ANN ARBOR HISTORIC DISTRICT COMMISSION

Staff Report

ADDRESS: 210 Koch Avenue Application Number HDC25-0001

DISTRICT: Old West Side Historic District

REPORT DATE: March 13, 2025

REPORT PREPARED BY: Mariana Melin-Corcoran, City Planner

REVIEW COMMITTEE DATE: March 10, 2025

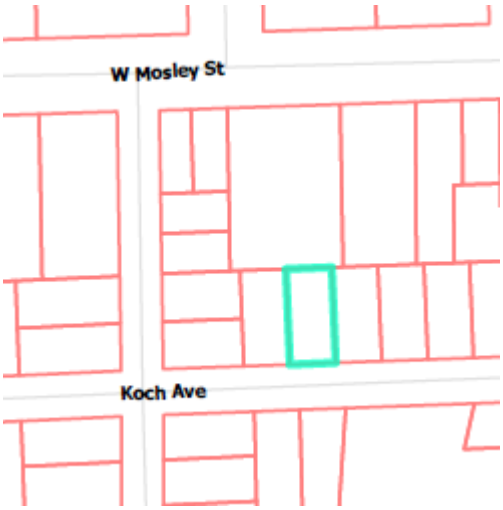
OWNER/APPLICANT

Name: Ian Chapman
Address: 210 Koch Avenue
Ann Arbor, MI 48103
Phone: (734) 925-2410

BACKGROUND: 210 Koch Avenue (originally 210 John K Avenue) is first listed in the 1924 Polk Directory as the residence of Paul O. Schlenker. The house first appears on the 1925 Sanborn Fire Insurance Map as a two-story dwelling with a half-width front porch and a garage at the northeast corner of the lot. 210 Koch Avenue features a side gable, with detailing on the upper story of the side elevations to mimic the shape of a gambrel roof. There is a unique overhanging eave above the first story that wraps around the majority of the house – just breaking at the rear elevation – and ties into the gable roof of the porch.

The same footprint and configuration are shown on the 1948 Sanborn Map, so there were no major structural changes during the period of significance. Building permits and photos show that there has been limited work done on the exterior of the house post-1945. The garage was demolished in the late twentieth-century, and there is now a simple shed in the same location on the northeast corner of the site.

LOCATION: The house is located on the north side of Koch Avenue, east of South First Street and west of South Main Street.



APPLICATION: The applicant seeks HDC approval to add a 185-square foot, single-story rear addition off the north elevation of the house.

APPLICABLE REGULATIONS:

From the Secretary of the Interior's Standards for Rehabilitation
(other SOI Standards may also apply):

(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.

(5) Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

(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.

(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 will be unimpaired.

From the Secretary of the Interior's Guidelines for Rehabilitating Historic Buildings (other SOI Guidelines may also apply):

Building Site

Not Recommended: Introducing new construction onto the building site which is visually incompatible in terms of size, scale, design, materials, color and texture or which destroys historic relationships on the site.

Additions

Recommended: Constructing a new addition so that there is the least possible loss of historic materials and so that character-defining features are not obscured, damaged, or destroyed.

Locating the attached exterior addition at the rear or on an inconspicuous side of a historic building; and limiting its size and scale in relationship to the historic building.

Designing new additions in a manner that makes clear what is historic and what is new.

Not Recommended: Designing a new addition so that its size and scale in relation to the historic building are out of proportion, thus diminishing the historic character.

Designing and constructing new additions that result in the diminution or loss of the historic character of the resource, including its design, materials, workmanship, location, or setting.

Roofs

Recommended: Retaining and preserving roofs—and their functional decorative features—that are important in defining the overall historic character of the building. This includes the roof's shape, decorative features such as chimneys, and roofing material.

From the Ann Arbor Historic District Design Guidelines (other Guidelines may also apply):

All Additions
Appropriate: Locating a required addition on the least character-defining elevation and keeping it subordinate in volume to the historic building.

Placing a new addition on a non-character defining or inconspicuous elevation and limiting the size and scale in relationship to the historic property.

Locating and designing a new addition so that significant site features, including mature trees and landmark status trees, are not lost or damaged.

Designing the addition so it is compatible in terms of massing, materials, relationship of solids to voids, and proportion of openings.

Designing a new addition in a manner that makes clear what is historic and what is new.

Limiting the size and scale of the addition in relationship to the historic building so that it does not diminish or visually overpower the building or the district. The addition's footprint should not exceed half of the original building's footprint, or half of the original building's total floor area.

Not Appropriate: Designing an addition that requires the removal of significant building elements or site features.

Additions to Historic Residential Structures
Appropriate: Placing new walls in a different plane from the historic structure in a subordinate position to the historic fabric.

Not Appropriate: Designing an addition that overpowers or dramatically alters the original building through size or height.

Historic District Design Guidelines for Roofs
Appropriate: Retaining and maintaining original historic roofing materials, roof shape, dormers, cupolas, chimneys, and built-in or decorative gutters & downspouts.

STAFF FINDINGS:

1. The proposed 185-square foot addition will be located at the rear of the house. It will be one-story and L-shaped, connecting to the eastern half of the rear elevation. At its widest, the proposed addition will measure 16 ft 4 in, and at its narrowest it will be 11 ft 11 in. It will be 12 ft 5 in deep. An existing window opening on the elevation will be converted to an interior door, and the rear exterior door will be retained. The first-story overhanging eave on the eastern side of the rear elevation will be retained as much as possible and will tie into the roof over the addition.

2. The addition will be clad with cedar wood horizontal siding with an 8 in exposure to differentiate from the historic wood horizontal siding with a 6 in exposure. The windows will be Andersen 200 series vinyl clad wood windows. There will be two awning windows on the east elevation of the addition and two double hung windows on the north elevation. The window trim on the addition will be 5 ½ in wood to differentiate from the 3 in historic wood trim. The gable roof over the addition will be asphalt shingles, with a skylight on the western roof surface. The foundation will be CMU block, covered by the cedar siding.

   The height of the addition – to the top of the gable – will be 14 ft 4 in. This is 11 ft 6 in below the top of the gable on the historic house.

3. The house's footprint is currently 571 sq ft, all built before 1945. The proposed addition will add 185 sq ft, an increase of 24%. The current floor area is 960 sq ft, and the addition will add 185 sq ft, constituting an increase of 16%.

4. The proposed addition is not inset from the eastern elevation of the historic house. When asked, the applicant explained that they explored other orientations for the addition, but the options are limited given the setback requirements, existing mechanical systems, and the desire to keep the existing rear exterior door. Additionally, if the addition were inset, the project would require major interior renovations, including the reorientation of the interior staircase. Staff believes that, even without the inset at the corner, the addition is sufficiently differentiated from the historic house through the height and varied material dimensions. The original corner of the house is still visible above the first story. The proposed addition will be minimally visible from the right of way, limit the effect on historic materials, and is as inconspicuous as possible while still being able to provide adequate space to accommodate accessibility.

POSSIBLE MOTIONS: (Note that the motion supports staff findings and is only a suggestion. The Review Committee, consisting of staff and at least two Commissioners, will meet with the applicant on site and then make a recommendation at the meeting.)

I move that the Commission issue a certificate of appropriateness for the application at 210 Koch Street a contributing property in the Old West Side Historic District, to add a 185-square foot rear addition. As proposed, the work is compatible in exterior design, arrangement, texture, material and relationship to the rest of the building and the surrounding area and meets *The Secretary of the Interior's Standards for Rehabilitation* and *Guidelines for Rehabilitating Historic Buildings,* in particular standards 2, 5, 9, and 10 and the guidelines for building site, additions and roofs, as well as the *Ann Arbor Historic District Design Guidelines* for all additions, residential additions,

and roofs.

ATTACHMENTS: photos, drawings, materials information


210 Koch Avenue (staff photo, 2008)

Ann Arbor Historic District Commission

Residential Addition for:

The Chapman Family

210 Koch Avenue
Ann Arbor, MI 48103

Ian Chapman ph. 734-925-2410

Presentation by:

Mark Gannon, Architect

2041 N. Arbor Way Dr. #73
Canton, MI 48188

ph: 734-709-7568
mgannon_4@msn.com

Front Elevation (south)

Right Side Elevation (east)

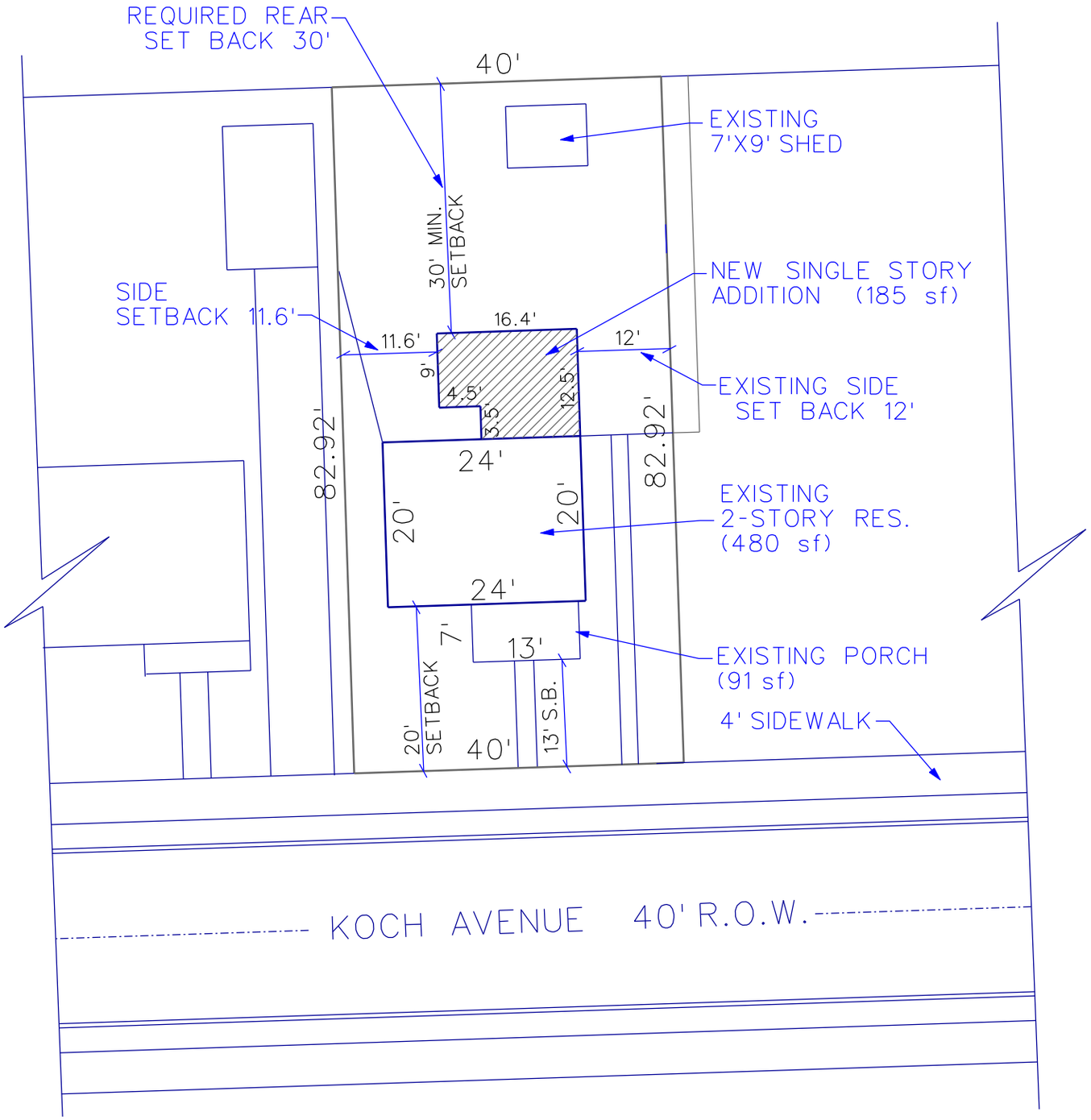
Rear Elevation (north)

