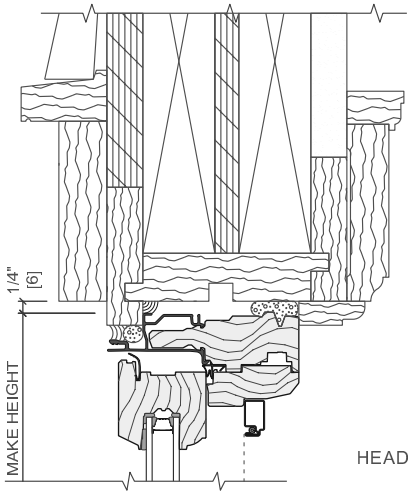






Scale 3" = 1' 0"
All dimensions are approximate.

Installation Details - Wood Exterior Sash



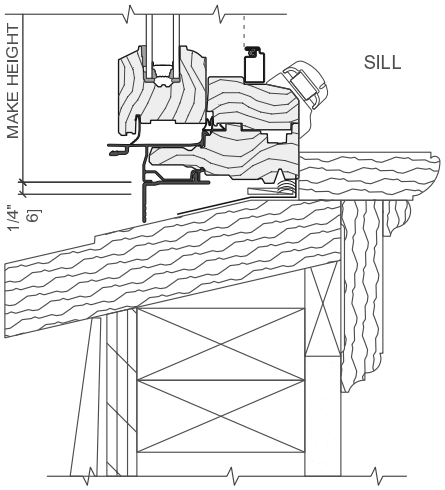
NOTE:

WALL CONSTRUCTION AND OLD DOUBLE-HUNG FRAME SHOWN ARE EXISTING; OLD DOUBLE-HUNG SASH HAS BEEN REMOVED.

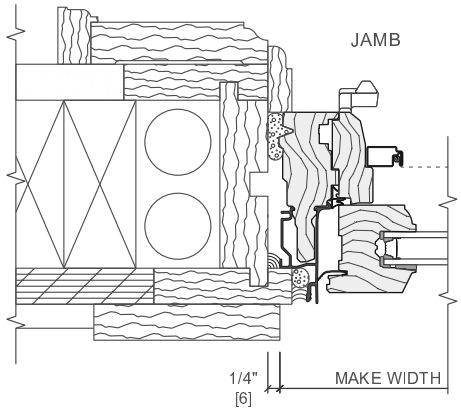
REFER TO THE APPROPRIATE PELLA INSTALLATION INSTRUCTION FOR COMPLETE STEP BY STEP INSTRUCTIONS.

SHIM AND PLUMB UNITS AS REQUIRED.

SEAL UNIT TO EXTERIOR / BLIND STOP.



SEAL THE UNIT TO EXISTING STOOL AND WINDOW SILL.



INSULATE ALL VOIDS AT WINDOW PERIMETER (BY OTHERS).

SEAL UNIT TO EXTERIOR / BLIND STOP.

Scale 3" = 1' 0"

All dimensions are approximate.

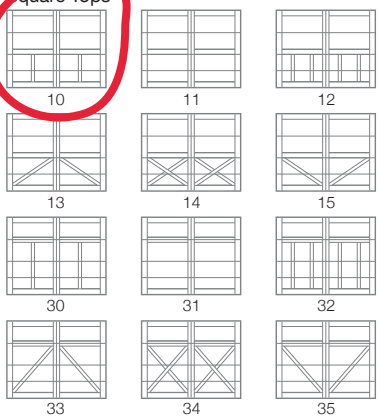
5400 OVERLAY CARRIAGE HOUSE WOOD

PERSONALIZING OPTIONS

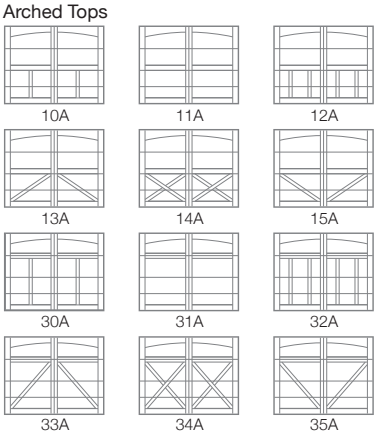
GOOD / **BETTER** / BEST

CARRIAGE HOUSE DESIGNS

Square Tops



Arched Tops



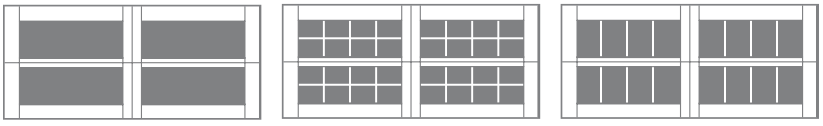
WOOD[1]

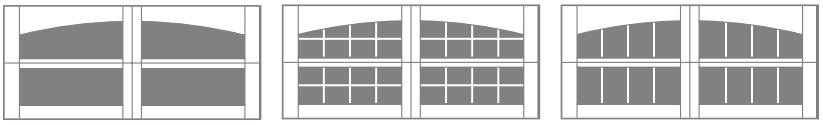
Cedar Mahogany

WINDOW DESIGNS

*PAINT WHITE

Double Row





Single Row

GLASS[4] *Plain available as non-insulated Polycarbonate*

Plain Tinted Obscure Glue Chip Seeded Faux

EXTERIOR HARDWARE

Spade Wrought Iron Barcelona 1 Barcelona 2

Specifications

Panel Style	Overlay
Overlay Material	Western Red Cedar or Fijian Mahogany
Section Construction	2-3/4" Thick - 2-Sided Steel
Section Material	Medium Duty / 27[2] Ga. Steel
Insulation Type	1-13/16" Polystyrene 
R-value / Thermal Performance	R-10.78
Window Style[3]	Square or Arched
Glass	Insulated and Non-Insulated
FBC Wind Load[4]	Non-Impact and Impact Rated
TDI Wind Load[4]	Impact Rated Only
Warranty	Limited Lifetime on Sections 3 Years on Overlays 3 Years on Springs 6 Years on Hardware

1 Refer to your local C.H.I. Dealer for exact wood type match. **2** Lower steel gauge [ga.] number indicates stronger steel. **3** Model number indicates design and window style. **4** Ask your local C.H.I. Dealer about our full line of wind load rated doors.

Your Local Garage Door Professional

chiohd.com
1485 Sunrise Drive | Arthur, IL 61911 | USA

C.H.I. OVERHEAD DOORS

REAL
CARRIAGE DOOR &
SLIDING HARDWARE

Edison Sliding Opener Installation Manual

CAUTION

It is recommended that you have a low voltage electrician, or trade member familiar with garage door installations to install the operator. You may call us or the manufacturer to see if there is anyone in your area familiar with the Fremont Opener. Real Carriage Door & Sliding Hardware is not liable for any damage that occurs during install, and replacements are the sole responsibility of the installer and customer. The manufacturer does carry a warranty for any defects or issues that are from manufacturing only and will have to be tested by the manufacturer's technical team before sending replacements.
It is also a good idea to install a surge protector to avoid any damage to the operator. The operator can be damaged by power surges or faulty wiring.

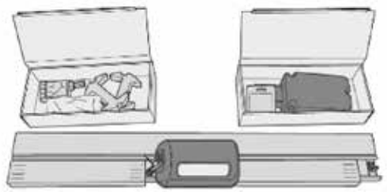
All California residents must have a battery backup installed with electronic door openers according to Senate Bill No. 969. Please call our main line for assistance or check out our website for additional information.

REAL

Table of Contents

Packaging

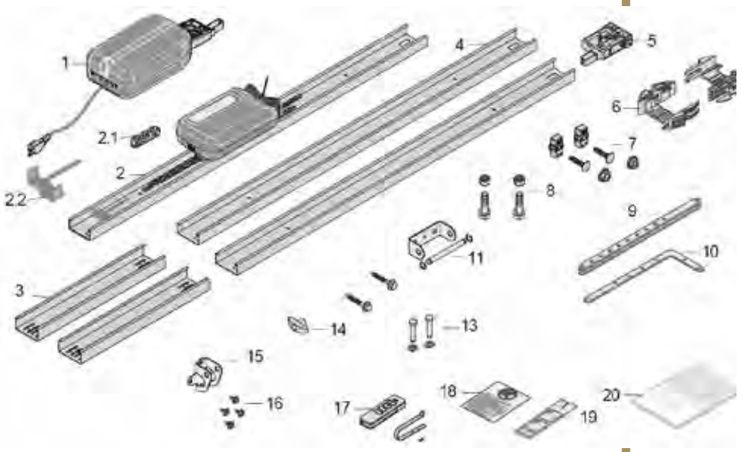
The Edison Opener will ship out in multiple packages. Weight and size will vary depending on order.



The main package is for your base kit:

- Shipping Dimensions are 44.5"x 7.5" x 5"
- Weight is approximately 30lbs

The kit includes the following parts:

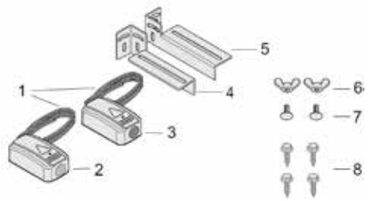


- Control Unit (1)
- Main track pre-assembled with limit stop chain and motor carriage (2)
- Isolator (pre-assembled on chain) (2.1)
- Connecting sleeve x2 (3)
- Additional track pieces (4)
- Chain tensioner (for closing end of track) (5)
- Ceiling bracket which is 2 parts (6)
- Ceiling bracket hardware (7)
- 2 bolts M8 x 20 (wrench size ½") with two self-locking nuts M8 (8)
- Door Arm (9) **Note:** not needed
- Curved door arm (10)
- Header bracket with pin and 2 locking c-clips (11)
- 2 screws 8 x 60mm (wrench size ½") and 2 washers 5/16" for the attachment to header (12)
- 2 pins with locking c-clip for door arms Note: not needed (13)
- Emergency release handle (14)
- Door bracket **Note:** not needed (15)
- Self-drilling screws ¼" (wrench size 3/8") for the door bracket Note: not needed (16)
- Transmitter or remote which is preprogrammed to your opener (17)
- Warning label (18)
- Warning label for emergency release (19)
- Sommer (manufacturer's) installation manual (20)

Photo Eyes

-2 wires at 32' 9" long (1)

-1 transmitter photo eye (green sticker) (2)



-1 receiver photo eye (red sticker) (3)

-1 mounting bracket left (4)

-1 mounting bracket (right) (5)

-2 wing nuts M6 (6)

-2 carriage bolts M6 (7)

-4 screws 3/8" (8)

Note: Weights will vary based on additional hardware that is ordered. The weight is per 9ft section of rail with motor and control unit housing. This does not include extensions or other hardware ordered.

Extensions (optional per application)

Extension packages are shipped seperately from the main box.

3ft extensions are 23" x 8" x 2" and are 4.45 lbs

5ft extensions are 44" x 8" x 2" and are 6.95 lbs

- Additional ceiling bracket (part 6 of main box)
- Magnetic coupler
- Masterlink
- Chain
- Rail Extension

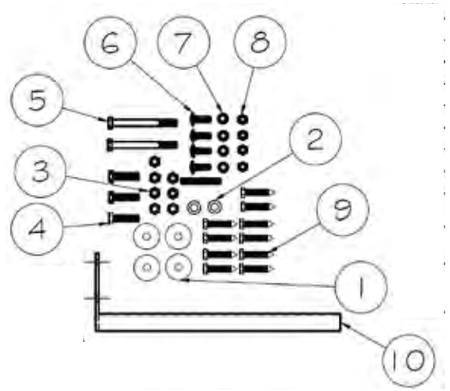
Additional Parts Box

This box includes additional items needed for your sliding door application. The package dimensions are 15" x 12" x 3"

This box will include:

1. Secondary remote for your convenience. Keep this remote separate from the one included in the main box. This remote is not programmed to the opener yet.
2. Door connection hardware pack

- (1) 3/8" x 1-1/2" washer (qty 4)
- (2) Ring Spacer 3/8" x 7/8" (qty 2)
- (3) 3/8" nylon lock-nut (qty 7)
- (4) 3/8" x 1" bolt (qty 3)
- (5) 3/8" x 3-3/4" bolt (qty 2)
- (6) 3/8" x 1" carriage bolt (qty 4)
- (7) 3/8" lock washer (qty 4)
- (8) 3/8" nut (qty 4)
- (9) 3/8" x 1-1/2" lag screw
- (10) Door bracket



3. Additional Header bracket (part 11 in main box)
4. U-fittings (2)
5. Wire connector (optional depending on install application)
6. Battery Backup (optional except for CA residents)

Note: Any additional accessories ordered will be included in this box

When unpacking, make sure that all items are included in the packages. If anything is missing, contact us. The actual content may vary depending on the specific order.

Specifications

The Edison operator can run up to 25ft right out of the box and can be programmed to operate up to 30ft. The control board has a motor brake function, meaning if the motor speed is exceeded, the motor brake actively uses the brake resistor. There are also terminals that allow you to hook up to your home automation system. Force process and positions are always known by the control unit, and any changes (attempted break in) will be recognized. Because of the learn mode (autoset), the motor will learn the force required to move the door. This means the operator will not run at full strength (unless needed), but instead adapts to your application. With this operator there is only one limit switch that needs to be installed, and the motor carriage is simply laid out and pre-installed on the rails.

Note: For additional information please visit the manufacturer's (Sommer) manual

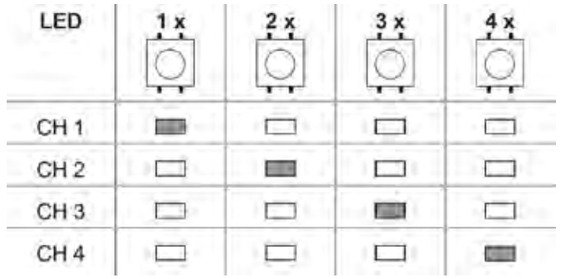
- Troubleshooting page 59
- Warranty information page 66
- Ceiling mounting and position page 23

Technical Data	2060 evo+	2080 evo+	2110 evo+
Rated voltage	AC 120 V		
Rated frequency	60 Hz		
Number of programmable remote buttons	40		
Duty cycle	40 %		
Emission value according to operating environment	< 59 dBA – opener only		

Technical Data	2060 evo+	2080 evo+	2110 evo+
IP code	NEMA1 IP21		
Protection class	class 2		
Standard door height	7' and 8' doors (< 2 750 mm)		
Max. door height with extensions	24 ft. (up to 2 x 3.59 ft. 3 x 3.59 ft. 4 x 3.59 ft.) (7.10 m / up to 2 x 1096 mm 3 x 1096 mm 4 x 1096 mm)		
Speed *	9.4 inch/ sec. (240 mm/s)	8.3 inch/ sec. (210 mm/s)	4.7 inch/ sec. (120 mm/s)
Max. traction and pressure force	600 N (0.75 HP)	800 N (1 HP)	1100 N (1.25 HP)
Max. current consumption **	1.0 A	1.3 A	1.5 A
Standby	< 3 W		

Channels

LED	Radio channel	Function
1	CH 1	Pulse Mode
2	CH 2	Partial Opening or lighting function
3	CH 3	Defined OPEN
4	CH 4	Defined CLOSED

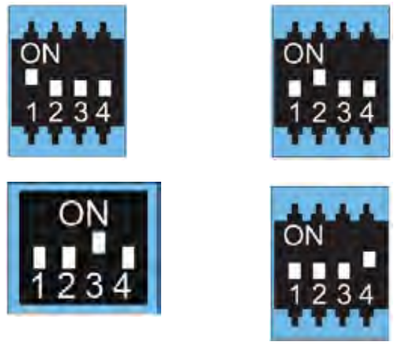


The standard setup (without extra memory) can memorize up to 40 commands, and each channel utilizes 10 of those. If all 4 channels are used you can have up to 10 remotes.

Dip Switches

Dip switch 3 must be turned on for sliding door applications.