Front & Left Elevations (similar to east elevation)

Footprint & Floor Area Tables

Pre-1945 Footprint	571 sf
New Footprint Area	185 sf
Proposed Footprint	756 sf
% Increase of Footprint	24 %

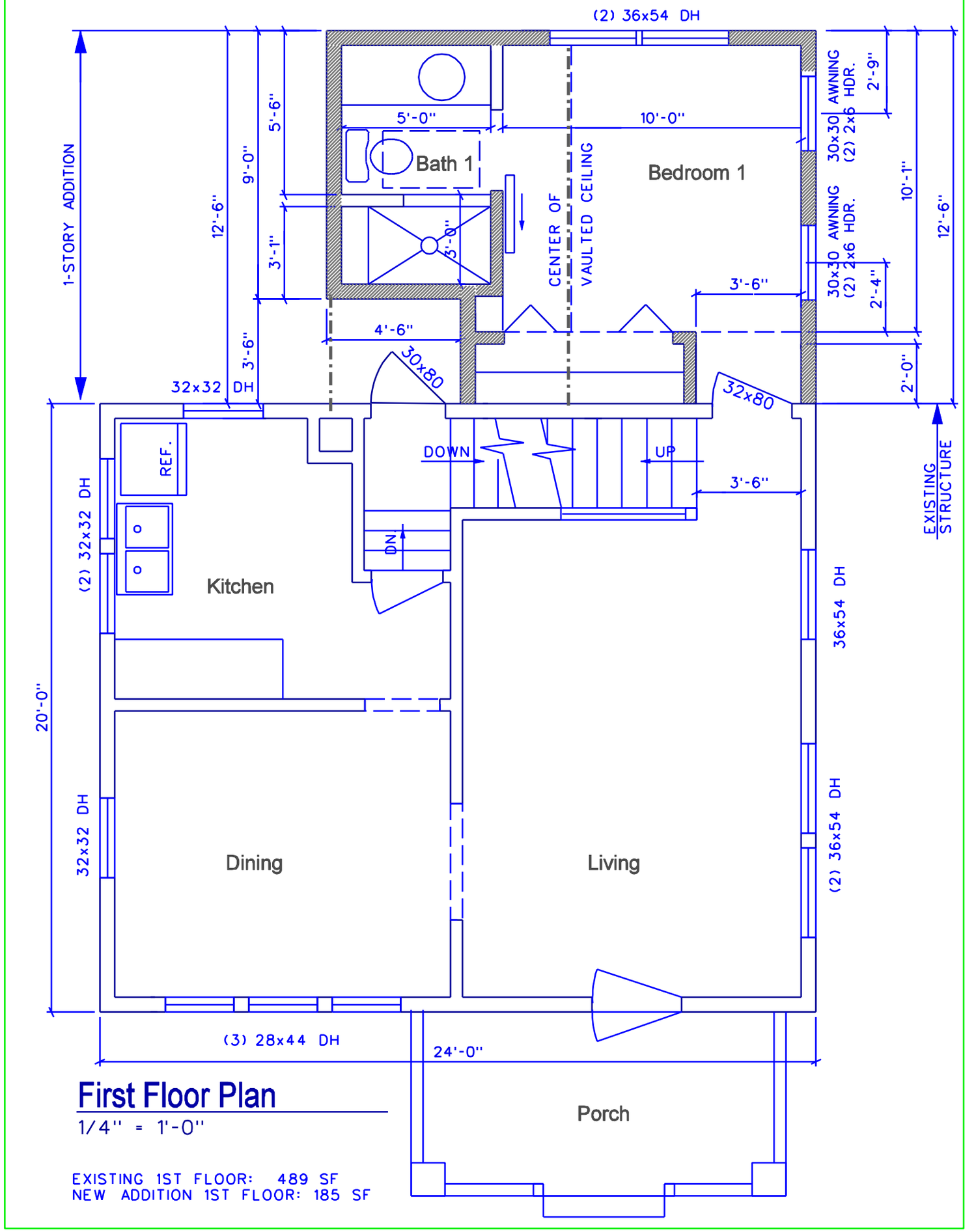
Pre-1945 Floor Area	960 sf
New Floor Area	185 sf
Proposed Floor Area	1,145 sf
% Increase in Floor Area	16 %



Site Plan

SCALE: 1" = 20'-0"

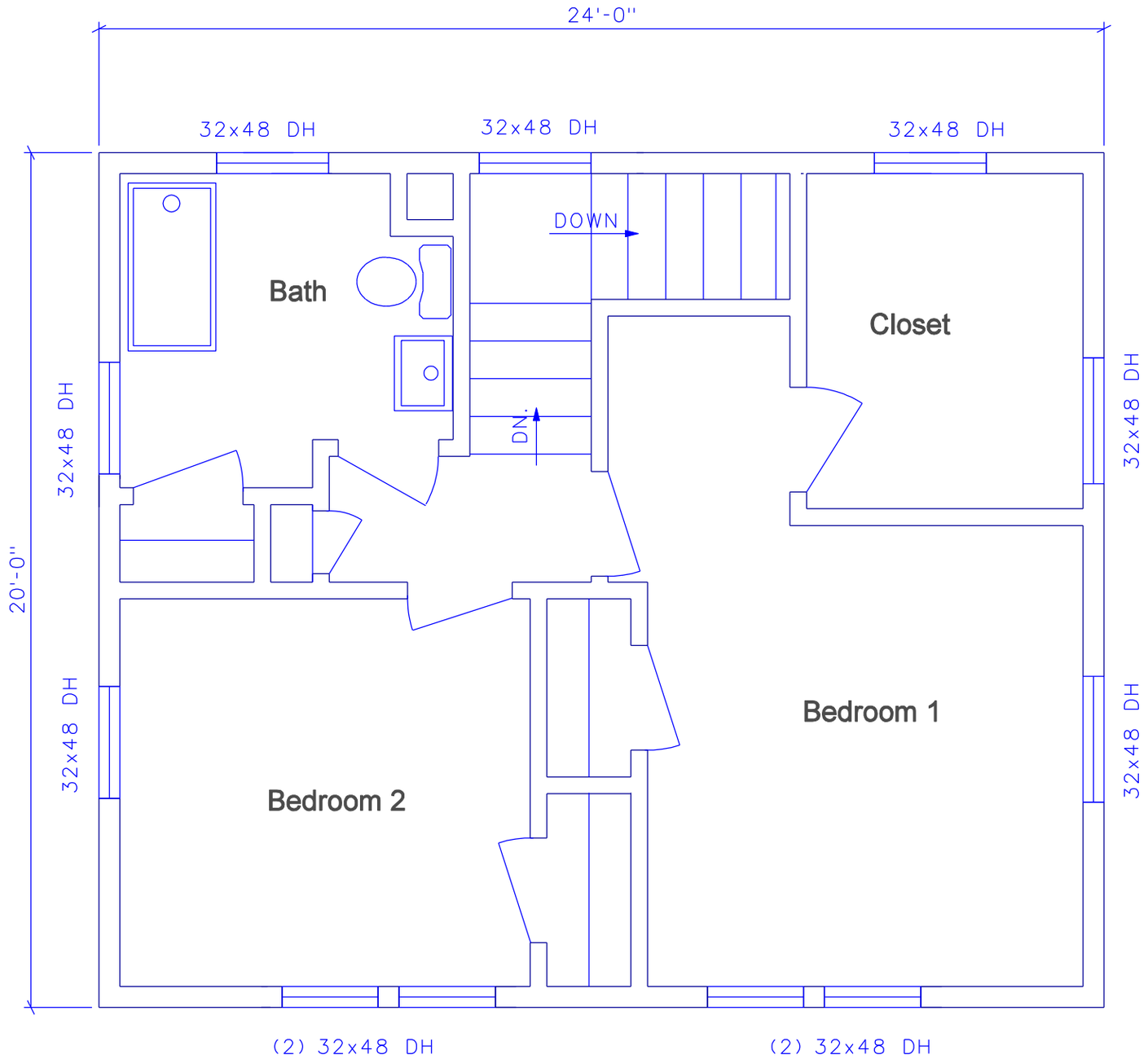
NORTH



First Floor Plan

1/4" = 1'-0"

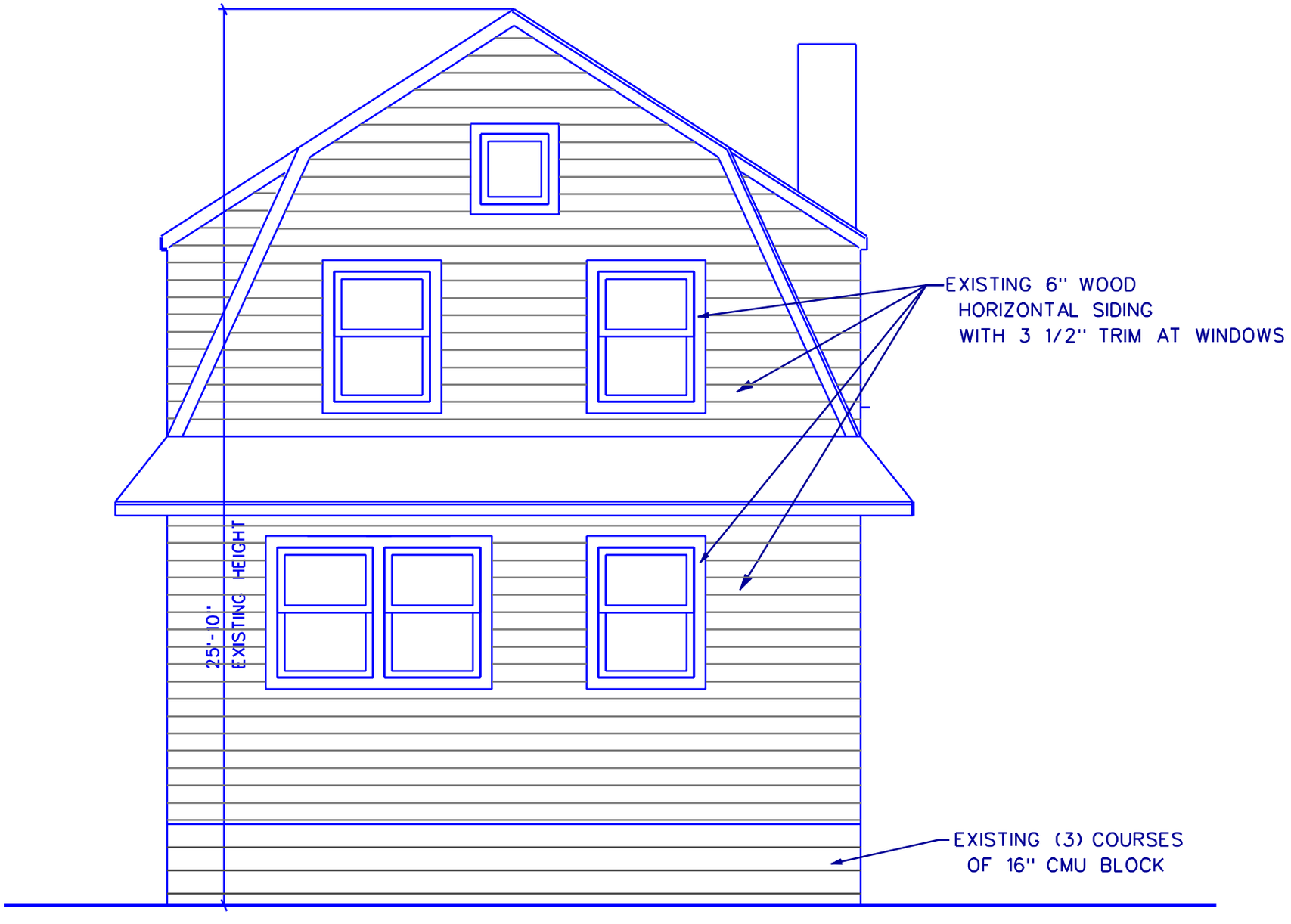
EXISTING 1ST FLOOR: 489 SF
NEW ADDITION 1ST FLOOR: 185 SF