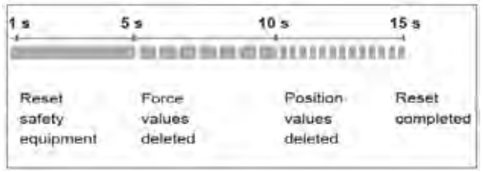
Dip Switch	ON	OFF
1	Automatic closing activated	Automatic closing deactivated
2	Partial opening active	Illumination function
3	Side-opening sectional door	Sectional door
4	Retractable door	Sectional door



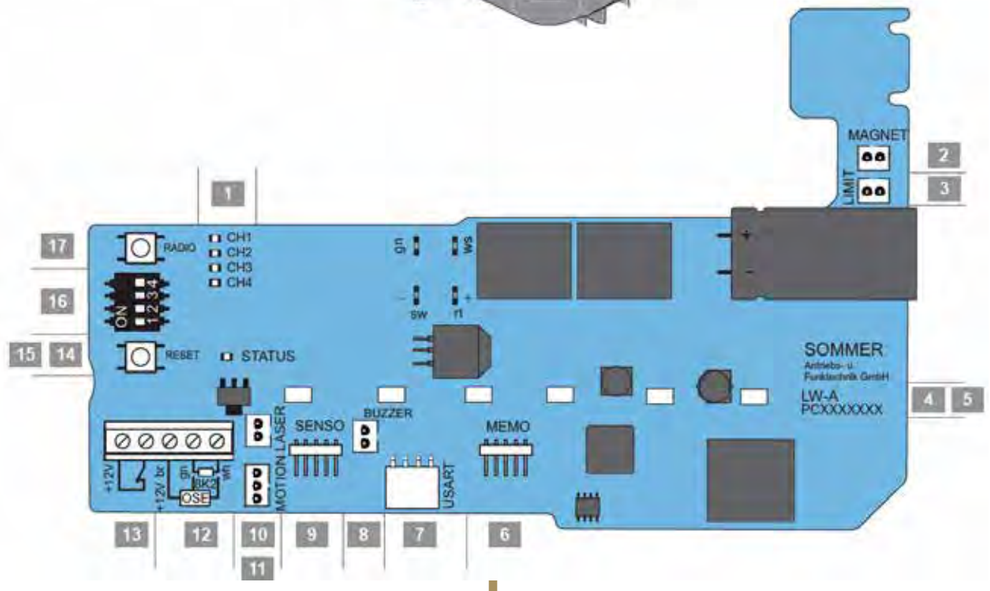
Reset Button

The length of time the reset button is pressed will define what is reset see below options.

- 1-2 seconds will reset the safety devices
- 5 seconds the force values will be deleted
- 10 seconds the end position (or close) will be deleted
- 30 seconds will be full factory reset



Motor Carriage

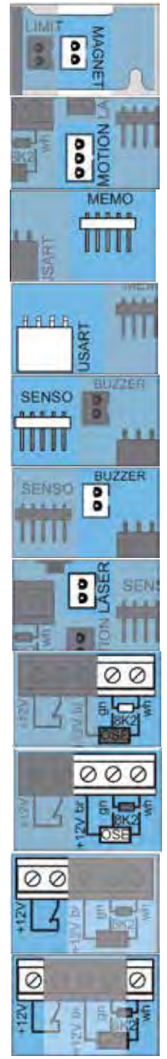


Control Board Number	Connection Options
1	LED CH 1-4 (red) display for radio channel
2	Magnetic slot (green) lock terminal
3	Limit switch terminal (OPEN) limit (blue)
4	PCB label
5	LEDs opener lighting
6	MEMO slot MEMO terminal
7	USART slot interface

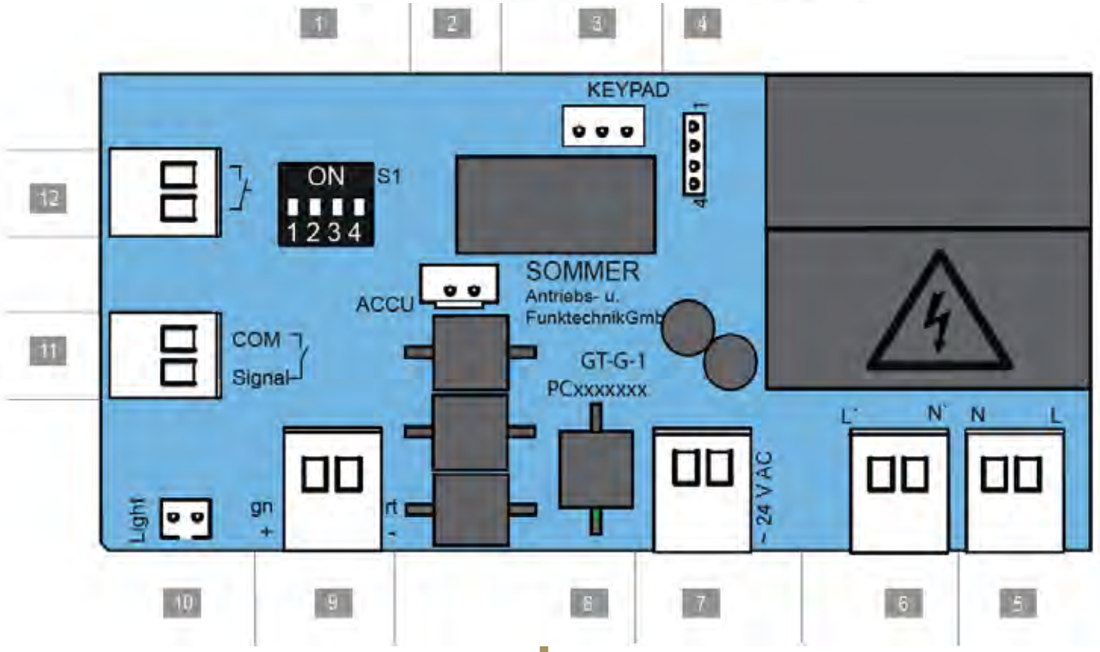
8	BUZZER slot (black) Warning or alarm buzzer terminal
9	SENSO slot SENSO terminal
10	LASER slot (white) Parking position laser sensor terminal
11	Terminal for safety contact strip 8k2/ OSE
12	Terminal for wicket door contact potential free
13	Status LED (green)
14	Reset button (green)
15	DIP switches
16	Radio button (red)

Connection options for Motor Carriage

Function/application example
Magnetic slot (green), lock terminal, Locking magnet
MOTION slot (white) terminal for movement sensor 3-pin
MEMO slot, Memo terminal, memory expansion for 450 transmitter commands
USART slot, terminal e.g. module, home automation
SENSO slot, terminal for SENSO, humidity sensor
BUZZER slot (black), terminal for warning/ alarm buzzer
LASER slot (white), terminal for parking position sensor
Safety contact strip 8k2 terminal
OSE safety contact strip terminal, +12V = br, OSE = gn, GND = wh
Wicket door fuse terminal, contact command, (12V/10mA) normally closed contact, potential free
Output 12V/DC, max 100mA, +12 V, GND = WH, power supply for optional accessories, finger scanner or external lighting



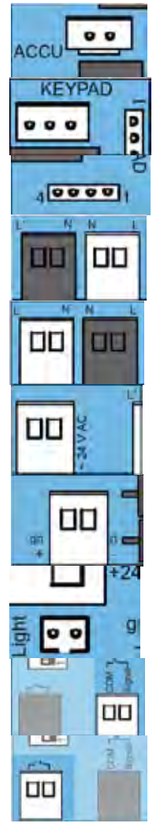
Control Unit



Control Board Number	Connection Options
1	DIP switches
2	ACCU slot Terminal for battery pack
3	Keypad (black) Terminal for button connector cable of the wall control unit
4	Terminal for relay
5	2-pin Terminal power supply 120 V AC 50/60 hz

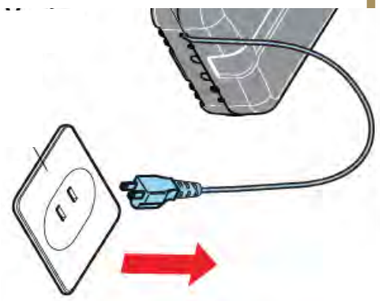
6	2-pin Terminal Transformer primary side 120 V AC 50/60 Hz
7	2-pin Terminal 24 V AC Transformer secondary side
8	PCB label
9	2-pin Terminal Chain and Track 24 V AC
10	Light slot (white) Terminal for Lumi+ supplementary lighting
11	2-pin Terminal Safety Sensors
12	2-pin Terminal wall station or wall button

Function Example
Battery slot, ACCU Terminal for battery pack
Keypad (black) Terminal for button connector cable of the wall control unit (only for type pro +)
Terminal for relay, switching capacity max 5 A/120 V AC max: 5 A/24 V DC
2-pin Terminal power supply 120 V AC 50/60 hz
2-pin Terminal Transformer primary side 120 V AC 50/60 Hz
2-pin Terminal 24 V AC Transformer secondary side
2-pin Terminal Chain and Track 24 V AC
Light slot (white) Terminal for Lumi+ supplementary lighting
2-pin Terminal Safety Sensors any polarity
2-pin Terminal wall station or wall button potential free

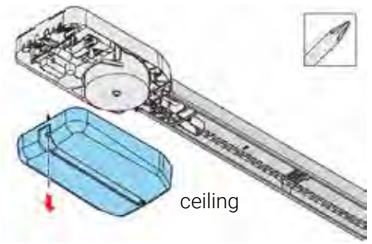


Deinstalling the Control Unit Cover

1. Disconnect the opener from the main power supply



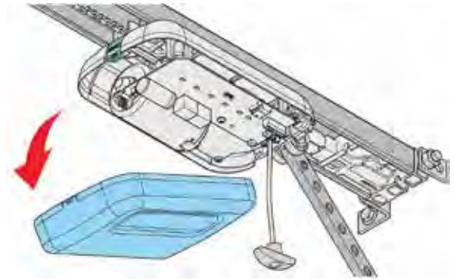
2. Unscrew and remove the cover from the control unit ceiling

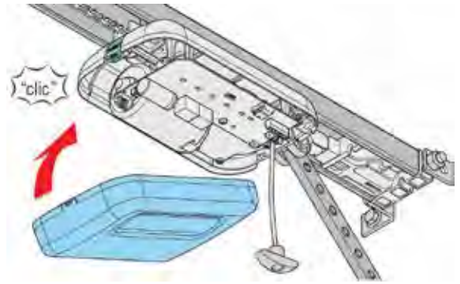


Note: If a battery pack is used, unscrew the cover carefully. Disconnect the battery pack plug from the control board. Remove the cover with the disconnected battery pack

Reinstalling Control Unit Cover

After working on the ceiling control unit replace the cover in reverse order. Connect the opener to the main power supply





System Overview

- The control unit housing can be mounted at one end of the rail if there is enough space to the side of the opening. Otherwise the wire connector can be installed in its place allowing the control unit housing to be mounted anywhere convenient
- **The control unit end of the track is always the open end of the track**
- The red limit stop is located on the opening end of the rail (same as the wire connector or control unit)
- The boomerang arm is pointing towards the closing end of the rail
- The closing end of the track has a programmable end stop
- If your opening is smaller than our standard 9ft kit, you do not need to cut it down to size unless you lack the available space. If you do cut it down then cut the rail first, take the cut piece and use it as your guide for shortening the chain apart
- It is standard to have the sliding hardware on the outside of the building with the opener on the inside. If you happen to have the sliding hardware on the inside as well, then it is important to make sure the opener will clear (not interfere) the sliding barn door hardware. To do this you can mount the opener on the ceiling or build a bump out on the side wall for clearance

Single Door Applications

You can utilize either the side mount or ceiling mount option, and choose whichever is better for your specific application. This opener is easily adapted for unique situations and it is up to the installer to find the correct mounting location. It is important to make sure the door bracket is installed in a location that helps the door clear the opening as much as possible, and that the rail is mounted in a spot that allows the motors to travel to the necessary locations.

- The rail must be offset from the opening towards the open end. This will allow the motor to travel past the opening which is vital for getting the door as close to clearing the opening as possible
- The amount of offset depends on whether you are installing the wire connector or not. If you are using the wire connector the distance is much shorter, measure from the end of the rail to the where the door bracket attaches to the boomerang arm. The angle of the boomerang arm changes (which also changes the measurement) depending on your application (like the height above opening)

Biparting Doors

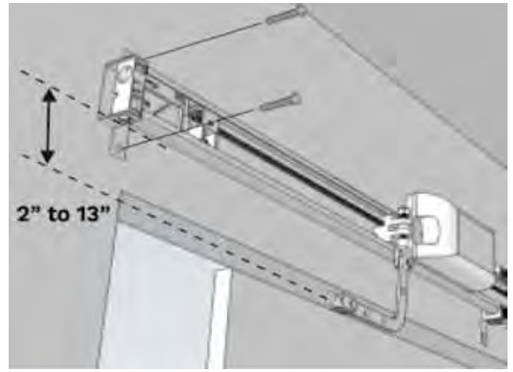
You can utilize either the side mount or ceiling mount option, and choose whichever is better for your specific application. This opener is easily adapted for unique situations and it is up to the installer to find the correct mounting location. It is important to make sure the door brackets are installed in a location that helps the doors clear the opening as much as possible, and that the rail is mounted in a spot that allows the motors to travel to the necessary locations.

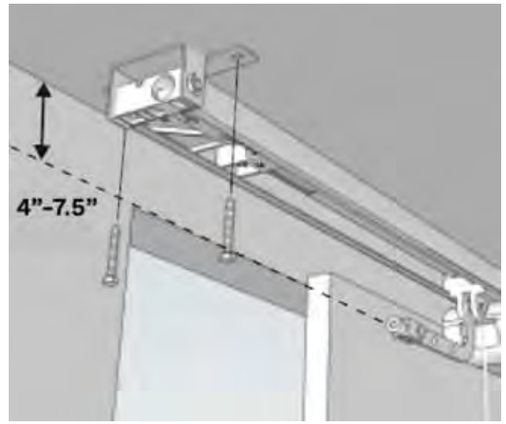
- This is essentially like mounting two single door applications next to each other. The rails are offset towards the open end allowing the doors to clear the opening as much as possible
- Most likely the opener rails will not touch in the middle because of the offset (depending on your opening size). The rail must be offset to the opening towards the open end. This will allow the motor to travel past the opening which is vital for getting the doors as close to clearing the opening as possible
- The amount of offset depends on whether you are installing the wire connector or not. If you are using the wire connector the distance is much shorter, measure from the end of the rail to the where the door bracket attaches to the boomerang arm. The angle of the boomerang arm changes (which also changes the measurement) depending on your application (like the height above opening)

Bypassing Doors

You can utilize either the side mount or ceiling mount option, and choose whichever is better for your specific application. This opener is easily adapted for unique situations and it is up to the installer to find the correct mounting location. It is important to make sure the door bracket is installed in a location that helps the door clear the opening as much as possible, and that the rail is mounted in a spot that allows the motors to travel to the necessary locations. The most common bypass scenario has two doors staying within the opening, and one door moves at a time. This opener is not suited to allow both doors to operate at the same time or when there are applications where the doors clear the opening. For applications where the doors are collecting you would only need a single motor to operate. For any clarification or questions please call customer service at 1-800-694-5977.

- Opposite of the other two applications, the open end of the rail is actually in the center of the opening instead of the outside. This means the rails must overlap in the center so the doors clear their half of the opening as much as possible
- The amount of offset depends on your application. Measure from the end of the rail to the where the door bracket attaches to the boomerang arm. The angle of the boomerang arm changes (which also changes the measurement) depending on your application (like the height above opening)
- If you do have the available space you can mount one opener on the side wall and one on the ceiling. It is recommended to install the wire connector to save space
- It is very important to not allow both operators to function at the same time, otherwise they will bind and possibly cause damage. It is vital that the wicket switches are installed for safety purposes

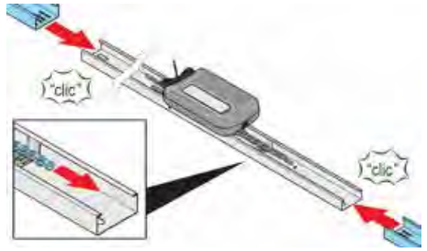




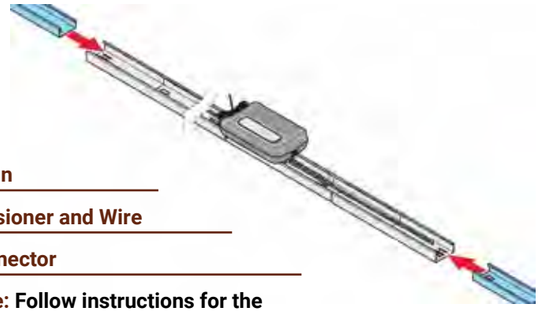
Installation Instructions

Connecting the rails

1. Take your rails and parts boxes out and set aside
2. Slide the bridges (part 3) onto each end of Part 2 (track with motor carriage)



3. Proceed to slide other rails (part 4) into the bridges until they meet with the edges of Part 2
4. Stretch the chain across the length of the track



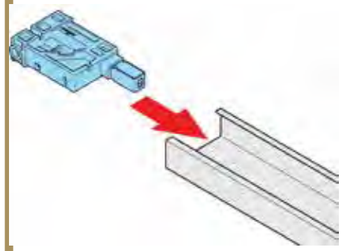
Chain

Tensioner and Wire

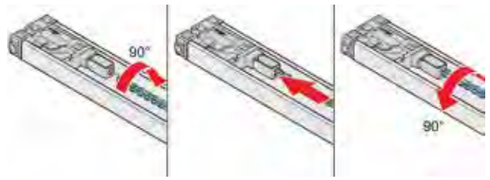
Connector

Note: Follow instructions for the chain tensioner (closing end) to install the wire connector to the open end of track.

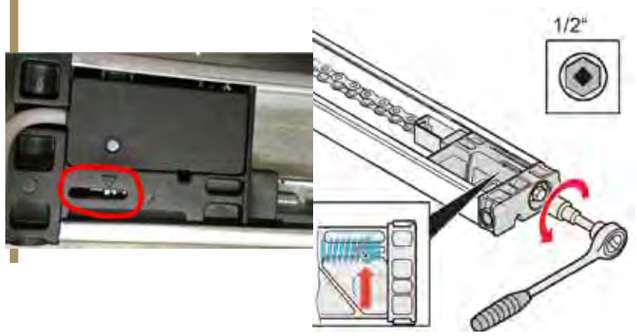
1. Slide chain tensioner (part 5) into the opening end of the track



2. Stretch the chain
3. Rotate it 90 degrees so it slides into the chain holder
4. Make sure the tensioner is loosened before attaching chain
5. Rotate the chain back so it locks into place

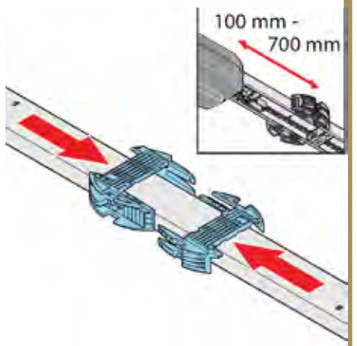


6. Tighten the tensioner bolt with socket (1/2") until the washer hits the arrow (or triangle)



Ceiling Bracket

1. To install the ceiling bracket (part 6) take the ¾" L bracket and insert the bolts (part 7) through the bracket where the hollowed-out notch is on each side (this is what mounts it to the ceiling)
2. **Note:** you may have additional ceiling brackets depending on your application.



3. Place one side against the top of the rail, and the other at the bottom facing each other
4. Slide the pieces together so they interlock
5. To tighten the bolts first hand tighten them and then with a socket only 1-2 more revolutions

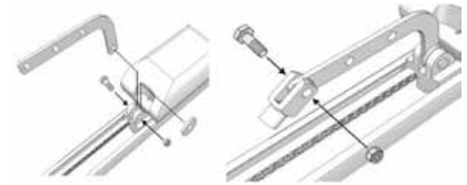
Important Notes:

- It is important to not overtighten
- Do not force the pieces together, they should interlock easily. Make sure they are firmly pressed against rail and the brackets are aligned.
- For applications where you must drop the opener down from the ceiling we provide an option for a secondary ceiling bracket for additional support. If you need an additional bracket please call to place an order.

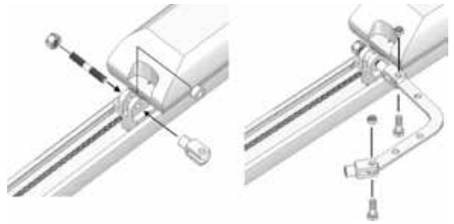
Attaching the Boomerang Arm

1. Locate the arm attachment location on the motor carriage (this should be facing the closing direction of the doors)
2. Insert boomerang arm and secure with provided fasteners from the additional parts box

For Ceiling Mount Applications



For Side-wall applications



Header Brackets and Mounting

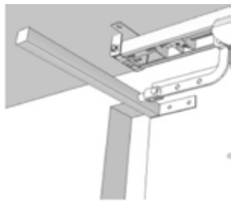
- Attachment must be to adequate framing or strapping
- Drywall only attachment is not permitted
- The track must not come into contact with the door's supporting sliding track at any time
- The curved brace may be rotated for maximum flexibility in the install
- When sliding hardware is on the same side as the opener the opener must be ceiling mounted or mounted on a bump out ledger to gain clearance over the sliding hardware.

1. Place the rail into each header bracket over the chain tensioner or wire connector
2. Insert pin into the header bracket and tensioner with the holes lined up
3. Secure with c-clips

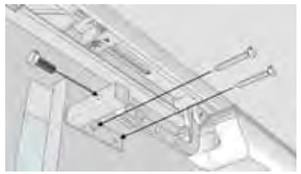
Atacching the Door Bracket

1. Position door bracket in the desired location on

the door



2. Swivel the boomerang arm and the u-fitting assembly to determine the best placement
3. Mark the location of the brace's two mounting holes
4. Cut the door bracket to length (if desired) and plug the end with the cap provided
5. Install the bracket onto the door with the hex head lag screws provided



6. Pre-drill through the bracket where the U-Fitting meets it (this position will change depending on application)
7. Securely fasten the u-fitting to the bracket with a 1" x ¼" hex head bolt and nut

Wiring Instructions for the Wire Connector

For wire connector applications you will need to disconnect the wiring from the control unit housing.

The wires from the wire connector will be installed in the same location as the unit housing wires, and color wires remain the same.

Note: It is helpful to take a picture for reference before disconnecting the wires

1. Remove the transformer by unscrewing the one phillips head screw in the center of the transformer in order to reach the red wire in the neck of the control unit housing
2. Feed the wires through the neck, and re-attach to the same terminals
3. Fasten the transformer back onto the control unit housing

Transformer Screw

Connector Wires

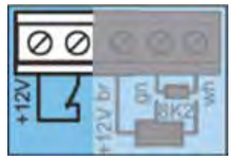
Wicket Switch Installation

Note: This is for bypassing applications only

The wicket switch door safety device prevents both doors from operating at the same time. The black wicket device must be installed so the switch is reliably triggered each time, for example it can engage with the door, door hardware or motor itself.

- The wicket switches are wired into the opposite motor carriage. For example the wicket installed for the left door is wired into the right motor carriage
- It is up to the installer to find a proper way to engage the switch
- It is up to the installer to find a safe and secure way to run the wicket switch cable since the motor carriages move. The recommended way is to secure the cable to the top of the door so it will move with the door/motor and be routed up the arm to the motor (this prevents loose hanging cables and zip ties are an easy way to secure wire)
- The contact command is at 12 V/10 mA. The normally closed contact is potential-neutral
- Wicket switch video: : https://www.youtube.com/watch?v=PXyPTn9XNl0

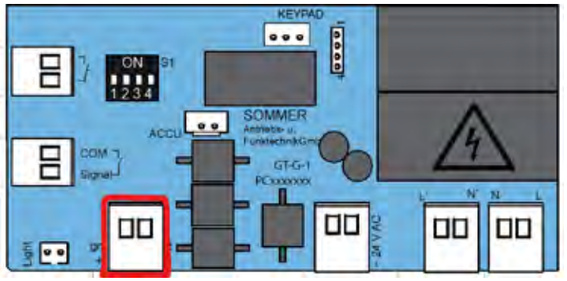
1. Locate a reliable trigger point for each door
   - Mount the wicket switch
2. Route the wire above the opening to the opposite motor carriage
   - Take special care that the wire will not get pinched or bind
3. Wire in the wicket switch to the wicket door fuse terminal, see below graphic
   - It is on the bottom left of the board, refer to page 8 for more information

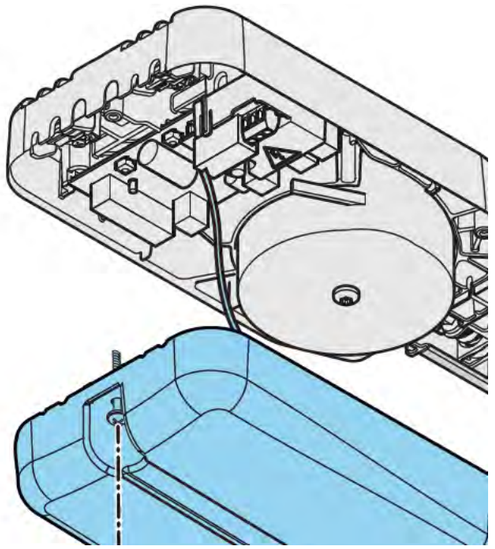


Inserting ACCU (battery backup)

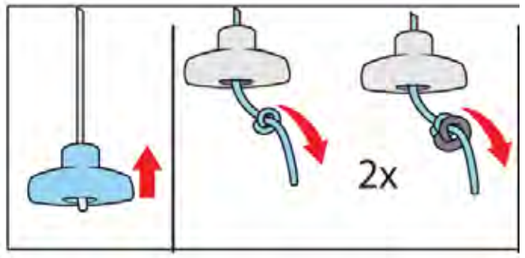
Make sure the unit is unplugged.

1. Place the battery pack loosely in its position on the cover and plug the battery pack plug into the ACCU battery slot on the control board
2. Screw on cover
3. Finish battery backup test on page 24 after the autoset is complete





Adjust the emergency release chord to the length you need. See below instructions



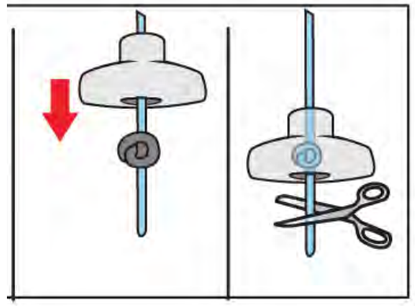
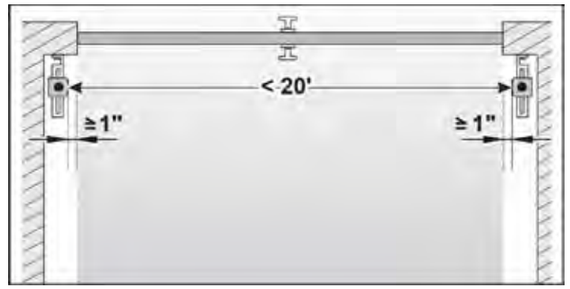


Photo Eyes

The 2-wire safety sensors must be connected to the Control Housing Unit. Initial Operation is not possible without the safety sensors. The photo eyes are automatically detected during initial operation.

- If you want to use your own wires you can, be sure to use 22 gauge.
- The photo eyes are labeled with colored stickers.
- The green is the sender
- The red is the receiver

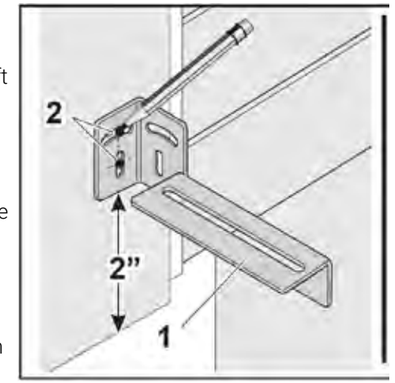


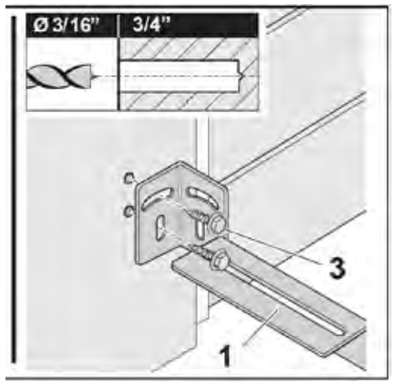
Positioning of the Photo Eyes

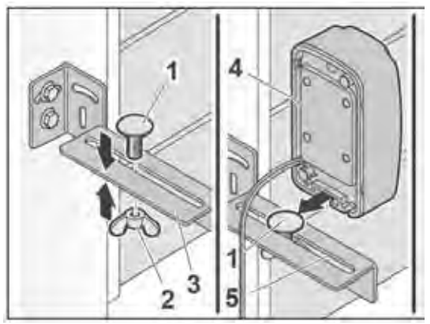
- The lights should be solid when they are properly connected, if they are blinking it means they have power but are not aligned properly.
- It is very important that the red is not in the direct sunlight as it will detect the beam from the other photo eye.
- Do not mount the safety sensors in the path of the moving garage door. Mount at least 1" away from it
- The distance between the transmitter and receiver of the safety sensors set can range up to a maximum of 20'. If you have a runtime of over 20' (for a single door) please contact customer service
- The distance from the floor must be selected so that an obstacle of 6" high can be reliably detected
- This corresponds to a distance of 2" from the bottom edge of the installation bracket to the floor
- Mount one safety sensor to the left and one to the right of the door.
- It does not matter which safety sensor is installed on the left or on the right side

Installation

1. Look for a suitable installation position for the mounting bracket (1) inside the garage to the left and the right of the door
2. Hold the mounting bracket (1) to the wall and mark the mounting points
   - The distance from the bottom edge of the installation bracket to the floor is 2"
3. The height and angle of the bracket can be adjusted through the slotted holes (2)
   - Drill holes for the screws. (3)
   - Screw in two screws (3)
4. Pre-attach the carriage bolt

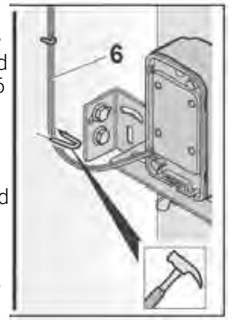






M6 (1) and the wing nut M6 (2) to the mounting bracket (3)

5. Slide the transmitter (4) over the head of the carriage bolt M6 (1) and tighten the wing nut M6 (2)



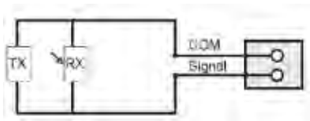
Note: The position of the safety sensors can be adjusted through the slotted holes (5)

6. Mount the receiver on the opposite side in the same way

7. Run the two sets of wires (6) from the safety sensors to the ceiling control unit

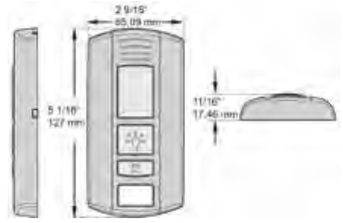
- Use staples to keep wires in place

8. Connect to control unit



Wall Station

Choose an easily accessible location to install the wall station. The distance to the floor must be at least 63” so children cannot reach the wall station. Never run the wires between the wall station and the opener along an on-site power wire, as this can cause malfunctions.

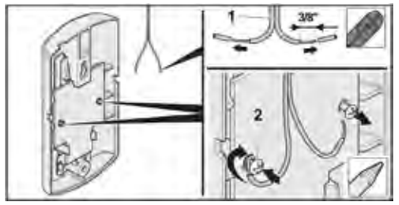


Choosing a location:

- Outside of the range of motion of the door and opener mechanics
- So the user can see the door directly
- When operating the wall station, the user can remain outside of the range of motion of the door and opener mechanics
- On a flat surface

Wall Station Installation

1. The wall station is typically mounted directly to the wall with provided screws, it can be wood or drywall applications.



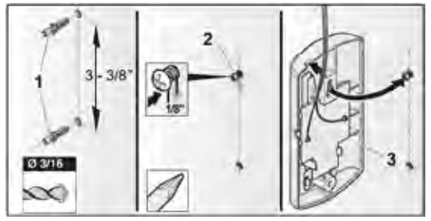
2. Strip off approximately 3/8” of insulation from the wire ends

3. Unscrew the screws 1/8” by 3/8” (2) so that the wire ends can be wrapped around the screws

4. Wrap both stripped wire ends around the screws. It does not matter which wire is wrapped around which screw (polarity proof connection)

5. Tighten both screws and check if the wire ends are held firmly

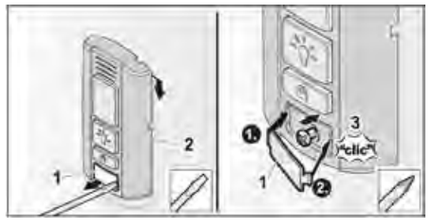
6. Select and mark the upper mounting point



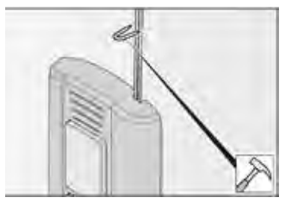
7. Insert screw (1/8” x 1/2”) far enough (approximately 1/8”) so the housing will hang on the wall

8. For drywall installations using a drill with a 3/16” masonry but drill two holes and insert two anchors 3/16”

9. Run the cable through one of the holes, located on the sides or top of the housing.

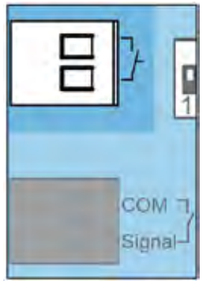


10. Clip out the cover (1) with a small screwdriver or by pushing it out from the rear



11. Hang the housing (2) and attach it with a 6/32 x 1” screws

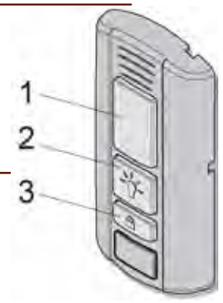
12. Fit the cover in on the left side (1) and click it in on the right side (2)



13. Run the wire from the wall station to the Control Unit Housing and secure with suitable material

14. Connect the wall station wires to the terminal block on the circuit board. The connection is potential-free

Wall Station Buttons



(1) Opening, stopping and closing

(2) Turning the lighting on and off

(3) Locking or unlocking the operator

Wall Station Operation

1. Press the button (1) to open and close

- The door opens or closes depending on starting position

2. Press the button (1) during opening or closing process

- The door stops

3. Press the button (1) again

- The door moves into the respective starting position

Turning the lighting on and off

The button (2) lights up green when the wall station is ready for operation and the operator is not locked

1. Press the button (2)

- Operator lighting switched on

2. Pressing the button (2) again switches the operator lighting back off

- Operator lighting off

Note: The lighting cannot be switched off when the operator is moving

Autoset Programming

Red Limit Stop

1. Disengage the motor

- Pull the red chord (emergency release) until it disengages. This will allow you to move the door freely to see where the door needs to stop

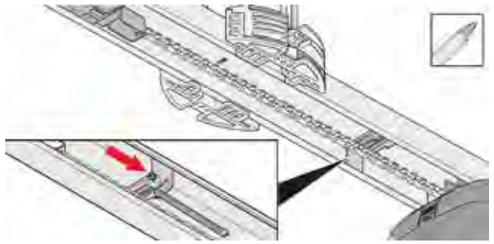
2. Place the doors in open position

3. Position the red stop accordingly

- Tighten the limit back down

4. Place the doors in the halfway open position

- Re-engage the motor by pulling the red emergency release chord



Autoset

Make sure dip switch 3 is turned on before proceeding and plug in the unit.