Existing Second Floor Plan

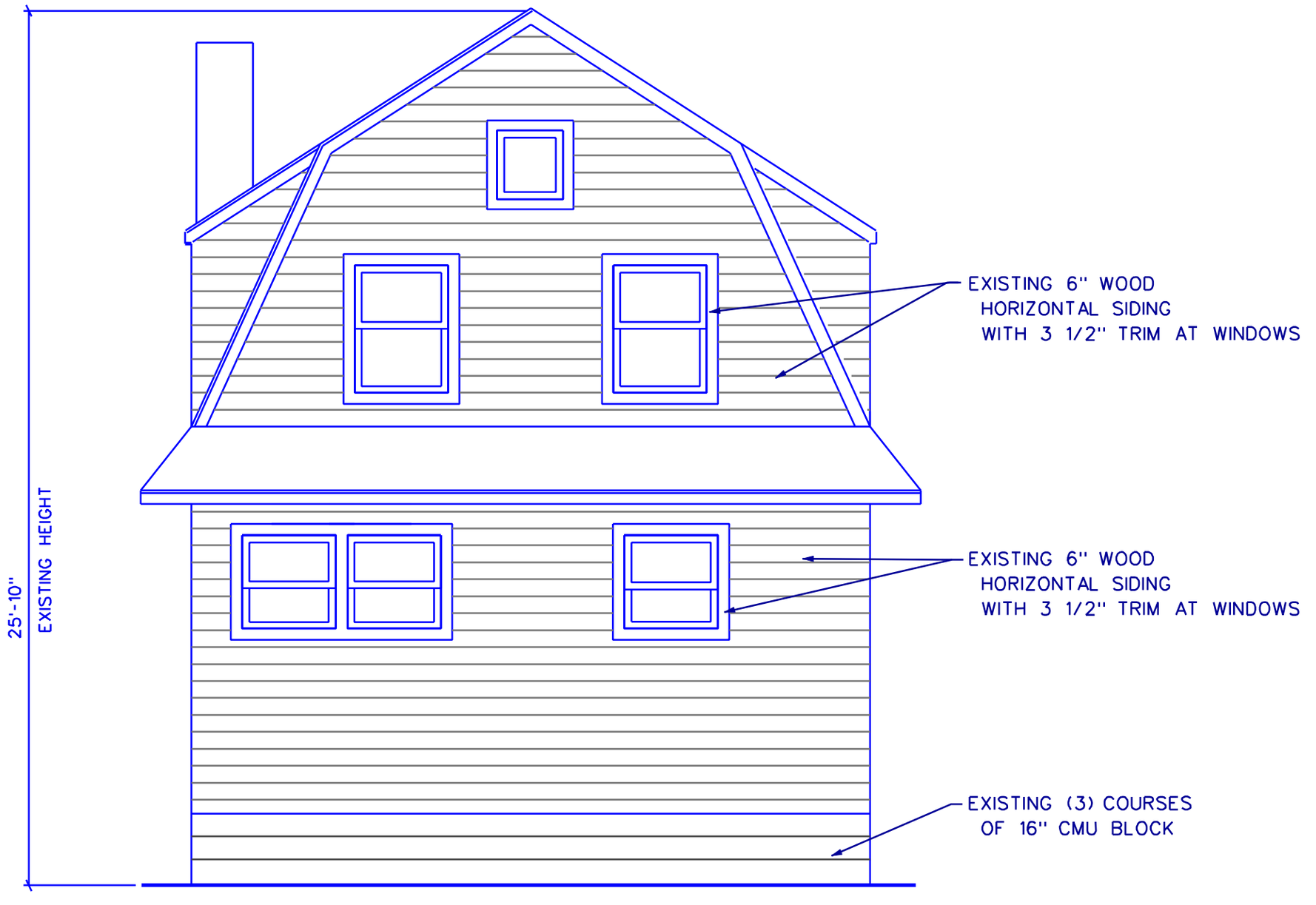
1/4" = 1'-0"

489 SF



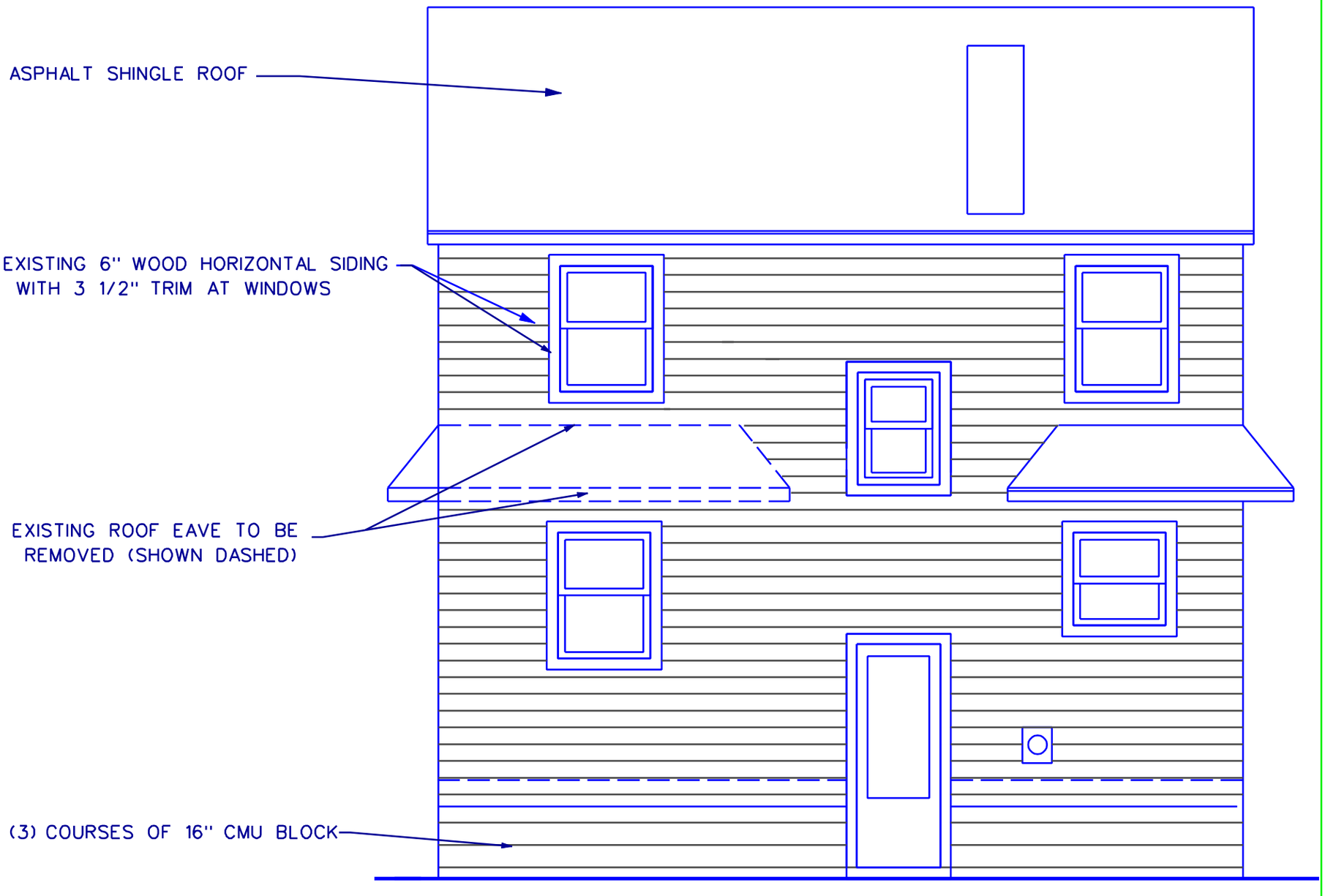
Existing Right Side Elevation (east)

SCALE: 1/4" = 1'-0"



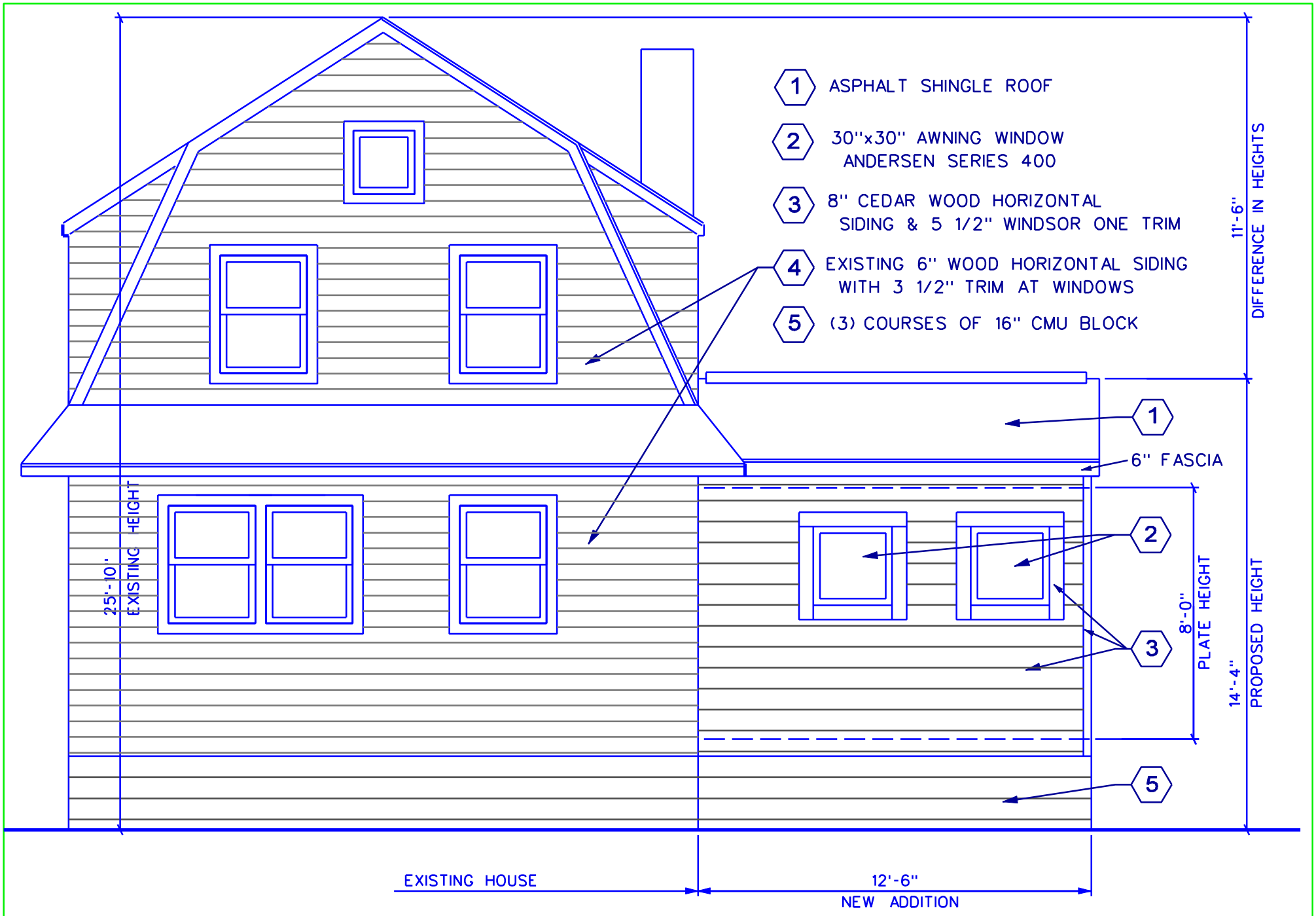
Existing Left Side Elevation (west)

SCALE: 1/4" = 1'-0"



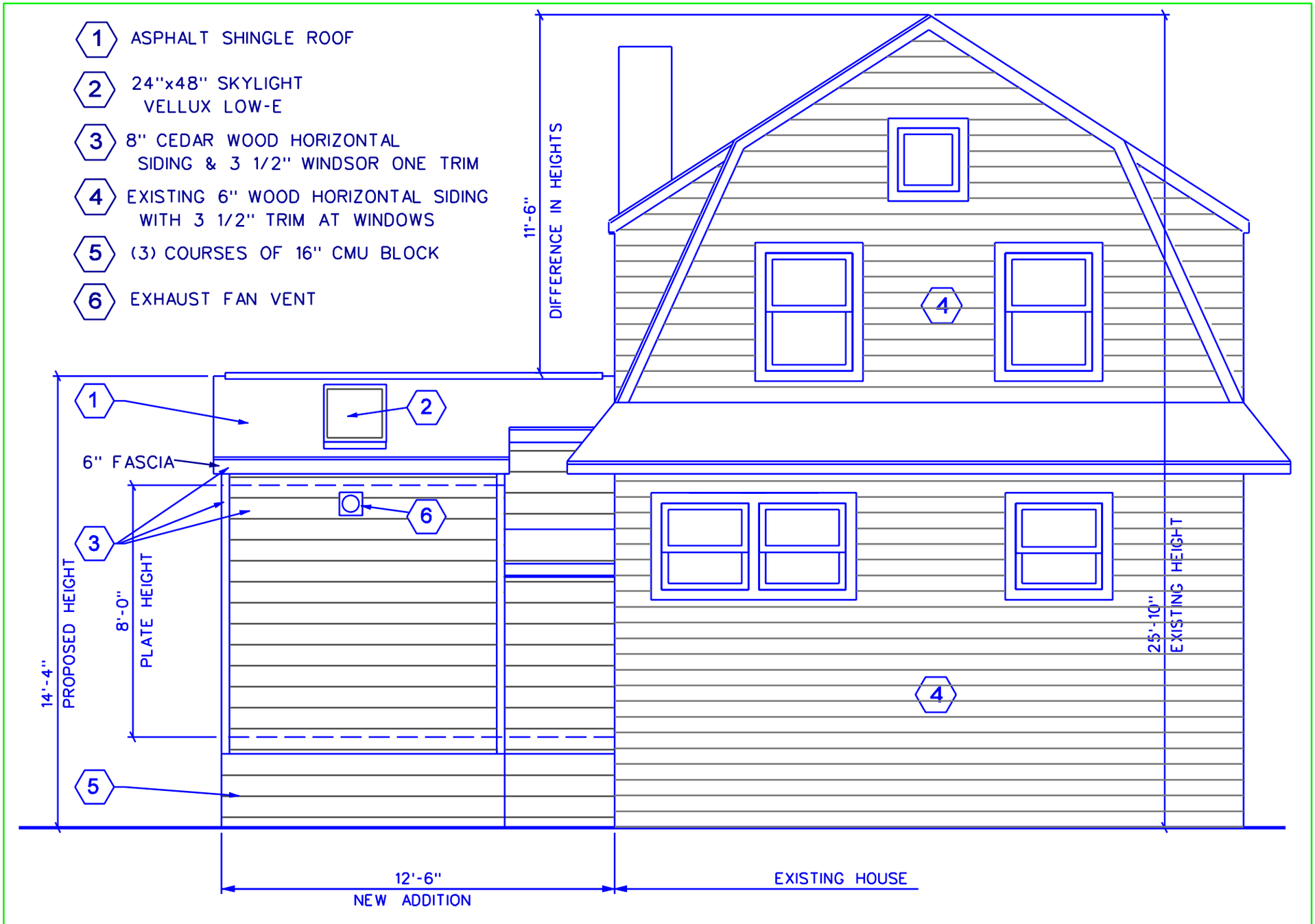
Existing Rear Elevation (south)

SCALE: 1/4" = 1'-0"



New Right Side Elevation (east)

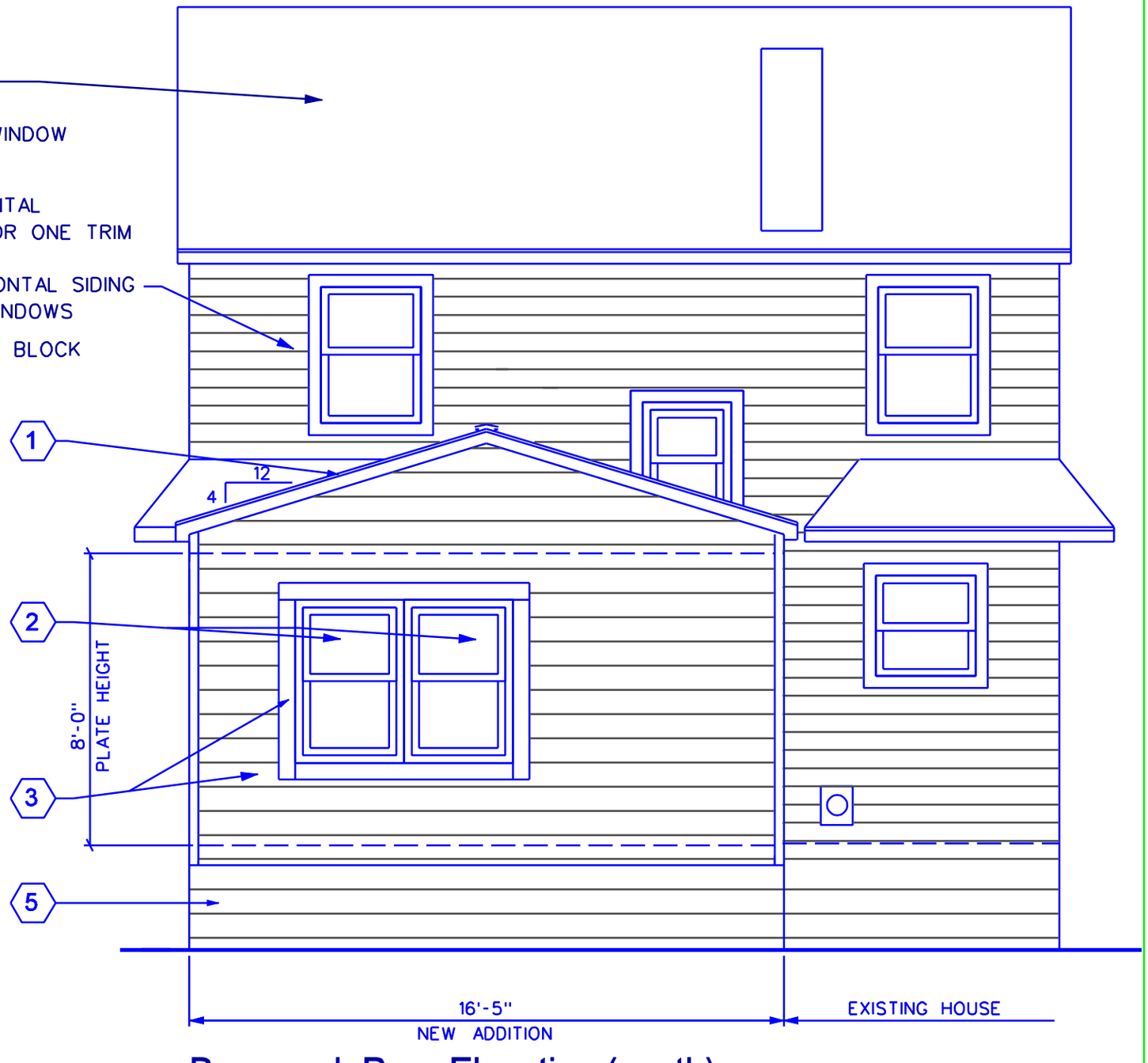
SCALE: 1/4" = 1'-0"



New Left Side Elevation (west)

SCALE: 1/4" = 1'-0"

1. ASPHALT SHINGLE ROOF
2. 36"x54" DOUBLE HUNG WINDOW ANDERSEN SERIES 200
3. 8" CEDAR WOOD HORIZONTAL SIDING & 5 1/2" WINDSOR ONE TRIM
4. EXISTING 6" WOOD HORIZONTAL SIDING WITH 3 1/2" TRIM AT WINDOWS
5. (3) COURSES OF 16" CMU BLOCK



Proposed Rear Elevation (south)

SCALE: 1/4" = 1'-0"

and roofs.

ATTACHMENTS: photos, drawings, materials information


210 Koch Avenue (staff photo, 2008)

CEDAR FINISHING

Cedar is ideal for a variety of finishes. Location, weather, use and ease of maintenance should be considered when selecting the proper finish for your project.

Good surface preparation practices are essential to achieve a durable, long-lasting exterior finish. The application of the finish is as important for durability and optimal performance as is the finish-substrate combination chosen for the job. Refer to your finish application directions for best results.

NATURAL WEATHERING
for a silvery gray look, best in dry climates

OPAQUE FINISHES
primers, paint, solid color stains

NATURAL FINISHES
transparent stains, semi-transparent stains

BENEFITS OF CEDAR

BEAUTY
There is absolutely no substitute for the natural beauty of cedar. Crisp, yet superbly rich, tonal qualities are a designer's dream.

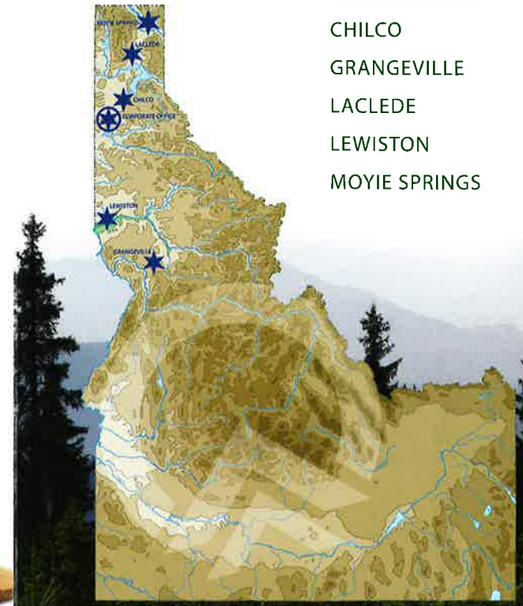
DURABILITY
Cedar is naturally resistant to rot, decay and insects. It lasts longer and requires less maintenance than most other wood species.

VERSATILITY
Cedar is ideal for accepting a wide range of finishes. It comes in a wide variety of textures and grades.

SUSTAINABILITY
While other building materials generate greenhouse gases, cedar removes those gases from the atmosphere and is a renewable resource.

FACILITIES

CORPORATE HEADQUARTERS
Located in beautiful Coeur d'Alene, Idaho, our headquarters is home to our sales management, finance and administrative departments.