Note: It is helpful to keep the motor carriage cover off during autoset

1. Use the remote that was packed with the opener (main box) as it is pre-programmed to the opener for your convenience

Note: Only the 1st button is used on the remote for programming purposes

2. Plug the motor into your power outlet

- The status light on the control board should blink rapidly

3. Press 1st button on the remote until the motor carriage starts to move

- Release quickly

- The motor carriage will move backward into the red limit stop and then move forwards to the close position

4. To set the close limit you must program the position for the opener to learn with your remote

Note: the motors are very strong and will try to pull through the resistance while it is in learning mode and will possibly result in bending/breaking hardware

- Push 1st button on the remote to stop the door right before the sliding hardware hits the end stop

5. Hold down the 1st button on the remote to activate the hop function

- The opener will make a small jump forward

- Release quickly

6. Repeat until you reach the desired stop location

Note: An alternate solution is use something like 2x4 wood planks or other form of sturdy brace to stop the door at the right location. This will absorb the force and take the pressure off the hardware. This may not work for all install applications.

Caution! We do not recommend using yourself or any other persons to stop the door at the closing limit as this may result in injury.

7. Press the 1st button to activate the opener to return the open limit

- The opener will continue the autoset (learn mode) on its own

8. The motor carriage will go back and forth across the rail between the limits so it can learn the push force required to move your doors

- During learn mode the LED lights will be flashing

9. As soon as the programming is complete the light will remain solid and is then ready for use

Warning! It is very important to not interrupt or stop the opener prematurely during its programming.

Note: The number of repetitions will vary based on your door. The heavier the doors are the more passes are required for the opener.

Troubleshooting

1. Opener will not operate

- If the motor does not operate or power up at all make sure the chain is not loose and touching the rail as this will cause a short in the system

- Photo eyes are commonly incorrectly wired into the orange terminal, the LED lights on the photo eyes will light up but the opener will not operate

- Do not grease/lubricate the chain or rail. This will gunk up the system and will disrupt the flow of electricity

- If you are getting power to the control unit but the nothing will work (and there may also be a buzzing noise from the transformer) check the fuse located next to the transformer. It is located in a black rubber junction in the wiring

- If you are getting intermittent operation with the opener check to make sure nothing is between the rail and chain. For example if a scew or other object touches it will cause a short

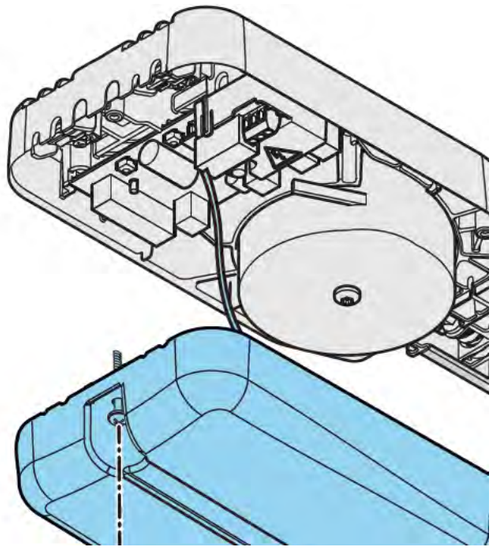
After Autoset Completion

Battery Pack (ACCU) Installation

The battery pack is optional except for California residents.

If the battery back has not been installed yet start at step 1, if it is installed start at step 5.

1. Make sure the unit is unplugged



2. Place the battery pack loosely in its position on the control unit cover
3. Plug the battery pack plug into the ACCU
   battery slot on the control board
4. Screw on cover

Run a function test

5. Pull the power plug out of the power outlet
   - The opener is now powered by the battery pack
6. Press the button on the transmitter
7. Opener opens or closes the door at reduced speed
8. Plug the unit back into the power plug

Adjusting the Close Limit

If after the autoset you determine you need more closing pressure on the doors then follow below instructions.

1. Press and hold the reset button for 10 seconds
   - This will delete limit settings without resetting entire opener
2. Begin autoset process again starting on page 22

Remotes

Refer to page 39 in the Sommer manual for additional programming, and deleting of transmitters information.

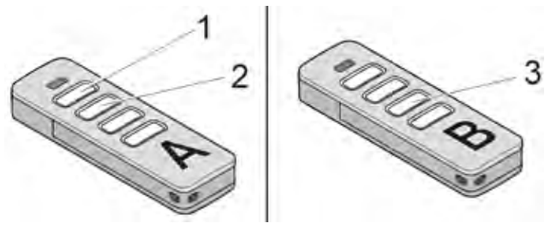
Preprogrammed Remote Functions

1. Hold until the unit moves
   - Do not continue to press the button or it will go into “dead man” mode
2. Hop function
   - Hold button until the unit jumps, continue until it reaches the location that is desired
3. Clone additional remotes (remotes must be identical model)

Programming Additional Remotes

To do this you must be in range of the opener.

1. Press and hold down the second button on your currently working
   - At the same time press and hold the first button together (with the second button) for 3-5 seconds
   - The LED light on the motor will flash
2. Release the two buttons
3. This puts it in learn mode and will remain for 30 seconds
4. Press any button on your new remote to clone it
5. The opener light will remain steady
6. Second remote is programmed

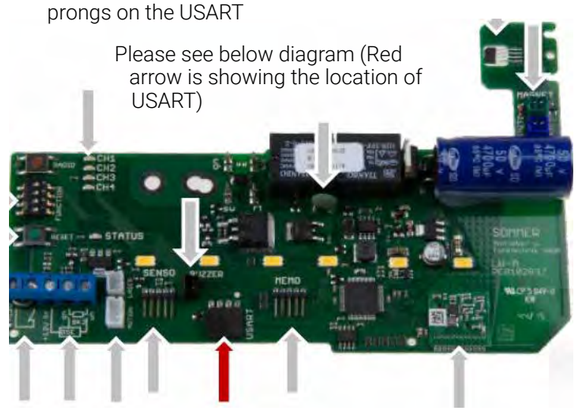


Homelink

Note: While programming homelink to the vehicle it will go through a learn cycle at least 3-4 times.

- Not compatible with car2u
- Homelink is on a 310 frequency
- Homelink will be installed into the first four prongs on the USART

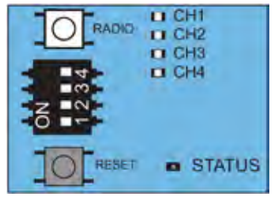
Please see below diagram (Red arrow is showing the location of USART)



Note: Homelink installation video is available on YouTube. Just search “HomeLink training for Sommer garage door openers”.

Homelink Programming

1. For the first time programming press and hold all 3 Homelink buttons for 30 seconds
2. Release only when the homelink indicator light turns off
3. To ensure Homelink is in training mode press and hold each of the buttons individually
4. Indicator light blinks rapidly for 2 seconds and then turns to continuous light
5. At the carriage locate the radio button



6. Press and release the radio button

7. LED light is activated

8. Return the carriage and firmly press and hold the desired Homelink button to be programmed for 2 seconds and release

9. Repeat the press/hold/release sequence a second time to activate the door

10. You may need to repeat this sequence for pressing radio button on the motor carriage and then pressing the Homelink button in the vehicle up to 3 times to complete the training process

11. Homelink should now activate the rolling code equipped opener

Battery Pack

- Battery pack can supply power during power failure
- Battery pack can be operated for approx. 5 cycles in 12 hours

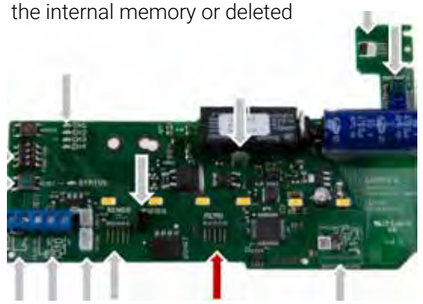
Note: It is recommended to have a qualified electrician to install, test and replace battery pack

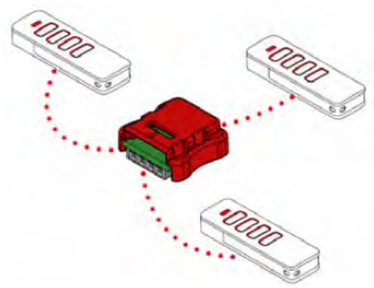
- Battery pack contains charging and monitoring hardware

Please see below diagram (Red arrow is showing the location of ACCU for install)

MEMO

- Memory extension from 40 commands up to 450 commands
- Easy to install and will work without programming (plug and play)
- When plugged in the MEMO transfers data from internal memory to the MEMO and stores information
- The MEMO must be remained plugged in. At any time the data can be transferred back to the internal memory or deleted





SOMLINK

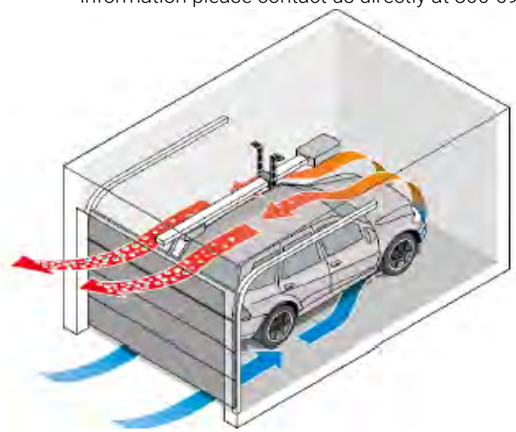
Service tool, for adjusting and viewing parameter settings of the drive. These include force and speed values as well as operating parameters and other convenient functions.

- Integrated Wi-Fi mode
- Integrated web server
- Universal for smartphones/tablet/laptop
- Talks to the opener via radio signal
- Opener needs to be on channel 1
- Diagnostic help: full history and codes with possible solutions
- Data backup
- Generation, backup and loading of own user profiles on to the drive
- Can program features like humidity venting, power, sensitivity, speed, and lighting.
- Recommended to only be used by qualified installers or technicians

SENSO

Senso is an add on device that monitors humidity levels in the space.

There is a standard factory setting for humidity levels that allows for venting if the humidity rises. The opener will be equipped to open about an inch or less if the humidity reaches 80% and will close again once it goes down to 70%. This setting can be adjusted with our SOMlink device. For additional information please contact us directly at 800-694-



Outdoor Keypad

Keypad Activation

1. Press and hold the [M] button for about 8 seconds
- Both red and amber LED lights will light up for about 2 seconds

Note: The lower amber light will flash until the upper red light comes on. The keypad is not activated until the red LED illuminates.

Programming Access Code

1. Press the [P] button
2. Press the first button of your access code
3. Press the [P] button
4. Enter entire access code
5. Press the [P] button againt to complete

Programming the Keypad to the Opener

1. Press the learn button on control unit housing once (solid LED)
2. Enter access code immediately on keypad

Changing Access Code

1. Press [P] button
2. Enter existing access code
3. Press [P] button
4. Enter a new access code that uses the first same first digit (longer is OK)
5. Press [P] to complete

Erase Access

1. Press [M] button
2. Press [P] button

3. Enter 9 digit reset code
4. Press [M] button
5. Press [P] button
6. The red and amber LED lights will illuminate for 2 seconds and all codes are cleared

Note: It is important to keep the reset code sticker which includes the 9 digit reset code

- They keypad will transmit the first digit coide from the original code to the opener

Deleting Radio Code

1. Press and hold learn button in opener until LED flashes
2. Press the desired keypad button
3. This will delete the first digit from entry code

Wireless Wall Control

Please see instructions included with the two button wall control station for specifications, assembly and additional information.

1. Press radio button once
2. Press the desired transmitter button
- The LED blinks orange once
- The LED lights up red
3. Radio is now programmed
4. Repeat steps 1 and 2 to program additional buttons

Maintenance and Care

The use of oil or grease on the chain track or carriage will reduce conductivity. This may result in faults due to inadequate electrical contact.

- The use of unsuitable cleaning agents may damage the surface of the opener. Clean with a dry lint-free cloth only

Service the opener regularly as directed below. This ensures safe operation and a long service life of your opener.

How Often?	What?	How?
Once a month	Test the emergency release	See chapter 12.7 in manufacturer's manual
Once a month	Test the obstacle detection	See chapter 11.1 in manufacturer's manual
Once a month	Test the safety sensors	Interrupt the active safety sensors while the door is closing. The doors should stop and open.
Once a year	Test the door and all moving parts	As directed by the door manufacturer
Once a year	check screws on door ceiling and header	Check that screws are tight and tighten if necessary
As needed	chain and track	maintenance free
As needed	Track	See below cleaning instructions
As needed	Cleaning ceiling control unit and carriage housing	See below cleaning instructions

Cleaning

1. Clean track, carriage and control unit housing
- Pull the power plug out of the outlet. If a battery pack has been installed, remove the control unit housing cover and disconnect the battery pack. Check that the power is disconnected.
2. Remove the loose dirt with moist, lint-free cloth
- From the carriage and the control unit housing
- From the track and the inside of the track
3. If applicable install the battery pack in reverse order of removal

Cleaning Photo Eyes

1. Clean the housing reflectors with a moist, lint-free cloth

About Us

Real Carriage Door & Sliding Hardware is committed to excellence in creating high quality products for customers around the world. Built Real in the USA, our original door and hardware designs are visually stunning and structurally robust. We strive to exceed your expectations by combining personalized customer service with the highest quality products. We invite you to Build Real.™

Real is constantly releasing new, innovative, and exclusive products. We always have great things in the works, so swing by our website to stay completely up to date on everything we have to offer.

Order Today

To order please call us at 800.694.5977. Our experienced designers are ready to help you find the perfect doors and hardware for your project's needs. Order your Real Carriage doors and hardware today!

P 800.694.5977 F 253.857.9295

www.realslidinghardware.com

info@realslidinghardware.com

www.realcarriagedoors.com

info@realcarriagedoors.com

Real Carriage Door & Sliding Hardware

9803 44th Ave NW

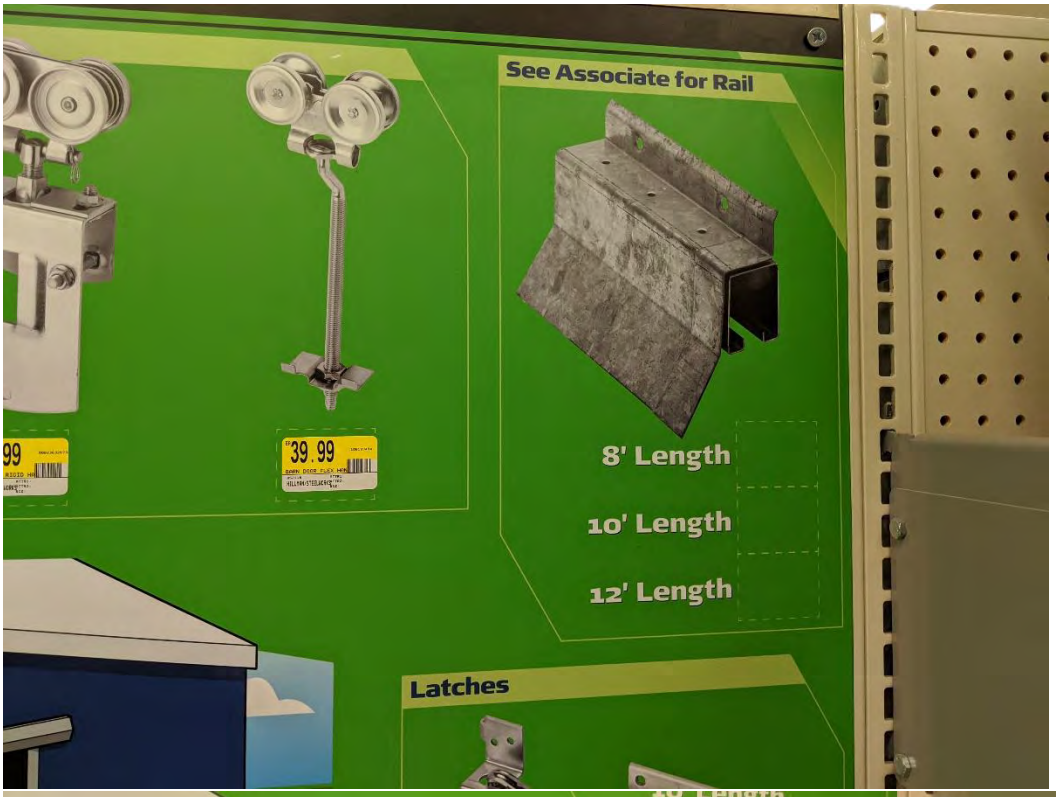
Gig Harbor, WA 98332

Please visit our website and download our most up to date manual. Call us directly at 1(800)694-5977 for additional assistance.