We have mills in:

CHILCO

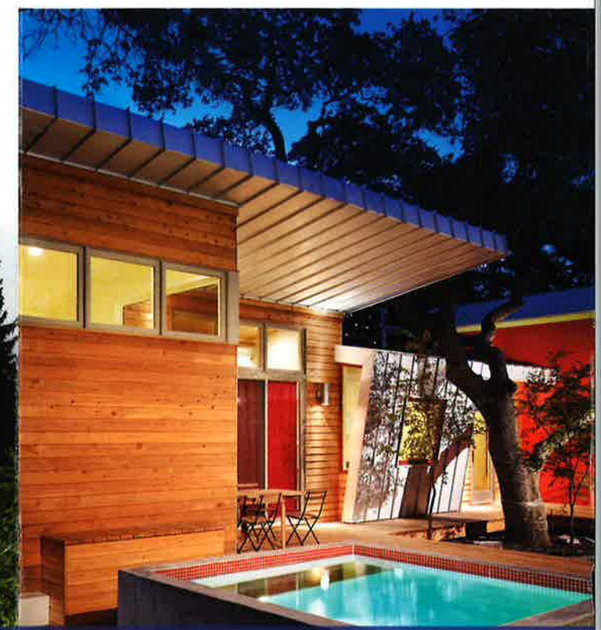
GRANGEVILLE

LACLEDE

LEWISTON

MOYIE SPRINGS

IDAHO FOREST GROUP



VERSATILE • SUSTAINABLE
BEAUTIFUL • DURABLE

WOOD FOR A GROWING WORLD

WHY CEDAR

Idaho Forest Group makes a science of growing and producing the very best Inland Northwest cedar. Our forests grow slowly, creating tight knots and a pleasing grain. The result is a consistently good looking, high quality product. Cedar is great for a variety of projects. It's a renewable resource that's highly revered and durable, naturally resistant to rot, decay and insect attacks. Your projects will last longer and require less maintenance.

IDAHO FOREST GROUP

IDFG.COM | (208) 762-6630

687 CANFIELD AVE., SUITE 100
COEUR D'ALENE, ID 83815

WESTERN RED CEDAR SIDING

WE ARE COMMITTED

We are dedicated to environment-enhancing forest management practices and our products are available with Sustainable Forestry certification. IFG's fiber is sourced from U.S. Forest Service land, state land, industrial and non-industrial private land in Idaho, Montana, Washington and Canada.

ABOUT IDAHO FOREST GROUP

Excellence is our goal in caring for natural resources, employees and customers. We have a global reach built on hometown ethics and pride in a job well done.

Our company is proud to be at the forefront of technology and innovation, to have a first-class workforce, and to offer a renewable resource with the lowest carbon footprint of any building material.

We continue to expand in facilities and market share; we are now one of America's largest lumber producers, with capacity for over 1.1 billion board feet per year and markets around the globe.

Headquartered in Coeur d'Alene, Idaho, we are located in the prime timber-growing country of the Intermountain West, and have five high-tech production facilities throughout northern Idaho in Chilco, Laclede, Moyie Springs, Grangeville and Lewiston.

REAL CEDAR WRCLA

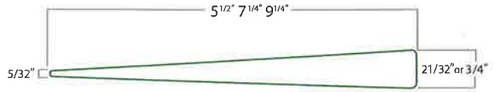
SUSTAINABLE FORESTRY INITIATIVE
SFI-01200

BEVEL SIDING

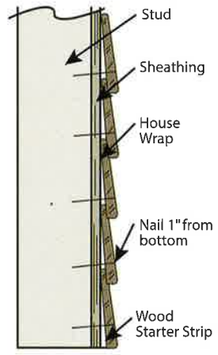
Bevel siding is the most widely used type of siding. It has warmth and casual charm and is ideal for homes, cottages and club-houses.

NOMINAL SIZE	ACTUAL SIZE	PATTERN	FACTOR FOR BF
1x6	.656x5.5	Bevel Siding	1.33
1x8	.656x7.25	Bevel Siding	1.28
1x10	.75x9.25	Bevel Siding	1.21

Actual size is at time of manufacture.



APPLICATION INSTRUCTIONS



Spacing for the siding should be laid out beforehand. Start with the bottom course using a wood starter strip to support the lower edge. A wood starter strip should be the same thickness as the siding. Each succeeding course overlaps the upper edge of the previous one by a minimum of 1 inch. Where possible, the bottom of the board that is placed across the top of the windows should coincide with the window cap.

Bevel siding should be face nailed to studs with 1-1/4 inch penetration into solid wood using one ring shank hot dipped galvanized (meeting ASTM 153A) or stainless steel nail per piece spaced at a maximum of 24 inches on center. Place nail just above the overlap. Take care not to nail through the overlap of two pieces.

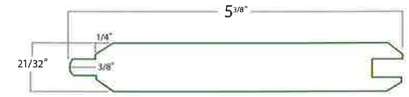
Do not reduce the siding overlap recommendations. Doing so could result in damage from wind-driven rain. Use the larger overlaps for unseasoned sidings to allow for shrinkage and expansion. Take care not to overdrive fasteners. Butt joints between boards should be staggered and meet on studs. Fit siding snugly to other pieces and to trim.

TONGUE & GROOVE SIDING

Tongue and groove is widely used for its look and versatility. It can be installed horizontally or vertically, giving distinctly different looks.

NOMINAL SIZE	ACTUAL SIZE	PATTERN	FACTOR FOR BF
1x6	.656x5.375	V4E T&G	1.17

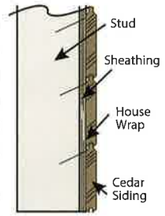
Actual size is at time of manufacture.



APPLICATION INSTRUCTIONS

HORIZONTAL

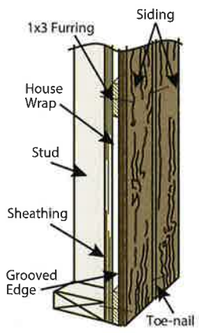
Start at the bottom and work up with the groove edges facing downwards. Can be blind nailed with one siding nail per bearing toe-nailed through the base of each tongue. Nails must penetrate 1-1/4 inches into solid wood.



Windy or extreme weather conditions usually require two nails. Blind nail siding by toe-nailing in tongue, and add one face nail to secure the siding.

VERTICAL

Start at one corner with grooved edge toward the adjacent wall. Use a level or plumb line to ensure that the first board is installed plumb. The grooved edge of the first board may have to be trimmed to ensure a flush fit. Siding is nailed to horizontal blocking lines installed between studs or to wood starter strips. Pieces up to 6 inches can be blind nailed and wider pieces should be face nailed.

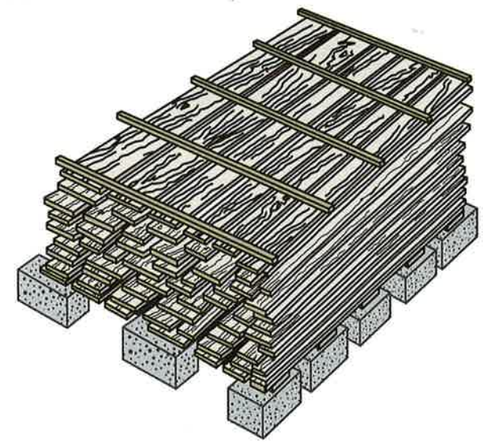


ACCLIMATIZATION

Cedar is one of the most stable softwoods, yet it can shrink or swell as it reaches equilibrium with the level of moisture in the air. To adequately acclimate before installing, stack the siding on a vapor barrier, evenly spaced, vertically aligned stickers in the area in which it will be installed with good air flow.

Use 2x4, 2x6 or cinder blocks to elevate the first level. Store in a covered area. A fan will increase air circulation and can speed up drying.

We recommended adequately acclimating cedar for two to four weeks in the environment in which it will be installed.



Products

TRIM BOARDS
S4SSE Protected
S4SSE Traditional
S1S2E Protected

TONGUE & GROOVE BOARDS
T&G Protected
T&G Traditional

SHIPLAP
Shiplap Protected
Nickel Gap Traditional

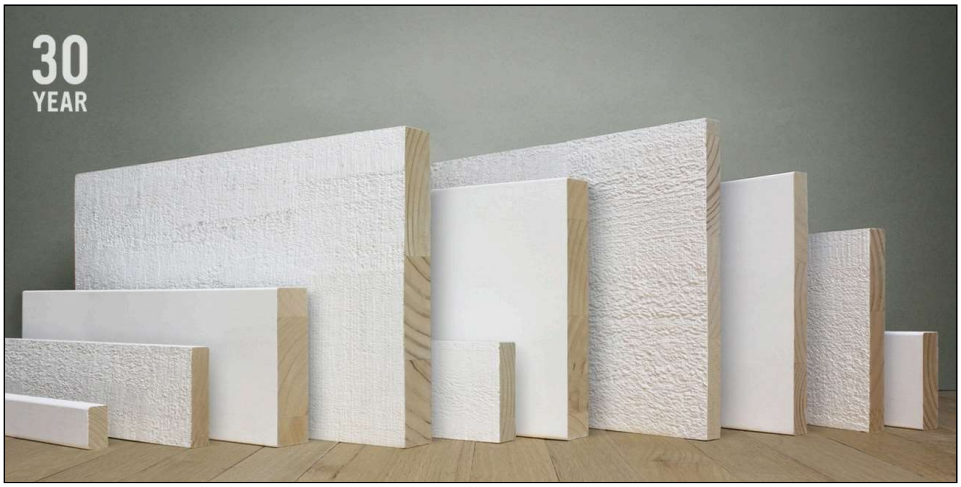
MOLDINGS CLASSIC AMERICAN
Classical Colonial
Greek Revival
Classical Craftsman
Colonial Revival
Wainscot Caps & Panel Moldings
Brent Hull

BEADED CASING

EXTERIOR MOLDINGS

CATALOG & IDEA BOOKS

WARRANTY



All S1S2E Products are Protected with a 30-Year Limited Warranty*

S1S2E: Reversible, rough-sawn on one side, smooth on others with eased edges. Warranty protects against rot, insects and mold, see warranty page for details. These trim boards are durable for the exterior, healthy for the interior. Download a 1-sheet on S1S2E here.

PROFILES	NOM. SIZES	NET SIZES	16'	20'
	1x2	3/4" x 1-1/2"	✓	✓
	1 x 3	3/4" x 2-1/2"	✓	✓
	1 x 4	3/4" x 3-1/2"	✓	✓
	1 x 6	3/4" x 5-1/2"	✓	✓
	1 x 8	3/4" x 7-1/4"	✓	✓

PROFILES	NOM. SIZES	NET SIZES	16'	20'
	1 x 10	3/4" x 9-1/4"	✓	✓
	1 x 12	3/4" x 11-1/4"	✓	✓
	5/4 x 3	1-1/16" x 2-1/2"	✓	✓
	5/4 x 4	1-1/16" x 3-1/2"	✓	✓
	5/4 x 6	1-1/16" x 5-1/2"	✓	✓
	5/4 x 8	1-1/16" x 7-1/4"	✓	✓
	5/4 x 10	1-1/16" x 9-1/4"	✓	✓
	5/4 x 12	1-1/16" x 11-1/4"	✓	✓
	2 x 2	1-7/16" x 1-1/2"	✓	✓
	2 x 4	1-7/16" x 3-1/2"	✓	✓
	2 x 6	1-7/16" x 5-1/2"	✓	✓
	2 x 8	1-7/16" x 7-1/4"	✓	✓
	2 x 10	1-7/16" x 9-1/4"	✓	✓
	2 x 12	1-7/16" x 11-1/4"	✓	✓

WHERE TO BUY

S1S2E Trim Board Project Ideas

SEE THE FULL IDEA GALLERY

SUPREME®

Shingles | Tejas

TOTAL PROTECTION ROOFING SYSTEM^

TOTAL PROTECTION. TOTAL CONFIDENCE.®

PROTECCIÓN TOTAL. CONFIANZA TOTAL.™

SEAL. SELLAR. | DEFEND. DEFENDER. | BREATHE. RESPIRAR.