Milwaukee
ft
in


See Associate for Rail
Rigid
8' Length
10' Length
12' Length
58.99
59.99
59.99
69.99
79.99
51.99
Single
1/2" NUTS
1/2-3 1/2" CARRIAGE BOLT
5/16" CARRIAGE BOLTS
5/16" NUTS
1" MAX.
1/4" MIN
2"x8"
TRBR


N DOOR HARDWARE
Rigid
Flexible
58.99
59.99
59.99
69.99
51.99
40.99
51.99
39.99
79.99


See Associate for Rail
8' Length
10' Length
12' Length
Latches
39.99


12' Length
Latches
16.99
19.99
14.99
Distinctions


Latches
Bumper
Stay Rollers
7.49
9.99
14.99
19.99


Single
24" OC
4.99
Splice
9.99
Double
29.99
Splice
19.99
Bumper
7.49
Stay Rollers
9.99


Sizzy Rollers
Milwaukee
PR. APPD
PTA-15,468

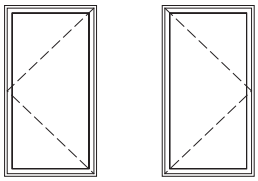
Security
Cameras In Use
Milwaukee
PR APPD
PTA-18-488
Fastener
Center

Cameras In Use
Milwaukee
PR APPD
PTA-18-468
Fastener
Center

Size and Performance Data

	Clad	Wood
Sizes		
Made to order in 1/4" increments	●	●
Standard sizes	●	●
Performance [1]		
Meets or exceeds AAMA/WDMA Ratings	C-R50 - CW50 Hallmark Certified	C-R50 - CW50 Hallmark Certified
Air Infiltration (cfm/ft² of frame @ 1.57 psf wind pressure)	0.05	0.05
Water Resistance	7.5 psf	7.5 psf
Design Pressure	50 psf	50 psf
Other Performance criteria		
Forced Entry Resistance Level (Minimum Security Grade) [2]	10	10
Operating Force (lb) Initiate Motion / Maintain Motion (of Hallmark tested size and glazing) [3]	15/6	15/6

All vent sizes are available with left- or right-hand hinging, as viewed from the exterior.



Left Right

Sound Transmission class / outdoor-indoor transmission class

Product	Frame Size Tested [4]	Glazing System				STC Rating	OITC Rating
		Overall Glazing Thickness	Exterior Glass Thickness	Interior Glass Thickness	Third Pane Thickness		
Precision Fit Casement	**VENT**						
	23-1/2" x 59"	11/16"	3.0 mm	3.0 mm	–	30	25
	Fixed						
	47-1/4" x 59"	11/16"	3.0 mm	3.0 mm	–	27	24

(1) Maximum performance for single unit when glazed with the appropriate glass thickness. See Design Data pages in this section for specific product performance class and grade values.

(2) The higher the value, 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.

Standard	Options / Upgrades
Glazing	
Glazing Type	
Dual-Pane Insulating Glass	–
Insulated Glass Options/Low-E Types	
Advanced Low-E	SunDefense™ Low-E
	AdvancedComfort Low-E
	NaturalSun Low-E
	Clear (no Low-E coating)
Additional Glass Options	
Annealed Glass	Tempered Glass
	Obscure Glass[1]
	Tinted Glass (Bronze, Gray and Green)
Gas Fill/High Altitude	
Argon	High altitude
	High Altitude with Argon[2]
Wood types	
Pine	–
Exterior[1]	
EnduraClad® protective finish	EnduraClad Plus protective finish Primed Wood Sash (pine, Aluminum-clad frame)
Cladding Colors[1]	
27 Standard colors	Custom Colors
Interior	
Unfinished Wood	Factory primed, Factory prefinished paint, Factory prefinished stain
Hardware	
Hardware Finish	
Champagne, White, Brown or Matte Black	Bright Brass, Satin Nickel, Oil-Rubbed Bronze, Antique Brass, Distressed Bronze, Distressed Nickel
Sash Locks	
SureLock® System, Unison Lock System[3]	–
Grilles	
Integral Light Technology® Grilles	
–	Traditional, Prairie, Top Row, Cross, Custom
Roomside Removable Grilles	
–	Traditional, Prairie, Custom
Grilles-Between-the-Glass	
–	Traditional, Prairie, Top Row[1], Cross or Custom-Equally Divided
Screens	
–	InView™ screens, Vivid View® screens

(1) Contact your local Pella sales representative for current designs and color options.

(2) Available with Low-E argon-insulated glass only.

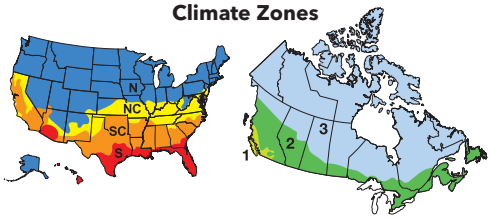
(3) Unit height determines availability.

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		1	2	3
Vent - Aluminum-Clad Exterior																	
11/16"	Clear IG	PEL-N-167-01116-00001	3	3	air	0.47	0.54	0.56	44								
	with grilles-between-the-glass	PEL-N-167-01117-00001				0.47	0.49	0.51	44								
	with integral grilles	PEL-N-167-01118-00001				0.47	0.49	0.51	44								
11/16"	Advanced Low-E IG	PEL-N-167-01028-00001	3	3	argon	0.31	0.26	0.48	61								
	with grilles-between-the-glass	PEL-N-167-01029-00001				0.31	0.24	0.43	61								
	with integral grilles	PEL-N-167-01030-00001				0.32	0.24	0.43	61								
11/16"	SunDefense™ Low-E IG	PEL-N-167-01032-00001	3	3	argon	0.31	0.19	0.44	61								
	with grilles-between-the-glass	PEL-N-167-01033-00001				0.31	0.18	0.40	61								
	with integral grilles	PEL-N-167-01034-00001				0.31	0.18	0.40	61								
11/16"	AdvancedComfort Low-E IG	PEL-N-167-01036-00001	3	3	argon	0.28	0.25	0.47	48					19			
	with grilles-between-the-glass	PEL-N-167-01037-00001				0.28	0.23	0.42	48					18			
	with integral grilles	PEL-N-167-01038-00001				0.28	0.23	0.42	48					18			
11/16"	NaturalSun Low-E IG	PEL-N-167-01024-00001	3	3	argon	0.32	0.47	0.54	60					27			
	with grilles-between-the-glass	PEL-N-167-01025-00001				0.32	0.43	0.49	60					25			
	with integral grilles	PEL-N-167-01026-00001				0.33	0.43	0.49	60								
Tinted Glazing																	
11/16"	Bronze Advanced Low-E IG	PEL-N-167-01072-00001	5	3	argon	0.32	0.23	0.31	60								
	with grilles-between-the-glass	PEL-N-167-01073-00001				0.33	0.21	0.28	60								
	with integral grilles	PEL-N-167-01074-00001				0.33	0.21	0.28	60								
11/16"	Gray Advanced Low-E IG	PEL-N-167-01076-00001	5	3	argon	0.32	0.21	0.27	60								
	with grilles-between-the-glass	PEL-N-167-01077-00001				0.33	0.19	0.24	60								
	with integral grilles	PEL-N-167-01078-00001				0.33	0.19	0.24	60								
11/16"	Green Advanced Low-E IG	PEL-N-167-01080-00001	5	3	argon	0.32	0.26	0.42	60								
	with grilles-between-the-glass	PEL-N-167-01081-00001				0.33	0.24	0.38	60								
	with integral grilles	PEL-N-167-01082-00001				0.33	0.24	0.38	60								
High Altitude Glazing																	
11/16"	Advanced Low-E IG	PEL-N-167-01124-00001	3	3	air	0.34	0.26	0.48	57								
	with grilles-between-the-glass	PEL-N-167-01125-00001				0.34	0.24	0.43	57								
	with integral grilles	PEL-N-167-01126-00001				0.35	0.24	0.43	57								
11/16"	SunDefense Low-E IG	PEL-N-167-01128-00001	3	3	air	0.34	0.20	0.44	57								
	with grilles-between-the-glass	PEL-N-167-01129-00001				0.34	0.18	0.40	57								
	with integral grilles	PEL-N-167-01130-00001				0.35	0.18	0.40	57								
11/16"	AdvancedComfort Low-E IG	PEL-N-167-01132-00001	3	3	air	0.30	0.25	0.47	44								
	with grilles-between-the-glass	PEL-N-167-01133-00001				0.30	0.23	0.42	44								
	with integral grilles	PEL-N-167-01134-00001				0.31	0.23	0.42	44								
11/16"	NaturalSun Low-E IG	PEL-N-167-01120-00001	3	3	air	0.35	0.47	0.54	56								
	with grilles-between-the-glass	PEL-N-167-01121-00001				0.35	0.43	0.49	56								
	with integral grilles	PEL-N-167-01122-00001				0.36	0.43	0.49	56								

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

Climate Zones



(1) Glazing performance values are calculated for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR® values are updated to 2016 (Version 6) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR® 2015 initiative.

Based on unit size, some products will use 2.5 mm glass that will have equivalent or improved performance from what is shown.

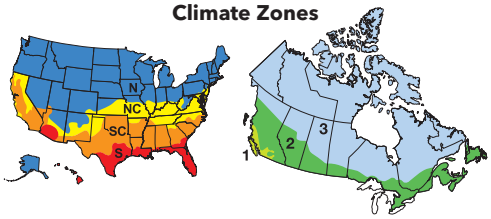
See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

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. Zone				Canada[2] ER	Canada[2] Zone		
										N	NC	SC	S		1	2	3
Fixed - Aluminum-Clad Exterior																	
11/16"	Clear IG	PEL-N-168-01116-00001	3	3	air	0.47	0.62	0.65	44								
	with grilles-between-the-glass	PEL-N-168-01117-00001				0.47	0.56	0.58	44								
	with integral grilles	PEL-N-168-01118-00001				0.48	0.56	0.58	44								
11/16"	Advanced Low-E IG	PEL-N-168-01028-00001	3	3	argon	0.29	0.30	0.55	60								
	with grilles-between-the-glass	PEL-N-168-01029-00001				0.29	0.27	0.50	60								
	with integral grilles	PEL-N-168-01030-00001				0.30	0.27	0.50	60								
11/16"	SunDefense™ Low-E IG	PEL-N-168-01032-00001	3	3	argon	0.28	0.22	0.51	60					18			
	with grilles-between-the-glass	PEL-N-168-01033-00001				0.28	0.20	0.46	60					17			
	with integral grilles	PEL-N-168-01034-00001				0.29	0.20	0.46	60								
11/16"	AdvancedComfort Low-E IG	PEL-N-168-01036-00001	3	3	argon	0.25	0.29	0.54	47					25			
	with grilles-between-the-glass	PEL-N-168-01037-00001				0.25	0.26	0.48	47					24			
	with integral grilles	PEL-N-168-01038-00001				0.26	0.26	0.48	47					22			
11/16"	NaturalSun Low-E IG	PEL-N-168-01024-00001	3	3	argon	0.30	0.55	0.63	60					34			
	with grilles-between-the-glass	PEL-N-168-01025-00001				0.30	0.49	0.56	60					31			
	with integral grilles	PEL-N-168-01026-00001				0.31	0.49	0.56	60					30			
Tinted Glazing																	
11/16"	Bronze Advanced Low-E IG	PEL-N-168-01072-00001	5	3	argon	0.29	0.26	0.36	59								
	with grilles-between-the-glass	PEL-N-168-01073-00001				0.31	0.24	0.32	59								
	with integral grilles	PEL-N-168-01074-00001				0.31	0.24	0.32	59								
11/16"	Gray Advanced Low-E IG	PEL-N-168-01076-00001	5	3	argon	0.29	0.24	0.31	59								
	with grilles-between-the-glass	PEL-N-168-01077-00001				0.31	0.22	0.28	59								
	with integral grilles	PEL-N-168-01078-00001				0.31	0.22	0.28	59								
11/16"	Green Advanced Low-E IG	PEL-N-168-01080-00001	5	3	argon	0.29	0.30	0.49	59								
	with grilles-between-the-glass	PEL-N-168-01081-00001				0.31	0.27	0.44	59								
	with integral grilles	PEL-N-168-01082-00001				0.31	0.27	0.44	59								
High Altitude Glazing																	
11/16"	Advanced Low-E IG	PEL-N-168-01124-00001	3	3	air	0.33	0.30	0.55	56								
	with grilles-between-the-glass	PEL-N-168-01125-00001				0.33	0.27	0.50	56								
	with integral grilles	PEL-N-168-01126-00001				0.34	0.27	0.50	56								
11/16"	SunDefense Low-E IG	PEL-N-168-01128-00001	3	3	air	0.32	0.23	0.51	56								
	with grilles-between-the-glass	PEL-N-168-01129-00001				0.32	0.20	0.46	56								
	with integral grilles	PEL-N-168-01130-00001				0.33	0.20	0.46	56								
11/16"	AdvancedComfort Low-E IG	PEL-N-168-01132-00001	3	3	air	0.28	0.29	0.54	43					22			
	with grilles-between-the-glass	PEL-N-168-01133-00001				0.28	0.26	0.48	43					20			
	with integral grilles	PEL-N-168-01134-00001				0.29	0.26	0.48	43								
11/16"	NaturalSun Low-E IG	PEL-N-168-01120-00001	3	3	air	0.34	0.54	0.63	56					29			
	with grilles-between-the-glass	PEL-N-168-01121-00001				0.34	0.49	0.56	56					26			
	with integral grilles	PEL-N-168-01122-00001				0.35	0.49	0.56	56					25			

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

Climate Zones



(1) Glazing performance values are calculated for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR® values are updated to 2016 (Version 6) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR® 2015 initiative.

Based on unit size, some products will use 2.5 mm glass that will have equivalent or improved performance from what is shown.

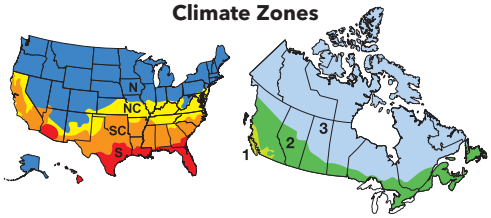
See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

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. Zone				Canada[2] ER	Canada[2] Zone		
										N	NC	SC	S		1	2	3
Vent - Wood Exterior Sash																	
11/16"	Clear IG	PEL-N-162-01116-00001	3	3	air	0.46	0.54	0.56	44								
	with grilles-between-the-glass	PEL-N-162-01117-00001				0.46	0.49	0.51	44								
	with integral grilles	PEL-N-162-01118-00001				0.47	0.49	0.51	44								
11/16"	Advanced Low-E IG	PEL-N-162-01028-00001	3	3	argon	0.31	0.26	0.48	61								
	with grilles-between-the-glass	PEL-N-162-01029-00001				0.31	0.24	0.43	61								
	with integral grilles	PEL-N-162-01030-00001				0.31	0.24	0.43	61								
11/16"	SunDefense™ Low-E IG	PEL-N-162-01032-00001	3	3	argon	0.30	0.19	0.44	61								
	with grilles-between-the-glass	PEL-N-162-01033-00001				0.30	0.18	0.40	61								
	with integral grilles	PEL-N-162-01034-00001				0.31	0.18	0.40	61								
11/16"	AdvancedComfort Low-E IG	PEL-N-162-01036-00001	3	3	argon	0.27	0.25	0.47	48					21			
	with grilles-between-the-glass	PEL-N-162-01037-00001				0.27	0.23	0.42	48					20			
	with integral grilles	PEL-N-162-01038-00001				0.28	0.23	0.42	48					18			
11/16"	NaturalSun Low-E IG	PEL-N-162-01024-00001	3	3	argon	0.32	0.47	0.54	60					27			
	with grilles-between-the-glass	PEL-N-162-01025-00001				0.32	0.43	0.49	60					25			
	with integral grilles	PEL-N-162-01026-00001				0.32	0.43	0.49	60					25			
Tinted Glazing																	
11/16"	Bronze Advanced Low-E IG	PEL-N-162-01072-00001	5	3	argon	0.31	0.23	0.31	60								
	with grilles-between-the-glass	PEL-N-162-01073-00001				0.32	0.21	0.28	60								
	with integral grilles	PEL-N-162-01074-00001				0.33	0.21	0.28	60								
11/16"	Gray Advanced Low-E IG	PEL-N-162-01076-00001	5	3	argon	0.31	0.21	0.27	60								
	with grilles-between-the-glass	PEL-N-162-01077-00001				0.32	0.19	0.24	60								
	with integral grilles	PEL-N-162-01078-00001				0.33	0.19	0.24	60								
11/16"	Green Advanced Low-E IG	PEL-N-162-01080-00001	5	3	argon	0.31	0.26	0.42	60								
	with grilles-between-the-glass	PEL-N-162-01081-00001				0.32	0.24	0.38	60								
	with integral grilles	PEL-N-162-01082-00001				0.33	0.24	0.38	60								
High Altitude Glazing																	
11/16"	Advanced Low-E IG	PEL-N-162-01124-00001	3	3	air	0.34	0.26	0.48	57								
	with grilles-between-the-glass	PEL-N-162-01125-00001				0.34	0.24	0.43	57								
	with integral grilles	PEL-N-162-01126-00001				0.35	0.24	0.43	57								
11/16"	SunDefense Low-E IG	PEL-N-162-01128-00001	3	3	air	0.34	0.20	0.44	58								
	with grilles-between-the-glass	PEL-N-162-01129-00001				0.34	0.18	0.40	58								
	with integral grilles	PEL-N-162-01130-00001				0.34	0.18	0.40	58								
11/16"	AdvancedComfort Low-E IG	PEL-N-162-01132-00001	3	3	air	0.30	0.25	0.47	44								
	with grilles-between-the-glass	PEL-N-162-01133-00001				0.30	0.23	0.42	44								
	with integral grilles	PEL-N-162-01134-00001				0.31	0.23	0.42	44								
11/16"	NaturalSun Low-E IG	PEL-N-162-01120-00001	3	3	air	0.35	0.47	0.54	56								
	with grilles-between-the-glass	PEL-N-162-01121-00001				0.35	0.43	0.49	56								
	with integral grilles	PEL-N-162-01122-00001				0.36	0.43	0.49	57								

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

Climate Zones



(1) Glazing performance values are calculated for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR® values are updated to 2016 (Version 6) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR® 2015 initiative.

Based on unit size, some products will use 2.5 mm glass that will have equivalent or improved performance from what is shown.

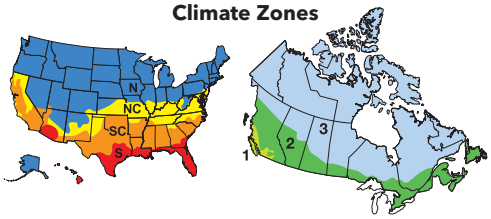
See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

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							
										U. S.				Canada[2]			
			Ext.	Int.		U-Factor	SHGC	VLT	CR	Zone				ER	Zone		
Fixed - Wood Exterior Sash										N	NC	SC	S		1	2	3
11/16"	Clear IG	PEL-N-163-01308-00001	3	3	air	0.47	0.62	0.65	44								
	with grilles-between-the-glass	PEL-N-163-01309-00001				0.47	0.56	0.58	44								
	with integral grilles	PEL-N-163-01310-00001				0.47	0.56	0.58	44								
11/16"	Advanced Low-E IG	PEL-N-163-01220-00001	3	3	argon	0.29	0.30	0.56	60								
	with grilles-between-the-glass	PEL-N-163-01221-00001				0.29	0.27	0.50	60								
	with integral grilles	PEL-N-163-01222-00001				0.29	0.27	0.50	60								
11/16"	SunDefense™ Low-E IG	PEL-N-163-01224-00001	3	3	argon	0.28	0.22	0.51	61					18			
	with grilles-between-the-glass	PEL-N-163-01225-00001				0.28	0.20	0.46	61					17			
	with integral grilles	PEL-N-163-01226-00001				0.29	0.20	0.46	61								
11/16"	AdvancedComfort Low-E IG	PEL-N-163-01228-00001	3	3	argon	0.25	0.29	0.54	48					25			
	with grilles-between-the-glass	PEL-N-163-01229-00001				0.25	0.26	0.48	48					24			
	with integral grilles	PEL-N-163-01230-00001				0.25	0.26	0.48	48					24			
11/16"	NaturalSun Low-E IG	PEL-N-163-01216-00001	3	3	argon	0.30	0.55	0.63	60					34			
	with grilles-between-the-glass	PEL-N-163-01217-00001				0.30	0.49	0.56	60					31			
	with integral grilles	PEL-N-163-01218-00001				0.30	0.49	0.56	60					31			
Tinted Glazing																	
11/16"	Bronze Advanced Low-E IG	PEL-N-163-01264-00001	5	3	argon	0.29	0.26	0.36	60								
	with grilles-between-the-glass	PEL-N-163-01265-00001				0.31	0.24	0.32	60								
	with integral grilles	PEL-N-163-01266-00001				0.31	0.24	0.32	60								
11/16"	Gray Advanced Low-E IG	PEL-N-163-01268-00001	5	3	argon	0.29	0.24	0.31	60								
	with grilles-between-the-glass	PEL-N-163-01269-00001				0.31	0.22	0.28	60								
	with integral grilles	PEL-N-163-01270-00001				0.31	0.22	0.28	60								
11/16"	Green Advanced Low-E IG	PEL-N-163-01272-00001	5	3	argon	0.29	0.30	0.49	60								
	with grilles-between-the-glass	PEL-N-163-01273-00001				0.31	0.27	0.44	60								
	with integral grilles	PEL-N-163-01274-00001				0.31	0.27	0.44	60								
High Altitude Glazing																	
11/16"	Advanced Low-E IG	PEL-N-163-01316-00001	3	3	air	0.32	0.30	0.56	56								
	with grilles-between-the-glass	PEL-N-163-01317-00001				0.32	0.27	0.50	56								
	with integral grilles	PEL-N-163-01318-00001				0.33	0.27	0.50	56								
11/16"	SunDefense Low-E IG	PEL-N-163-01320-00001	3	3	air	0.32	0.23	0.51	57								
	with grilles-between-the-glass	PEL-N-163-01321-00001				0.32	0.20	0.46	57								
	with integral grilles	PEL-N-163-01322-00001				0.33	0.20	0.46	56								
11/16"	AdvancedComfort Low-E IG	PEL-N-163-01324-00001	3	3	air	0.28	0.29	0.54	44					22			
	with grilles-between-the-glass	PEL-N-163-01325-00001				0.28	0.26	0.48	44					20			
	with integral grilles	PEL-N-163-01326-00001				0.28	0.26	0.48	44					20			
11/16"	NaturalSun Low-E IG	PEL-N-163-01312-00001	3	3	air	0.33	0.54	0.63	56					30			
	with grilles-between-the-glass	PEL-N-163-01313-00001				0.33	0.49	0.56	56					27			
	with integral grilles	PEL-N-163-01314-00001				0.34	0.49	0.56	56					26			

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

Climate Zones



(1) Glazing performance values are calculated for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR® values are updated to 2016 (Version 6) criteria.

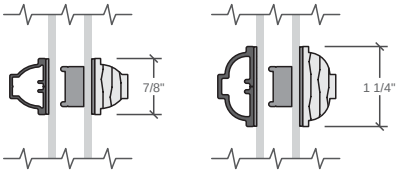
(2) The values shown are based on Canada's updated ENERGY STAR® 2015 initiative.

Based on unit size, some products will use 2.5 mm glass that will have equivalent or improved performance from what is shown.

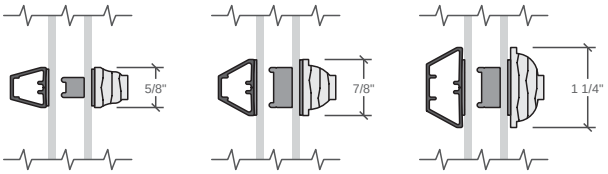
See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

Integral Light Technology® Grilles

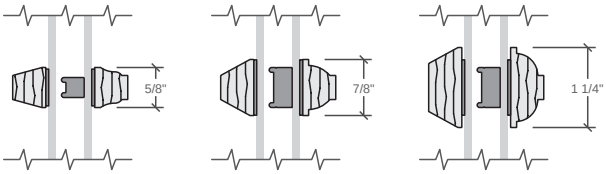
Ogee Grilles
Clad Exterior - Wood Interior



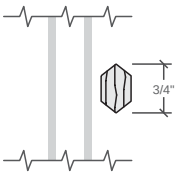
Putty Glaze and Ogee Grilles
Clad Exterior - Wood Interior



Putty Glaze and Ogee Grilles
Wood Exterior - Wood Interior

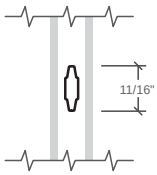


Removable Interior Pine Grilles



3/4" Regular

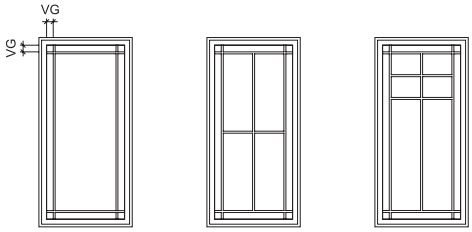
Grilles-Between-the-Glass



3/4"
Contoured Grille

Grille Patterns

Prairie Lite Patterns



9-Lite Prairie | 12-Lite Prairie | 14-Lite Prairie

Size range availability is for 3/4", 7/8" and 1-1/4" grille width.

Standard corner lite dimension for Prairie patterns = 2-1/2" VG.

9-Lite

- Available in all standard and special sizes.

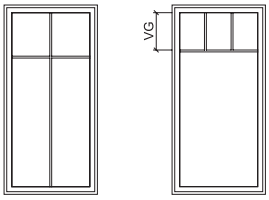
12-Lite

- Available in units ≥ 1'9" and ≤ 2'11" in width, and ≥ 1'9" in height.

14-Lite

- Available in units ≥ 1'9" in width and ≥ 2'11" in height.

Other Patterns



Cross | Top Row

Cross

- Available for units with frame heights ≥35". Standard visible glass to separator bar = 1/4 of total visible glass height.

Top Row

- Standard visible glass to separator bar = 14" for frame heights >35".
- Standard visible glass to separator bar = 21" for 35" frame heights and optional for 41" frame height. Separator bar at 12" or 16" optional for frame heights >41".

For traditional patterns, see size tables.

VG = Visible Glass

Lite dimensions noted can vary.

For size and pattern availability contact your local Pella sales representative.

Architect Series® Make Dimension

	Minimum	Maximum
VENT	17" W x 17" H (432 x 432)	35" W x 73" H (889 x 1 854)
FIXED	17" W x 17" H (432 x 432)	59" W x 73" H (1 499 x 1 854)
Make Width (MW) = A – 1/2" (rounded to the nearest 1/4")		
Make Height (MH) = B – 1/2" (rounded to the nearest 1/4")		

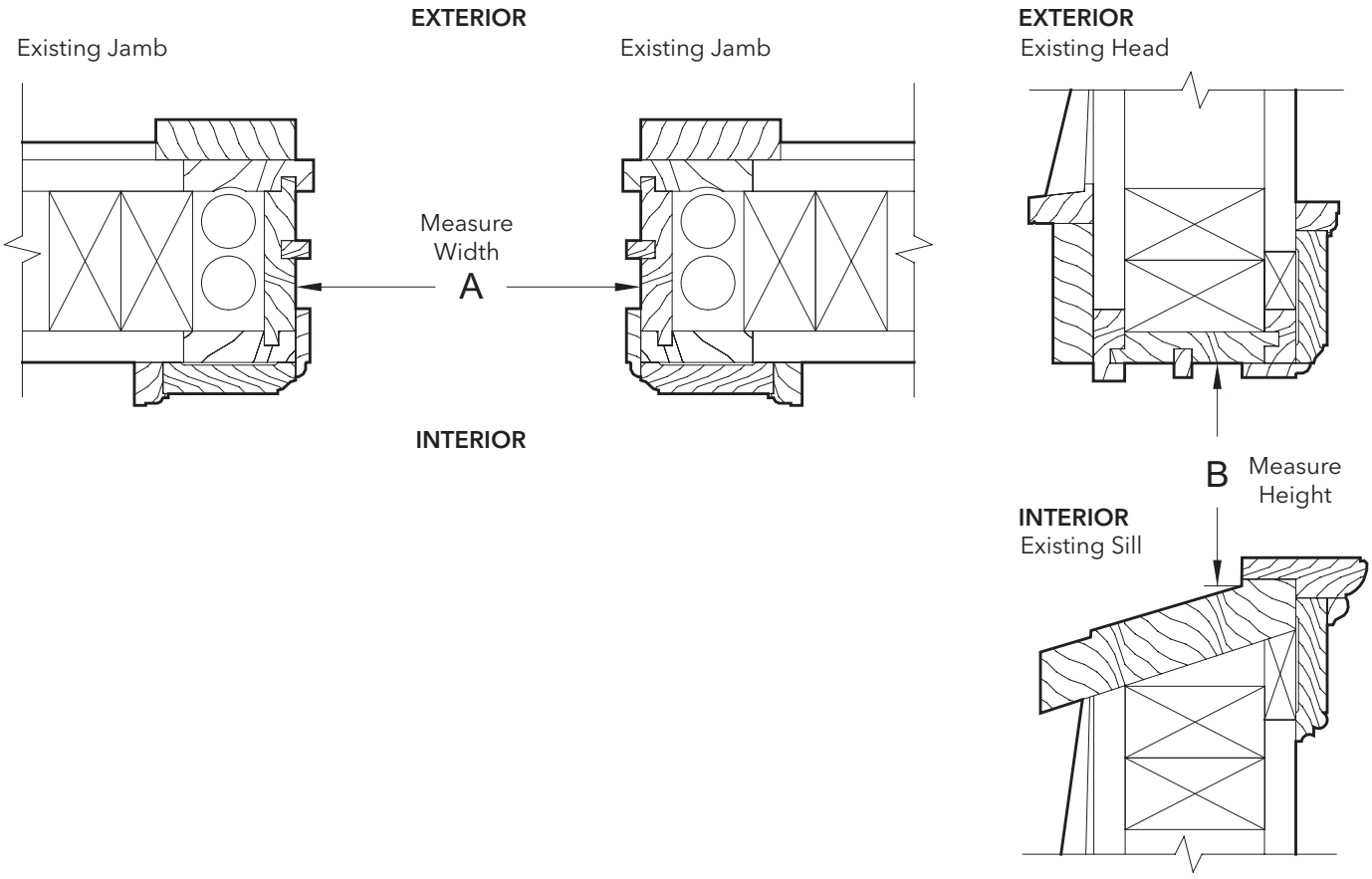
Clear Opening Height
Frame Height - 4-1/8"

Clear Opening Width		
Hinge	Frame Width	Formula
Standard	FW ≥ 29" and ≤ 30-1/2"	FW - 9"
Standard	FW > 30-1/2"	FW - 9-3/4"
Side Pivot	FW ≥ 25" and ≤ 35"	FW - 4-3/8"

Glass Formulas

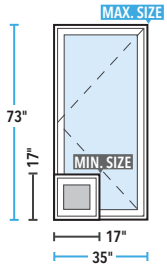
Visible Glass	Width = MW – 5-3/4" Height = MH – 5-3/4"
Actual Glass	Width = MW – 4-3/8" Height = MH – 4-3/8"

Measurement Guidelines



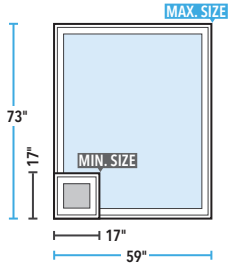
Make Size Ranges

Vent



Frame width cannot exceed frame height on vent units.