SEE CHART AND MAP FOR COLOR AVAILABILITY

CONSULTE LA TABLA Y EL MAPA PARA CONOCER LA DISPONIBILIDAD DE COLORES

Autumn Brown[1]

Brownwood[1]

Desert Tan[1]

Driftwood[1]

Estate Gray[1]

Onyx Black[1]

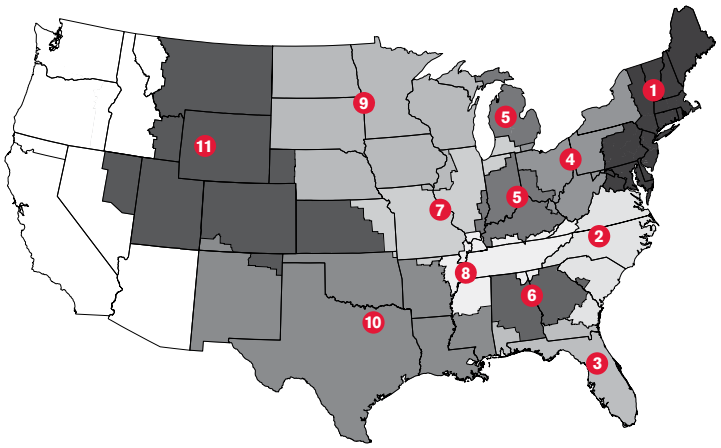
Shasta White[1]

Teak[1]

		1	2	3	4	5	6	7	8	9	10	11
Autumn Brown[1]			●	●			●				●	
Brownwood[1]					●	●		●	●	●	●	●
Desert Tan[1]			●	●			●		●		●	
Driftwood[1]		●	●	●	●	●	●	●	●	●	●	●
Estate Gray[1]		●	●	●	●	●	●	●	●	●	●	●
Onyx Black[1]		●	●	●	●	●	●	●	●	●	●	●
Shasta White[1]											●	
Teak[1]											●	

REGIONAL COLOR AVAILABILITY MAP

MAPA REGIONAL DE DISPONIBILIDAD DE COLORES



COLOR DISCLAIMER

As color experts, we know getting the shingle color right is a big part of any roofing purchase. Due to printing color variations, in addition to viewing shingle literature, we suggest you request an actual shingle sample to see how it will appear on your home and with your home's exterior elements in various natural lighting conditions. Lastly, we recommend you verify your color choice by seeing it installed on an actual home; your roofing contractor or supplier can provide a sample and may be able to direct you to a local installation.

DESCARGO DE RESPONSABILIDAD SOBRE LOS COLORES

En tanto que especialistas en color, sabemos que obtener el color de teja perfecto es una parte importante en toda compra de techos. Debido a las variaciones en los colores impresos, además de mirar folletos de tejas, le sugerimos que solicite una muestra de la teja para ver como se verá en su hogar y con los elementos externos de la vivienda bajo distintas condiciones de luz natural. Finalmente, le recomendamos que para verificar su elección de colores, vea cómo lucen las tejas ya instaladas en una vivienda; su contratista de techos o su proveedor le pueden dar una muestra e incluso indicarle dónde ver un techo ya instalado.

TOTAL PROTECTION SIMPLIFIED®

It takes more than just shingles to protect a home. It takes an integrated system of components and layers designed to perform in three critical areas. The Owens Corning® Total Protection Roofing System®^ gives you the assurance that all of your Owens Corning roofing components are working together to help increase the performance of your roof.

PROTECCIÓN TOTAL SIMPLIFICADA®

Se necesita más que simplemente tejas para proteger su vivienda. Se necesita un sistema integral de componentes y capas diseñadas para desempeñarse en tres áreas críticas. El Total Protection Roofing System® de Owens Corning® le garantiza que todos sus componentes para cubiertas de Owens Corning funcionan en conjunto para mejorar el desempeño de su techo.

SEAL. SELLAR.

Helps create a waterproof barrier

Ayuda a crear una barrera impermeable

DEFEND. DEFENDER.

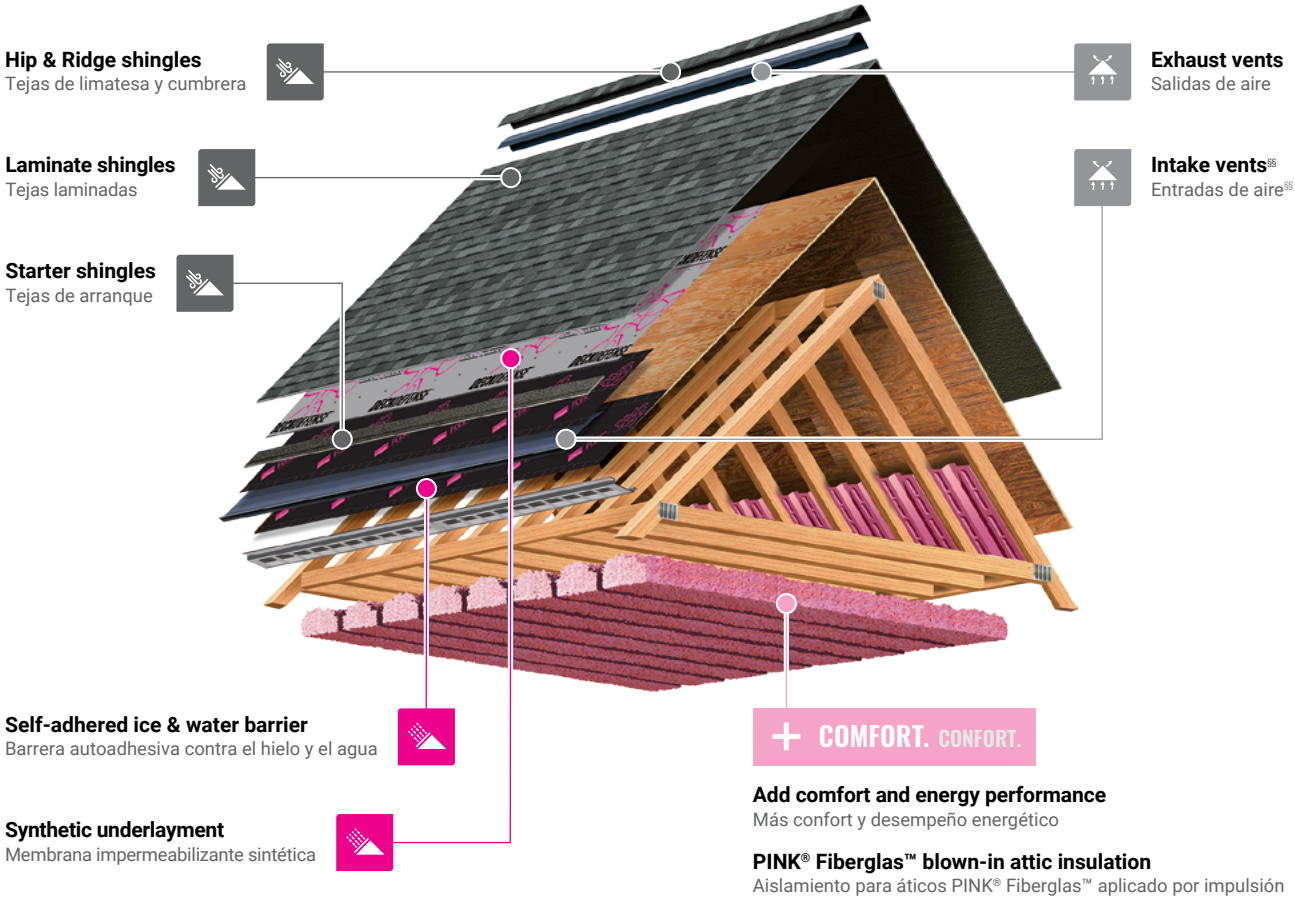
Helps protect against nature's elements

Protege contra los elementos climáticos

BREATHE. RESPIRAR.

For balanced attic ventilation

Para una ventilación equilibrada del ático



§§ For intake ventilation, use approved Owens Corning® Vent Sure® InFlow ventilation or soffit ventilation. Do not use both intake ventilation options in one roofing application. See install instructions for more details.

§§ Para la ventilación de entrada, utilice la ventilación aprobada por Owens Corning® Vent Sure® InFlow o ventilación de sofito. No utilice ambas opciones de ventilación de entrada en una misma aplicación para techos. Consulte las instrucciones de instalación para obtener más detalles.

Supreme® Shingles

Supreme® three-tab shingles—a smart choice when you need to balance curb appeal, weather resistance and value. Supreme shingles come with a 25-Year Limited Warranty*, 60-MPH Wind Resistance Limited Warranty*, and Class A UL Fire Resistance—the industry's highest. StreakGuard® Protection with a 10-year Algae Resistance Limited Warranty*/3 is also available on a regional basis. Visit owenscorning.com/roofing to learn more.

Product Attributes

Warranty Length*
25-Year Limited

Wind Resistance Limited Warranty*
60-MPH

Algae Resistance Limited Warranty*
10 Years

TRU PROtection® Non-Prorated Limited Warranty* Period
5 Years

Product Specifications

Size	12" x 36"
Application Exposure	5"
Shingles per Bundle	Not less than 26
Average Shingle Count per 3 Bundles	80
Average Coverage per 3 Bundles	100 sq. ft.

Applicable Standards and Codes

- ASTM D3462
- ASTM D228
- ASTM D3018 (Type 1)
- ICC-ES AC438#
- ASTM D3161 (Class F Wind Resistance)
- ASTM D7158 (Class H Wind Resistance)
- ASTM E108/UL 790 (Class A Fire Resistance)
- PRI ER 1378E01
- Florida Product Approval‡
- Miami-Dade County Product Approval[2]

Tejas Supreme®

Tejas Supreme® de tres lengüetas: una opción inteligente cuando busca un equilibrio entre atractivo exterior, resistencia a la intemperie y buen precio. Las tejas Supreme vienen con garantía limitada de 25 años*, garantía limitada de resistencia al viento de hasta 60 mph* y resistencia al fuego clase A UL, la más alta de la industria. La protección StreakGuard®, con una garantía limitada de resistencia a las algas de 10 años*/3 también está disponible según la región. Visite owenscorning.com/roofing si desea obtener más información.

Atributos del producto

Duración de la garantía*
Limitada de 25 años

Garantía limitada de resistencia a vientos*
60 MPH

Garantía limitada de resistencia a las algas*
10 años

Periodo de garantía limitada no prorrateada TRU PROtection®*
5 años

Especificaciones del producto

Tamaño	12" x 36"
Exposición de la aplicación	5"
Tejas por paquete	No menos de 26
Tejas en promedio por cada 3 paquetes	80
Cobertura promedio por 3 paquetes	100 pies[2]

Normas y códigos aplicables

- ASTM D3462
- ASTM D228
- ASTM D3018 (tipo 1)
- ICC-ES AC438#
- ASTM D3161 (resistencia al viento clase F)
- ASTM D7158 (resistencia al viento clase H)
- ASTM E108/UL 790 (resistencia al fuego clase A)
- PRI ER 1378E01
- Aprobación de productos de Florida‡
- Aprobación de productos del condado de Miami-Dade[2]

* See actual warranty for complete details, limitations and requirements.

\# International Code Council Evaluation Services Acceptance Criteria for Alternative Asphalt Shingles.