Fixed



Make Width = Opening width - 1/2" (rounded to the nearest 1/4")

Make Height = Opening width - 1/2" (rounded to the nearest 1/4")

Standard Sizes

Vent and Fixed

	17	17.5	19.5	21.5	23.5	27.5	29.5	31.5	35
73	T								E
71.5	T	T					E	E	E
65.5							E	E	E
61.5							E	E	E
59.5							E	E	E
57.5							E	E	E
53.5							E	E	E
51.5							E	E	E
47.5							E	E	E
45.5							E	E	E
41.5							E2	E2	E
37.5							E2	E2	E
35.5							E3	E2	E2
31.5									F
29.5								F	F
27.5							F	F	F
23.5						F	F	F	F
21.5					F	F	F	F	F
19.5				F	F	F	F	F	F
17.5			F	F	F	F	F	F	F
17		F	F	F	F	F	F	F	F

Fixed Only

	35.5	39.5	41.5	45.5	47.5	51.5	53.5	57.5	59
73									
71.5									
65.5									
61.5									
59.5									
57.5									
53.5									
51.5									
47.5									
45.5									
41.5									
37.5									
35.5									

Special Sizes

R35 / R50-Vent | CW35 / CW50-Fixed

R40 / R50-Vent | CW40 / CW50-Fixed

R45 / R50-Vent | CW45 / CW50-Fixed

R50-Vent | CW50-Fixed

T Tempered glass required

F Fixed units only

Second number shown requires Tempered glass

Side pivot hardware reduces Performance class to 'R'

Standard sizes shown, unless noted otherwise. Sizes are available in 1/4" increments. Frame width cannot exceed frame height on vent sizes.

Maximum performance when glazed with the appropriate glass. For special size units, use the performance class and grade for the next larger standard size unit.

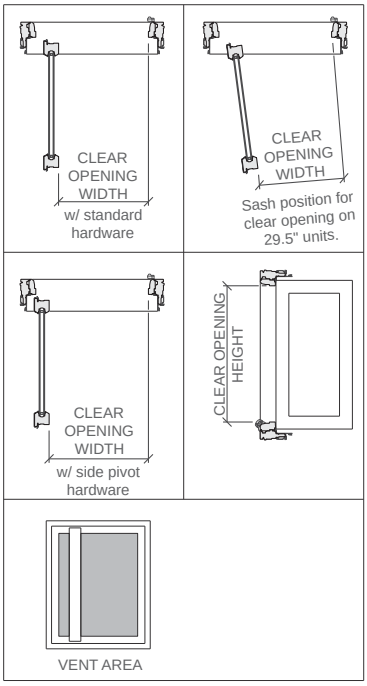
Check all applicable local codes for emergency egress requirements.

E Meets min. clear opening 24" H x 20" W and 5.7 ft².

E1 Meets min. clear opening 24" H x 20" W and 5.0 ft².

E2 With optional side pivot hardware, meets min. clear opening 24" H x 20" W and 5.7 ft².

E3 With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².



Architect Series® Traditional Precision-Fit Casement Window

Detailed Product Description - Aluminum-Clad Exterior

Frame

- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are clear pine.
- Exterior surfaces are clad with aluminum.
- Components are assembled with screws, staples and concealed corner locks.
- Pocket depth is 3-1/4" (83mm).

Sash

- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are clear pine.
- Exterior surfaces are clad with aluminum, lap-jointed and sealed.
- Corners mortised and tenoned, glued and secured with metal fasteners.
- Sash thickness is [1-13/16" (46mm).

Weatherstripping

- Dual weatherstripping.
  - Flexible santoprene material compressed between frame and sash for positive seal on all four sides.
  - Secondary thermoplastic vulcanizate (TPV) leaf-type weatherstrip between edge of sash and frame.

Glazing System [1]

- Quality float glass complying with ASTM C 1036.
- Custom and high altitude [with argon] glazing available for 11/16" glazing only.
- Silicone-glazed 11/16" dual-seal insulating glass [[annealed] [tempered]] [[clear] [[Advanced Low-E] [SunDefense™ Low-E] [NaturalSun Low-E] [AdvancedComfort Low-E] with argon]] [[bronze] [gray] [green] Advanced Low-E with argon]].

Exterior

- Aluminum clad exteriors shall be finished with EnduraClad® protective finish, in a multi-step, baked-on finish.
  - Color is [standard] [custom][2].

– or –

- Aluminum clad exteriors shall be finished with EnduraClad Plus protective finish with 70% fluoropolymer resin in a multi-step, baked-on finish.
  - Color is [standard] [custom][2].

Interior

- [Unfinished, ready for site finishing] [factory primed with one coat acrylic latex] [factory prefinished [paint] [stain] [2]].

Hardware

- Roto operator assembly
  - Steel worm gear sash operator with hardened gears.
  - Operator base is zinc die cast with painted finish.
  - Operator linkage, hinge slide, and hinge arms are stainless steel.
  - Exposed fasteners are stainless steel.
  - Hardware shall exceed 1,000 hours salt spray exposure per ASTM B 117.
- All vent units are available with left- or right-hand hinging.
- SureLock® System—A single handle locking system operates positive-acting arms that reach out and pull the sash into a locked position: one operating lock installed on units with make height 29" or less, two unison operating locks installed on units with make height over 29".
- Style of hardware is standard integrated fold-away crank and standard lock handle with [baked enamel [Champagne] [White] [Brown] [Matte Black]] [bright brass] [satin nickel] [oil-rubbed bronze] hardware finish].

Optional Products

Grilles

- Integral Light Technology® grilles
  - Interior grilles are [5/8"] [7/8"] [1-1/4"] ogee profile that are solid pine. Interior surfaces are [unfinished, ready for site finishing] [factory primed] [factory prefinished [paint] [stain] [2]].
  - Exterior grilles are [5/8" putty glaze profile] [7/8" [putty glaze] [ogee] profile] [1-1/4" [putty glaze] [ogee] profile] that are extruded aluminum.
  - Patterns are [Traditional] [Prairie] [Top Row] [Cross].
  - Insulating glass contains non-glare spacer between the panes of glass.
  - Grilles are adhered to both sides of the insulating glass with VHB acrylic adhesive tape and aligned with the non-glare spacer.

– or –

- Grilles-Between-the-Glass [3]
  - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass.
  - Patterns are [Traditional] [Prairie] [Cross] [Top Row] [Custom – Equally Divided].
  - Interior color is [White] [Tan [4]] [Brown [4]] [Putty [4]] [Black] [Morning Sky Gray] [Ivory] [Sand Dune] [Harvest] [Cordovan] [Brickstone].
  - Exterior color [5] is [standard][2]

– or –

- Roomside Removable grilles
  - 3/4" Regular profile, with [Traditional] [Prairie] patterns that are removable solid pine wood bars steel-pinned at joints and fitted to sash with steel clips and tacks.
  - Interior [unfinished, ready for site finishing] [factory primed] [factory prefinished [paint] [stain] [2]].
  - Exterior [unfinished, ready for site finishing] [Factory primed] [finish color matched to exterior cladding [5]].

Screens

- InView™ Screens
  - Vinyl-coated 18/18 mesh fiberglass screen cloth complying with the performance requirements of SMA 1201, set in aluminum frame fitted to inside of window, supplied complete with all necessary hardware.
  - Insect screen frame finish is [baked enamel [Champagne] [Artisan Greige] [Skyline Gray] [White] [Brown] [Black]] [Wrapped in wood veneer, finished to match interior finish].

– or –

- Vivid View® Screens
  - PVDF 21/17 mesh, minimum 78 percent light transmissive screen, set in aluminum frame fitted to inside of window, supplied complete with all necessary hardware.
  - Insect screen frame finish is [baked enamel [Champagne] [Artisan Greige] [Skyline Gray] [White] [Brown] [Black]] [Wrapped in wood veneer, finished to match interior finish].

Hardware

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

(1) Low-E coated insulating glass is argon-filled (except high altitude). All other insulating glass (including high altitude Low-E) is air-filled.

(2) Contact your local Pella sales representative for current designs and color options.

(3) Available in clear or Low-E insulating glass with argon, and obscure insulated glass.

(4) Tan, Brown and Putty Interior GBG colors are available in single-tone (Brown/Brown, Tan/Tan or Putty/Putty). Other interior colors are also available with Tan or Brown exterior.

(5) Appearance of exterior grille color will vary depending on Low-E coating on glass.

Detailed Product Description - Wood Exterior Sash

Frame

- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are pine.
- Exterior surfaces are clad with aluminum.
- Pocket depth is 3-1/4" (83mm).

Sash

- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are pine.
- Exterior surfaces are pine: primed.
- Corners mortised and tenoned, glued and secured with metal fasteners.
- Sash thickness is 1-13/16" (46mm).

Weatherstripping

- Dual weatherstripping.
  - Flexible santoprene material compressed between frame and sash for positive seal on all four sides.
  - Secondary thermoplastic vulcanizate (TPV)leaf-type weatherstrip between edge of sash and frame.

Glazing System [1]

- Quality float glass complying with ASTM C 1036.
- Silicone-glazed 11/16" dual-seal insulating glass [[annealed] [tempered]] [[clear] [Advanced Low-E with argon] [SunDefense™ Low-E with argon] [AdvancedComfort Low-E with argon] [NaturalSun Low-E with argon]] [[bronze] [gray] [green] Advanced Low-E with argon]].
- Custom and high altitude [with argon] glazing available.

Interior

- [Unfinished, ready for site finishing] [factory primed with one coat acrylic latex] [factory prefinished [paint] [stain][3]].

Hardware

- Roto operator assembly
  - Steel worm gear sash operator with hardened gears.
  - Operator base is zinc die cast with painted finish.
  - Operator linkage, hinge slide, and hinge arms are stainless steel.
  - Exposed fasteners are stainless steel.
  - Hardware will exceed 1,000 hours salt spray exposure per ASTM B 117.
- All vent units are available with left- or right-hand hinging.
- SureLock® System—A single handle locking system operates positive-acting arms that reach out and pull the sash into a locked position: one operating lock installed on units with make height 29" or less, two unison operating locks installed on units with make height over 29".
- Style of hardware is [Standard integrated fold-away crank and standard lock handle with [baked enamel [Champagne] [White] [Brown] [Matte Black]] [bright brass] [satin nickel] [oil-rubbed bronze] hardware finish] [Antiek fold-away crank and Antiek lock handle with [baked enamel [Champagne] [White] [Brown] [Matte Black]] [bright brass] [satin nickel] [oil-rubbed bronze] [antique brass] [distressed bronze] [distressed nickel] hardware finish].

Optional Products

Grilles

- Integral Light Technology® grilles
  - Interior grilles are [5/8"] [7/8"] [1-1/4"] ogee profile that are solid pine. Interior surfaces are [unfinished, ready for site finishing] [factory primed] [pine: factory prefinished [paint] [stain][3]].
  - Exterior grilles are solid [5/8"] [7/8"] [1-1/4"] putty glaze profile that are [pine] [mahogany]. Exterior surfaces are water repellent, preservative-treated in accordance with WDMA I.S.-4, and are [unfinished, ready for site finishing] [factory primed].
  - Patterns are [Traditional] [Prairie] [Top Row] [Cross] [New England]
  - Insulating glass contains non-glare spacer between the panes of glass.
  - Grilles are adhered to both sides of the insulating glass with VHB acrylic adhesive tape and aligned with the non-glare spacer.

– or –

- Grilles-Between-the-Glass[2]
  - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass.
  - Patterns are [Traditional] [Prairie] [Cross] [Top Row] [Custom – Equally Divided].
  - Interior color is [White] [Tan[4]] [Brown[4]] [Putty[4]] [Black] [Morning Sky Gray] [Ivory] [Sand Dune] [Harvest] [Cordovan] [Brickstone].
  - Exterior color[5] is [standard[3]].

– or –

- Removable grilles
  - 3/4" Regular profile, with [Traditional] [Prairie] patterns that are removable solid pine wood grilles steel-pinned at joints and fitted to sash with steel clips and tacks.
  - Interior [unfinished, ready for site finishing] [factory primed] [factory prefinished [paint] [stain] [3]].
  - Exterior [unfinished, ready for site finishing] [Factory primed].
  - When the exterior is pine and the interior finish is unfinished then the interior RMB grille is unfinished or prefinished white. If the interior finished is stained then RMB grille stained to match.

Screens

- InView™ Screens
  - Vinyl-coated 18/18 mesh fiberglass screen cloth complying with the performance requirements of SMA 1201, set in aluminum frame fitted to inside of window, supplied complete with all necessary hardware.
  - Insect screen frame finish is [baked enamel [Champagne] [Artisan Greige] [Skyline Gray] [White] [Brown] [Black]] [Wrapped in wood veneer, finished to match interior finish].

– or –

- Vivid View® Screens
  - PVDF 21/17 mesh, minimum 78 percent light transmissive screen, set in aluminum frame fitted to inside of window, supplied complete with all necessary hardware.
  - Insect screen frame finish is [baked enamel [Champagne] [Artisan Greige] [Skyline Gray] [White] [Brown] [Black]] [Wrapped in wood veneer, finished to match interior finish].

Hardware

- Optional factory applied limited opening hardware available for vent units in stainless steel; nominal 3" opening.
- Optional factory applied window opening control device. 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.

(1) Insulating glass with argon is Low-E coated. All other insulating glass is air-filled.

(2) Available in clear or Low-E insulating glass with argon, and obscure insulated glass.

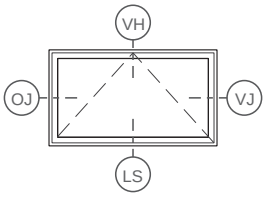
(3) Contact your local Pella sales representative for current color options.

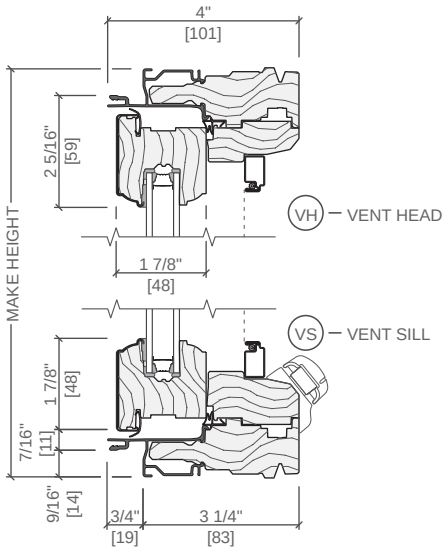
(4) Tan, Brown or Putty Interior GBG colors are available in single-tone (Brown/Brown, Tan/Tan or Putty/Putty). Other interior colors are also available with Tan or Brown exterior.

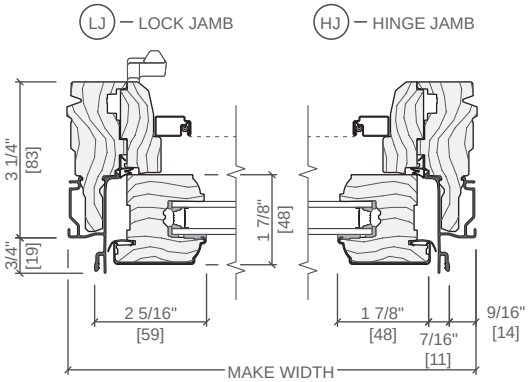
(5) Appearance of exterior grille color will vary depending on Low-E coating on glass.

Unit Section - Aluminum-Clad Exterior

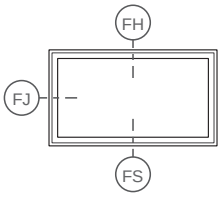
VENT

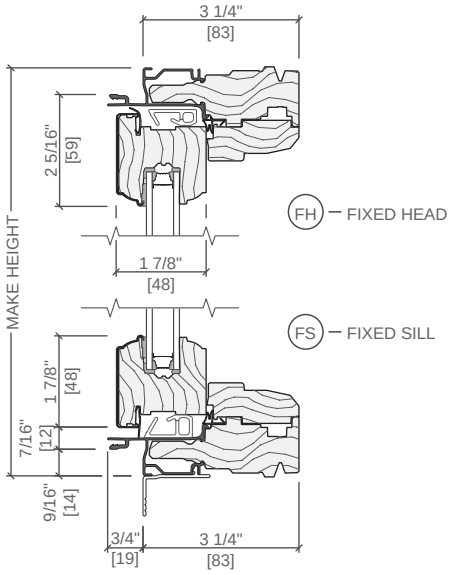


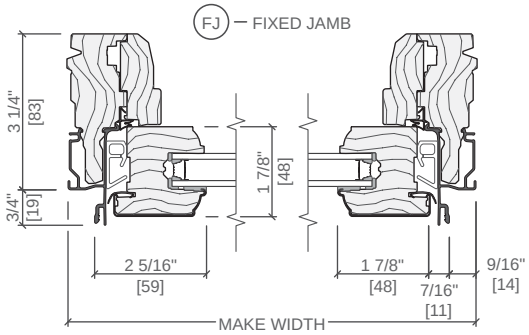




FIXED





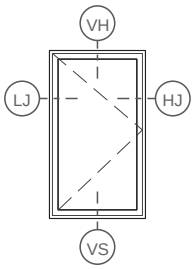


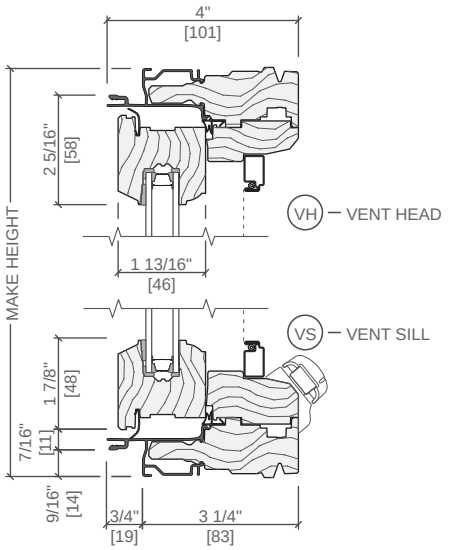
Scale 3" = 1' 0"

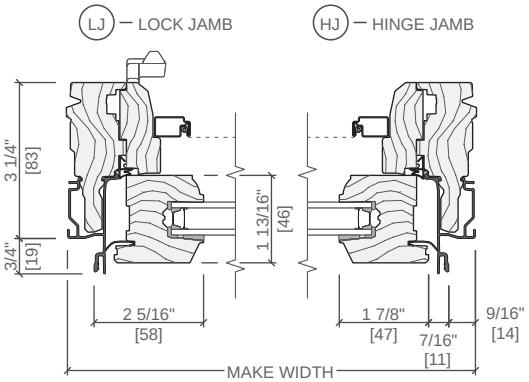
All dimensions are approximate.