‡ Applicable only in Service Area 3 (see map).

^ Excludes non-Owens Corning® roofing products such as flashing, fasteners, pipe boots and wood decking.

1 See Color Disclaimer Information on page 2 for additional details.

2 Applies for all areas that recognize a Miami-Dade Notice of Acceptance (NOA).

3 Shingles are algae resistant to help control growth of algae and discoloration.

* Consulte la garantía para conocer los detalles, las limitaciones y los requisitos.

\# Criterios de aceptación de los servicios de evaluación del Consejo de Código Internacional para tejas de asfalto alternativo.

‡ Aplicable solo en el área de servicio 3 (consulte el mapa).

^ No incluye productos de techado que no sean de Owens Corning®, como tapajuntas, sujetadores, fundas de tuberías y terrazas de madera.

1 Consulte la sección Información de exención de responsabilidad de color en la página 2 para obtener más detalles.

2 Se aplica a todas las áreas que reconocen un aviso de aceptación (Notice of Acceptance, NOA) de Miami-Dade.

3 Las tejas son resistentes a las algas para ayudar a controlar el crecimiento de las algas y la decoloración.

OWENS CORNING ROOFING AND ASPHALT, LLC
ONE OWENS CORNING PARKWAY
TOLEDO, OH 43659 USA

1-800-GET-PINK® | 1-800-438-7465
www.owenscorning.com/roofing

Pub. No. 10027690. Printed in U.S.A. January 2025.

(Retail)

Publicación N.° 10027690. Impreso en los EE.UU. Enero de 2025.

FCM Fixed Skylight
Technical Product Data Sheet

Description
- FCM Fixed Curb Mount Skylight that mounts to a site-built curb (residential curbs typically 2x4 or 2x6). Fixed skylight, provided with various insulated glass units. Manufactured with a neutral gray aluminum profile and integral gasket preventing air and water infiltration while allowing the removal of interior condensation.

Installation
- No designated top, bottom, or sides for installation in any direction.
- Single unit applications only (combination applications not possible).
- 0 degrees to 60 degrees, use standard installation procedure.
- Above 45 degrees, use water diverter as illustrated in installation instructions; water diverter provided by installer.

Flashings
- ECL – Engineered neutral gray flashing for single installation with thin roofing material (½" max) for roof pitch above 10-60 degrees.
- ECW – Engineered neutral gray flashing for single installation with tile (over ¾") roofing material for roof pitch above 14-60 degrees.
- Applications less than 10-degree roof pitch - flashing provided by others.

Interior Accessories
- Accessory Tray; mounts to curb required for installation of shades.
- FSCC - Solar powered Room darkening - double pleated shade.
- FSLC - Solar powered Light filtering - single pleated shade.

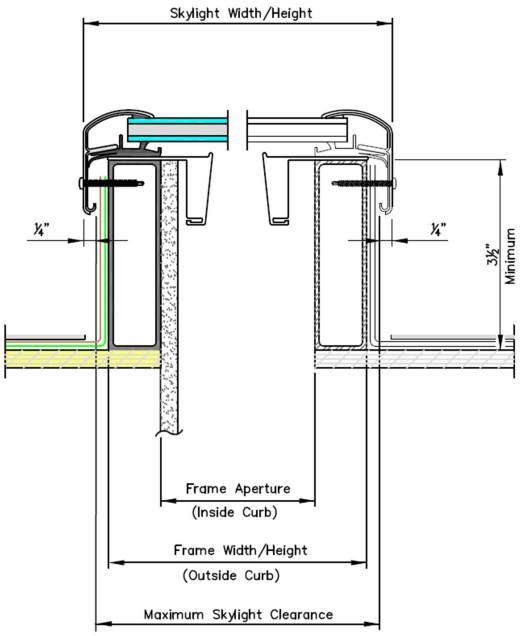
Type Sign
- Example: FCM 2222 0004D 01BF05
- Etched on bottom right of exterior frame cover.

Standard Sizes
- 1430, 1446, 2222, 2230, 2234, 2246, 2270, 3030, 3046, 3055, 3434, 3446, 4646, 4672
- Custom sizes available.

Special Stocked Sizes
- 190365, 190435, 210455, 225225, 225470, 245245, 245470, 245490, 260540, 280525, 315315, 315470, 315700, 315715, 365365, 385385, 385540, 420435, 460470, 460700

Warranty
- **Skylight –** 10 years from the date of purchase; VELUX warrants that the skylight will be free from defects in material and workmanship.
- **Installation –** 10 years from the date of purchase; VELUX No Leak Warranty warrants skylight. installation. Must be installed with VELUX flashings and included adhesive underlayment.
- **Glass Seal –** 20 years from the date of purchase; VELUX warrants that the insulated glass pane will not develop a material obstruction of vision due to failure of the glass seal.
- **Hail Warranty –** 10 years from the date of purchase; VELUX warrants only laminated glass panes against hail breakage.
- **Accessories and Electrical Components –** 5 years from the date of purchase; VELUX warrants Velux shades and control systems will be free from defects in material and workmanship.

Cross Section



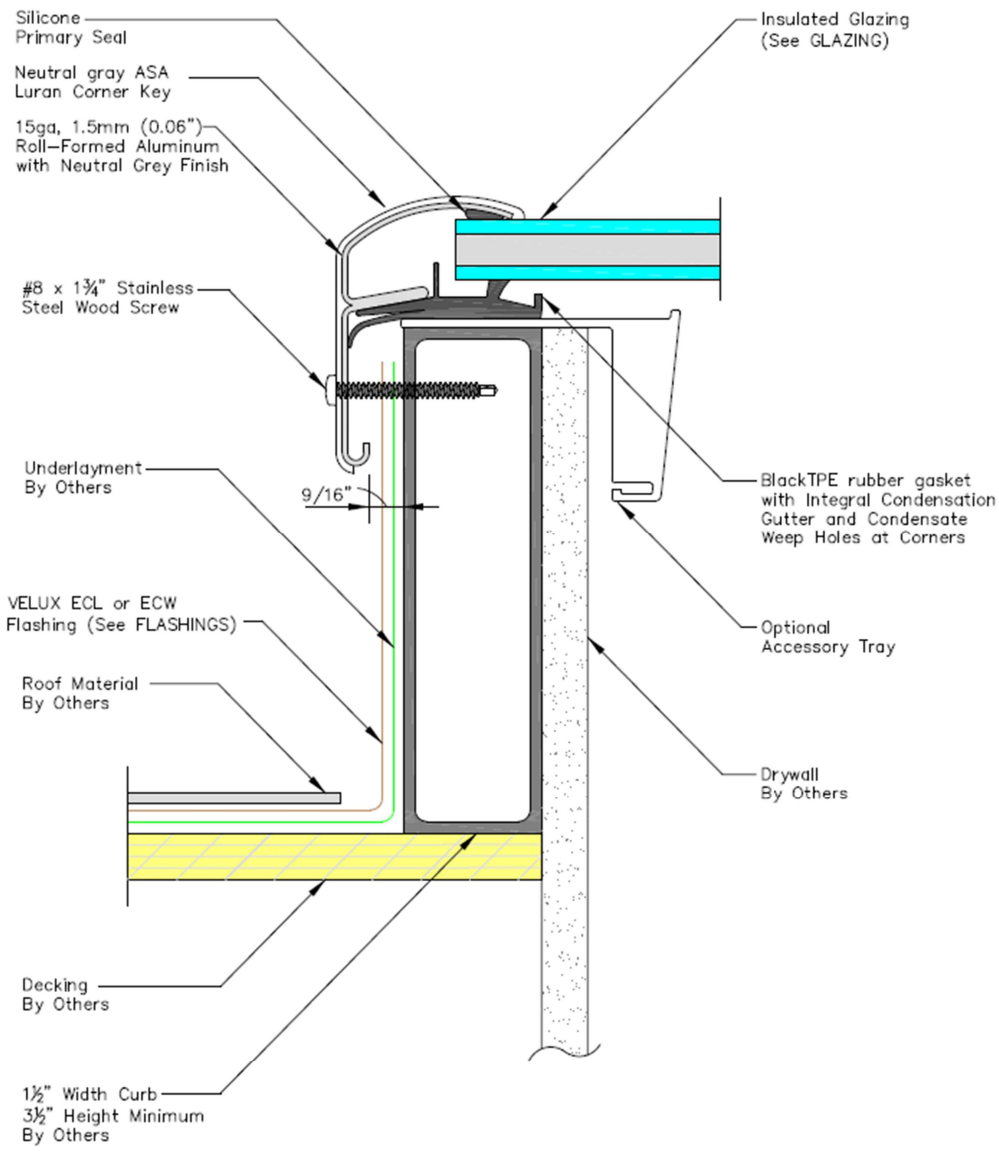
Size	Inside Curb	Outside Curb	Make Size
14	14-1/2"	17-1/2"	18-5/8"
22	22-1/2"	25-1/2"	26-5/8"
30	30-1/2"	33-1/2"	34-5/8"
34	34-1/2"	37-1/2"	38-5/8"
46	46-1/2"	49-1/2"	50-5/8"
55	55-1/2"	58-1/2"	59-5/8"
70	70-1/2"	73-1/2"	74-5/8"
72	72-1/2"	75-1/2"	76-5/8"

Custom Sizes	Width	Length
Min	18-¾	18-¾
Max	50-¾	76-½

Glazings and Certification

Glazing	NFRC U-factor	NFRC SHGC	NFRC Vt	Hallmark 426-H-701	IAPMO-ES ER 199	Fla Prod Approval 13303	HVHZ	TDI
04 Laminated – 2.3 mm laminated (0.76 mm interlayer) with tempered Low E366 outer pane.	0.48	0.27	0.63	√	√	√		SK-03
05 Tempered – 3 mm tempered clear with tempered Low E366 outer pane.	0.45	0.28	0.63	√		√		SK-03
06 Impact – 2.3 mm laminated (2.28 mm interlayer) with tempered Low E366 outer pane for hurricane areas	0.46	0.27	0.63	√	√	√	√	SK-14
08 White laminated – 2.3 mm Laminated (0.76mm white interlayer) with tempered Low E366 outer pane.	0.48	0.27	0.57	√	√	√		SK-03
10 Snowload – 3 mm laminated (0.76 mm interlayer) with tempered Low E366 outer pane.	0.47	0.27	0.63	√				
14 Laminated – 2.3 mm laminated (0.76 mm interlayer) with tempered Low E340 outer pane.	0.48	0.18	0.38	√		√		SK-03
15 Tempered – 3mm tempered clear with tempered Low E340 outer pane.	0.49	0.18	0.38	√		√		SK-03
16 Impact – 2.3 mm laminated (2.28 mm interlayer) with tempered Low E340 outer pane.	0.46	0.18	0.38	√		√	√	SK-14
29 Laminated Triple Pane – 2.3 mm laminated (0.76mm white interlayer), with 3 mm tempered middle pane, and tempered Low E366 outer pane.	0.38	0.25	0.57	√	√	√		
30 Tempered Triple Pane – 3 mm tempered clear with 3mm tempered middle pane and tempered Low E366 outer pane.	0.38	0.25	0.58	√		√		

Consult with Customer Service for special glazing options.


Silicone
Primary Seal
Neutral gray ASA
Luran Corner Key
15ga, 1.5mm (0.06")
Roll–Formed Aluminum
with Neutral Grey Finish
#8 x 1¾" Stainless
Steel Wood Screw
Underlayment
By Others
9/16"
VELUX ECL or ECW
Flashing (See FLASHINGS)
Roof Material
By Others
Decking
By Others
1½" Width Curb
3½" Height Minimum
By Others
Insulated Glazing
(See GLAZING)
BlackTPE rubber gasket
with Integral Condensation
Gutter and Condensate
Weep Holes at Corners
Optional
Accessory Tray
Drywall
By Others

ENERGY-SAVING GLASS FOR ANY CLIMATE

Andersen makes windows and patio doors with options that make them ENERGY STAR® v. 6.0 certified throughout the United States.