Unit Section - Wood Exterior Sash Putty Exterior Glazing Profile

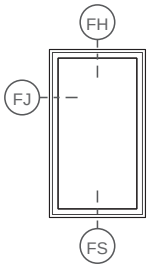
VENT

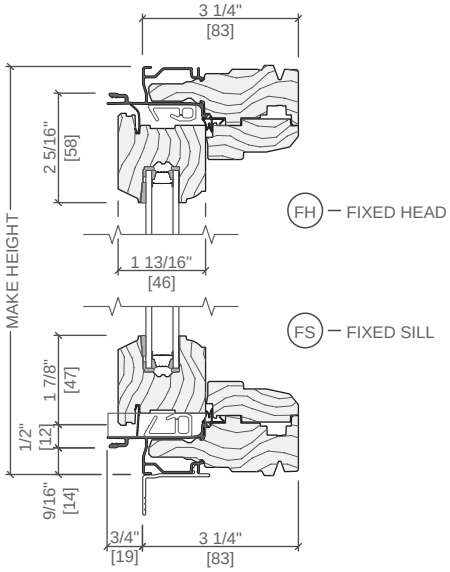


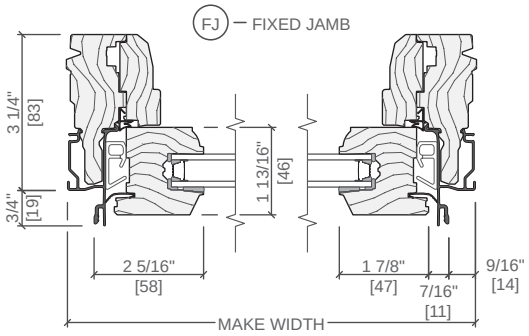




FIXED



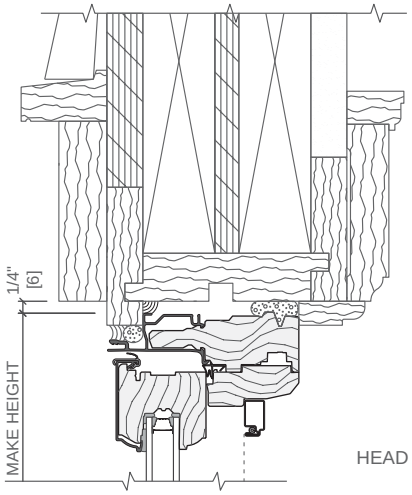




Scale 3" = 1' 0"

All dimensions are approximate.

Installation Details - Aluminum-Clad Exterior



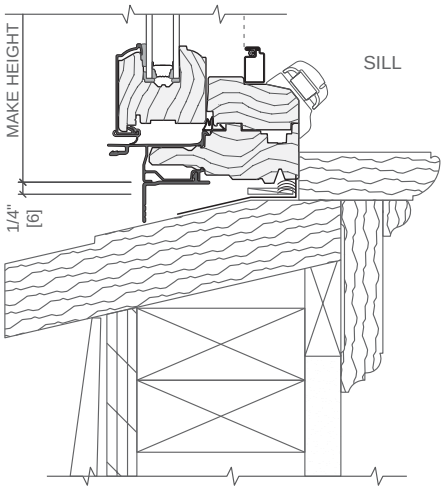
NOTE:

WALL CONSTRUCTION AND OLD DOUBLE-HUNG FRAME SHOWN ARE EXISTING; OLD DOUBLE-HUNG SASH HAS BEEN REMOVED.

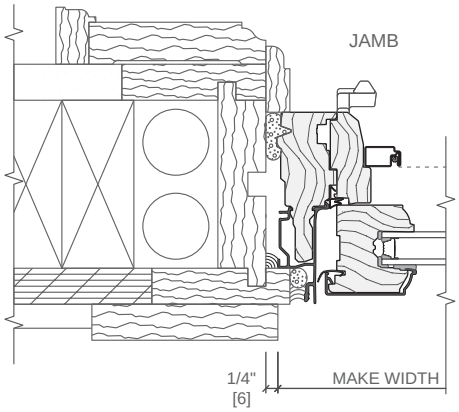
REFER TO THE APPROPRIATE PELLA INSTALLATION INSTRUCTION FOR COMPLETE STEP BY STEP INSTRUCTIONS.

SHIM AND PLUMB UNITS AS REQUIRED.

SEAL UNIT TO EXTERIOR / BLIND STOP.



SEAL THE UNIT TO EXISTING STOOL AND WINDOW SILL.



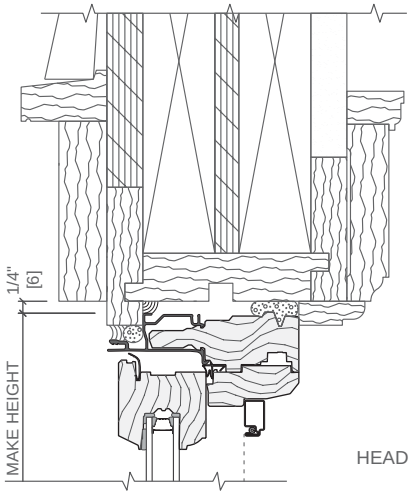
INSULATE ALL VOIDS AT WINDOW PERIMETER (BY OTHERS).

SEAL UNIT TO EXTERIOR / BLIND STOP.

Scale 3" = 1' 0"

All dimensions are approximate.

Installation Details - Wood Exterior Sash



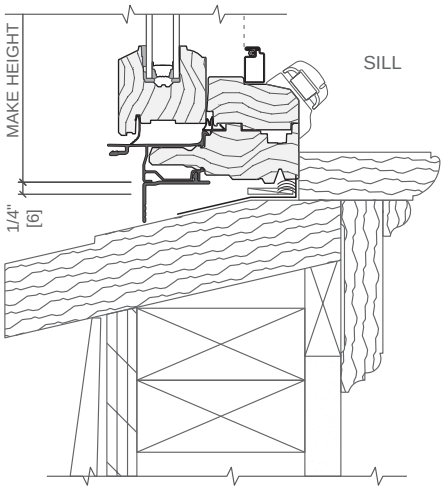
NOTE:

WALL CONSTRUCTION AND OLD DOUBLE-HUNG FRAME SHOWN ARE EXISTING; OLD DOUBLE-HUNG SASH HAS BEEN REMOVED.

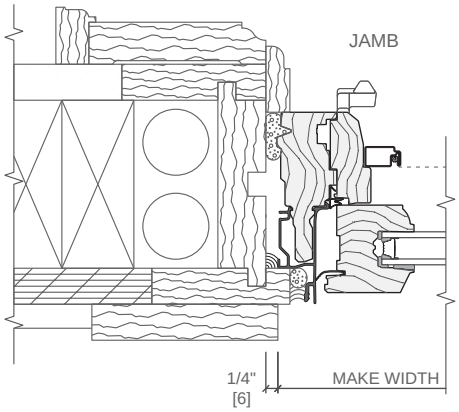
REFER TO THE APPROPRIATE PELLA INSTALLATION INSTRUCTION FOR COMPLETE STEP BY STEP INSTRUCTIONS.

SHIM AND PLUMB UNITS AS REQUIRED.

SEAL UNIT TO EXTERIOR / BLIND STOP.



SEAL THE UNIT TO EXISTING STOOL AND WINDOW SILL.



INSULATE ALL VOIDS AT WINDOW PERIMETER (BY OTHERS).

SEAL UNIT TO EXTERIOR / BLIND STOP.

Scale 3" = 1' 0"

All dimensions are approximate.

Fine Tree Service

Date: 01/13/2020
Subject: Spruce Tree at 714 W Mountain Ave

To Whom It May Concern:

The purpose of this letter is to discuss the future construction/addition of the barn in the back of the lot at 714 W Mountain Ave, and specifically what effect this will have on the large existing Spruce tree. This tree is important to the homeowner, and following certain guidelines will give the Spruce a high rate of surviving the construction process.

The plans show digging up to, but not into the critical root zone of the tree. Impact will only occur on one side of the tree, which means only 25% of the root zone will be somewhat compromised. Roots inside the drip line will be damaged, so the following steps are recommended to ensure the tree has the best chance to overcome the stress.

1) Protect areas that will not be excavated with fencing. This will decrease compaction, and unintended damage within areas that no digging is taking place.
2) Deep root water tree, starting before, during and after construction. This can be done via hose once a month with 150 gallons (process has been explained to homeowner).
3) Root prune tree in areas where root damage is imminent. This allows for less decay and compartmentalization of damage within the root.
4) Treat tree with Cambistat growth regulator. This helps construction damaged trees to develop fine root hairs and overcome stress.

Following the above steps should help the tree get through the process in good health. It is reasonable to believe with the added care, the tree can add value to the property for many years to come. Please do not hesitate to contact me with any questions or concerns.

Sincerely,

Josh Fine
Degreed in Arboriculture
ISA Certified Arborist

3058 Lake Canal Ct., Fort Collins, Colorado 80524
Tel 970-377-2851 Fax 970-498-8735
Deal with a professional arborist and a reputable company.

ADVANCED
ENGINEERING, LLC
STRUCTURAL DRAINAGE DRAFTING

January 13, 2020

Mr. Jeff Gaines
HighCraft Builders
429 S. Howes Street
Ft. Collins, CO 80521

RE: Detached Garage at 714 W. Mountain Avenue, Ft. Collins, Colorado
Advanced Engineering, LLC Project Number 1011-256-01A

Dear Mr. Gaines:

We have visually observed portions of the existing detached garage (carriage house) at the above referenced site on January 11, 2020. The purpose for this observation was to provide structural consulting related to a proposed garage addition. The following is our observations, opinions and recommendations.

The existing historic garage is approximately18' x 24', and has a second floor loft. The garage is located in the northeast corner of the lot, adjacent to the alley. There is an existing carport on the south side of the garage. The garage is constructed with wood framing, including balloon framed walls, over a shallow concrete foundation. Portions of the existing framing were visible at some holes in the interior finish materials. It is proposed to add a 15' x 20' one story single car garage on the west side of the existing structure. The addition will be framed with conventional wood framing, including rafters that slope up to the existing wall, and will have a monolithic concrete foundation. It is our opinion the existing framing and foundation would be sufficient to support the applicable loading from the proposed addition. In fact, we feel the new framing and foundation will provide significant reinforcement to the existing structure. Our office should be consulted for a foundation plan and framing specifications when the architectural plans are completed. Furthermore, if the addition were to be removed at some point in the future, we do not feel the original historic garage would have any negative impact or required repairs related to the previously constructed addition.

The recommendations and conclusions presented in this letter are based on a visual review of portions of the described structure, your directions, and preliminary plans you provided. The engineer's opinions of the described portions of the building are based solely upon information obtained from readily visible elements (i.e., elements which do not require the removal of sheathing, cladding, or covering of any kind) unless specifically noted. Latent structural problems which could not be detected as a result of these limitations may exist. Our review was limited to the items described in this letter, and is not intended to cover mechanical, electrical, environmental, mold, site grading, or architectural features of the building. Our office has not performed an engineering analysis of the existing framing or foundation elements of the structure, or the subsurface soil conditions. If you have any questions, please feel free to call.

Sincerely,
Advanced Engineering, LLC

COLORADO REGISTERED JASON E. BAKER 33739 PROFESSIONAL ENGINEER

Jason E. Baker, P.E.
President

229 12th Street SW, Loveland, Colorado 80537 Telephone 970-278-1909

Planning, Development & Transportation
Community Development & Neighborhood Services
281 North College Avenue
P.O. Box 580
Fort Collins, CO 80522.0580

City of Fort Collins

Plan of Protection for Historic Properties

Project Title: Carriage House Rehabilitation & Addition

Full Property Address: 714 W. Mountain Ave., Fort Collins, CO 80521

Form Prepared by:Jeff Gaines/HighCraft Builders

Please complete the following as applicable. Please answer each question thoroughly, and add additional pages if needed:

1.0 Introduction

1.1 Description of project location:
1.2 General description of work to be performed, including which firm(s) will be doing the work:
1.3 Building(s) or portion(s) of designated and eligible buildings within the area of adjacency that will be affected:
1.4 Is building adjacent to other buildings or structures, on or off site, and if so, how close?:
1.5 Are any of these other buildings or structures 50 years old or older (which ones, and what are their dates of construction, if known):

2.0 Scope of Work

Describe the work, and how it will affect any historic building(s) (both on the subject property and on adjacent properties, if applicable). Provide descriptions on each of the following, as applicable:

2.1 Demolition:
2.2 Site preparation:
2.3 Excavation:
2.4 Utilities:
2.5 New foundation:
2.6 New construction:
2.7 Parking lot:
2.8 Driveways/alleyways:
2.9 Landscaping:
2.10 Drainage:
2.11 Other:

3.0 Coordination of Project Activities

3.1 Name of person or persons responsible for overseeing the demolition and/or construction activities:
3.2 Will they be on site when that work is occurring?
3.3 If not, how may they be contacted if needed when that work is underway?
3.4 What specific coordination practices will be used to coordinate work activities?

Planning, Development & Transportation
Community Development & Neighborhood Services
281 North College Avenue
P.O. Box 580
Fort Collins, CO 80522.0580

4.0 Deconstruction, Salvaging & Recycling Materials

4.1 Which historic materials will be deconstructed and salvaged?
4.2 Which historic materials will not be salvaged, and how will they be disposed of?

5.0 Protection of Existing Historic Property

How will you ensure that historic buildings, structures, and surface features will not be damaged during work? What means will be used to protect them?

5.1 Site Conservation

An assessment of the proposed plan has been conducted by Josh Fine of Fine Tree Service. Roots would be air spaded and cleanly cut prior to excavation. The owner is beginning proactive extra watering of the tree, and Fine Tree service will be involved in measures to ensure a successful recovery for the tree following construction. Construction access and activity will be from the alley, and will be limited by fencing from extending into the yard south of the garage surrounding the tree.

5.2 Demolition of Building

5.3 Foundation Stability

A preliminary assessment of the foundation has been conducted by a professional engineer. It is important to first state that absolutely no concerns exist with the existing west side footing handling additional loads proposed by this project. However, should any poor performance of the existing foundation be identified when it is exposed during construction, it could be augmented through doweling to the new monoslab. Alternatively, a beam running north to south and spaced about 4' off the west side of the carriage house could transfer almost the entirety of the roof load to the new foundation.

5.4 Structural

The new structure will provide added east-west bracing to the existing carriage house.

5.5 New Construction

5.6 Historic Openings & Materials

5.7 New Openings

The proposed new pass through could be infilled in the future should the addition be removed. This infill would involve 2X4 infill framing, infill of sheathing boards, and lacing in of cedar shingles to make the opening disappear.

5.8 Floor Framing

5.9 Roof Structure and Roof Framing

5.10 Structural Loads

5.11 Supporting and Bracing of Existing Structure; Under-Pinning

5.12 Excavation and Shoring of Existing Structure

5.13 Site Cleanup

6.0 Documentation for Record

6.1 Does the project include measured drawings and/or photographs?

Planning, Development & Transportation
Community Development & Neighborhood Services
281 North College Avenue
P.O. Box 580
Fort Collins, CO 80522-0580

City of Fort Collins

6.2 Where will these be stored?

7.0 Archeology

How will you address archeological resources if they are likely to be present or if you should unexpectedly find them? (e.g., contact the Fort Collins Museum of Discovery, have an archaeologist on site to monitor the work, have an archaeologist on call.)