Visit **andersenwindows.com/energystar** for more information and to verify that the product with your glass option is ENERGY STAR certified in your area.

ASK ABOUT ENERGY STAR

LOW MAINTENANCE, NEVER NEEDS PAINTING

The Perma-Shield® exteriors on Andersen® 200 Series windows and patio doors offer superior weather resistance and are virtually maintenance free.

BUILT FOR YEARS TO COME*

Our products are built strong to last long.* We use the right materials in the right places, giving our windows and doors superior strength, stability and long-term beauty.

QUALITY SO SOLID, THE WARRANTY IS TRANSFERABLE*

Many other window and door warranties end when a home is sold, but our coverage — 20 years on glass, 10 years on non-glass parts — transfers from each owner to the next. And, because it is not prorated, the coverage offers full benefits, year after year, owner after owner. So it can add real value when you decide to sell your home.

OWNER2OWNER® LIMITED WARRANTY

* Visit andersenwindows.com/warranty for details.

PRODUCT OVERVIEW

TILT-WASH DOUBLE-HUNG WINDOWS

200 Series tilt-wash double-hung windows are available in our most popular sizes and feature low-maintenance exteriors and real wood interiors. Their tilt-wash design makes them easy to clean from inside the home.

GLIDING WINDOWS

200 Series gliding windows feature low-maintenance exteriors and real wood interiors. They have a single sash that glides horizontally to allow for full top to bottom ventilation and are an excellent choice for rooms that face walkways, porches or decks because the sash do not open outward.

Half circle windows are available in sizes to match our tilt-wash double-hung windows.

To learn more about other Andersen® window options, visit **andersenwindows.com/windows**.

NARROLINE® & PERMA-SHIELD® GLIDING PATIO DOORS

200 Series Narroline gliding doors combine the beauty of natural wood with sleek contemporary profiles to maximize views. Available in two- and four-panel configurations to fit virtually any size requirement.

200 Series Perma-Shield gliding doors are protected inside and out with rigid vinyl cladding to give homes a contemporary look while keeping maintenance to a minimum. They are available with convenient blinds-between-the-glass on select sizes and are available in two-panel configurations.

CUSTOM SIZES

HINGED INSWING PATIO DOORS

200 Series hinged inswing patio doors are built with fiberglass panel construction, traditional styling and white interiors and are available in three exterior colors. Their hook deadbolt lock provides extra strength, a more weathertight seal and added security compared to ordinary deadbolt locks. They are available in one- and two-panel configurations.

GLASS OPTIONS

Andersen has the glass you need to get the performance you want. From SmartSun™ glass with HeatLock® coating that is ENERGY STAR® certified in all climate zones* to Low-E glass with HeatLock coating that helps reflect heat back into the home and improves U-Factors. Check with your supplier for the selections that meet ENERGY STAR requirements in your area.

	ENERGY		LIGHT	
	U-FACTOR	SOLAR HEAT GAIN COEFFICIENT	VISIBLE LIGHT TRANSMITTANCE	UV PROTECTION
GLASS	How well a product prevents heat from escaping.	How well a product blocks heat caused by sunlight.	How much visible light comes through a product.	How well a product blocks ultraviolet rays.
SmartSun Thermal control similar to tinted glass, with visible light transmittance similar to Low-E glass.	★★★☆	★★★★	★★½☆	★★★★
SmartSun with HeatLock Coating Applied to the room-side surface, it reflects heat back into the home and improves U-Factors.	★★★½	★★★★	★★☆☆	★★★★
Low-E Outstanding overall performance for climates where both heating and cooling costs are a concern.	★★★☆	★★★☆	★★★☆	★★★☆
Low-E with HeatLock Coating Applied to the room-side surface, it reflects heat back into the home and improves U-Factors.	★★★½	★★★☆	★★½☆	★★★☆
Sun* Outstanding thermal control in southern climates where less solar heat gain is desired.	★★★☆	★★★★	★☆☆☆	★★★☆
PassiveSun® Ideal for northern, passive solar construction applications where solar heat gain is desired.	★★½☆	★☆☆☆	★★★☆	★★★☆
PassiveSun with HeatLock Coating Ideal for northern, passive solar construction applications where solar heat gain is desired.	★★★☆	★☆☆☆	★★½☆	★★★☆
Clear Dual-Pane High visibility with basic thermal performance.	★☆☆☆	☆☆☆☆	★★★★	☆☆☆☆

Center of glass performance only. Ratings based on glass options available as of March 2019. Visit andersenwindows.com/energystar for ENERGY STAR map and NFRC total unit performance data.

TIME-SAVING FILM

We help protect our products during delivery and construction with a translucent film on the glass. It also minimizes time spent masking on the jobsite, then peels away for a virtually spotless window.

ADDITIONAL GLASS OPTIONS

TEMPERED safety glass (standard on patio doors).

OBSCURE patterned glass to let in light while obscuring vision.

* Sun glass available on 200 Series patio doors only.

TILT-WASH DOUBLE-HUNG WINDOWS

SECTION REFERENCE

PRODUCT PERFORMANCE

Andersen® 200 Series Window and Patio Door Altitude Limits

The chart below gives the altitude limit in feet for most 200 Series products in this catalog. If the installation of a given product is at an altitude greater than that shown in this chart, a capillary breather tube must be ordered. Be aware that the use of a capillary breather tube eliminates argon gas blend fill and will result in a slightly lower thermal performance (approximately 0.02 increase in window U-Factor). For NFRC certified total unit performance on units with capillary breather tubes for higher altitude applications, please visit **andersenwindows.com/nfrc**.

The use of dual-pane insulating glass without capillary breather tubes at altitudes higher than its rating will result in severe glass distortion, increased glass breakage potential and a risk for seal failure.

Smaller windows are most affected by altitude changes. An increase in altitude results in a decrease in atmospheric pressure. A sealed insulating glass unit attempts to combat this change by increasing its volume to reduce its pressure. One way to increase its volume is by glass deflection. A smaller window is stiffer and does not deflect as much as a larger window; therefore, it cannot relieve the pressure as readily. Thus, the load applied to the glass is greater, resulting in a greater risk for breakage. Another way the window tries to increase its volume is by increasing the edge area; i.e. the seal area. The increased pressure applied to the edge seal load for a smaller window is therefore greater, increasing the chance for seal failure.

Product	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
Tilt-Wash Double-Hung Window				5,000 DH1830 DH1850 DH2830 DH1836 DH1856 DH3030 DH1840 DH1860 DH3430 DH1846 DH2030 DH1849 DH2430	6,000 DH2036 DH2056 DH3036 DH2430 DH2060 DH2050 DH2046 DH2436 DH3040 DH2049 DH2440 DH2040 DH2836 DH2840 DH3436 DH3440	7,000 DH2446 DH3046 DH2849 DH2449 DH2456 DH3049 DH2450 DH2460 DH3449 DH2846 DH3436 DH3446	8,000	DH2850 DH2856 DH2860 DH3450 DH3050	DH3056 DH3456 DH3060 DH3460
Tilt-Wash Picture Window			FX5010 FX4610				FX3056 FX3049 FX3050 FX4930 FX3030 FX5030 FX3040 FX5630 FX3046 FX4030 FX3060 FX4630		10,000 FX5056 FX6040 FX4656 FX5040 FX5050 FX4046 FX4940 FX5046 FX4650 FX4049 FX4946 FX5049 FX4649 FX4050 FX4949 FX5060 FX4660 FX4056 FX4950 FX5640 FX4040 FX4640 FX4956 FX5646 FX4060 FX4646 FX4960 FX5649 FX5650 FX6046 FX6049 FX6050
Tilt-Wash Transom Window	4,000 FX3410	FX3016 FX1816 FX2410 FX2016	FX2416 FX3010 FX2010 FX1810 FX2810 FX2816 FX3416 FX1820	FX3420 FX2420 FX3020 FX2020 FX2820			FX6030		
Tilt-Wash Half Circle Window		CT20	CT24 CT30 CT28 CT18	CT34					
Gliding Window				GW3030 GW3020 GW4016	GW4046 GW4040 GW4036 GW4030 GW4020 GW3040 GW4050 GW3036			GW5050 GW5046 GW5040 GW5036 GW5030	GW6050 GW6040 GW6036 GW6046 GW6030
Narroline® Gliding Patio Door								NLGD5068 NLGD5080 NLGD50611	NLGD6068 NLGD6080 NLGD80611 NLGD60611 NLGD8068 NLGD8080
Perma-Shield® Gliding Patio Door								PS5068	PS51168 PS61611 PS81611 PS6180 PS8180
Hinged Inswing Patio Door			ISPD4168 ISPD4176 ISPD41611 ISPD4180			ISPD5068 ISPD5076 ISPD50611 ISPD5080	ISPD5468 ISPD5476 ISPD54611 ISPD5480		ISPD6068 ISPD6076 ISPD60611 ISPD6080

- Deflection of glass will occur on units with larger glass areas. If interior/exterior grilles are used on double-hung windows, gliding windows or gliding patio doors, some interference may occur, affecting operation of these units.
- Altitude limits for patio doors shown in two-panel configurations. These limits also qualify for same size panels used in one or multiple panel configurations.
- **Contact your Andersen supplier for altitude limits for custom sized windows and patio doors.**

Andersen® windows and doors can make significant contributions to the success of sustainable design strategies.

As a charter member of the U.S. Green Building Council, we are active supporters of certified green buildings. Our products can help customers in pursuing green building programs, such as Leadership in Energy and Environmental Design (LEED®), the National Green Building Standard, Green Globes, GreenStar and more.

Below is an overview of how our products may assist project teams with pursuing LEED v4 or the NAHB National Green Building Standard rating systems. More detailed credit summaries, as well as information about how Andersen products can support earlier versions of LEED certification (e.g., LEED v3 or LEED 2008), are available at **andersenwindows.com**.

LEED v4 FOR BUILDING DESIGN AND CONSTRUCTION: NEW CONSTRUCTION AND MAJOR RENOVATIONS

Integrative Process Credit: Energy & Atmosphere

- Minimum energy performance prerequisite
- Optimize energy performance credit
- Renewable energy production credit
- Green power and carbon offsets credit

Materials & Resources

- Construction and demolition waste management planning credit
- Building product disclosure and optimization sourcing of raw materials credit
- Construction and demolition waste management credit

Indoor Environmental Quality

- Minimum indoor air quality performance prerequisite
- Minimum acoustic performance prerequisite – schools
- Enhanced indoor air quality strategies credit
- Low-emitting materials credit
- Thermal comfort credit
- Daylight credit
- Quality views credit
- Acoustic performance credit (option 2)

LEED v4 FOR BUILDING DESIGN AND CONSTRUCTION: HOMES AND MULTI-FAMILY MIDRISES

Energy & Atmosphere

- Minimum energy performance prerequisite
- Education of the homeowner, tenant or building prerequisite
- Annual energy use credit
- Building orientation for passive solar credit
- Air infiltration credit
- Windows credit

Materials & Resources

- Durability management prerequisite
- Environmentally preferable products credit
- Construction waste management credit

Indoor Environmental Quality

- Ventilation prerequisite
- Low-emitting products credit

ANSI ICC/ASHRAE 700-2015 NATIONAL GREEN BUILDING STANDARD

NGBS section numbers are referenced in parentheses.

Resource Efficiency

- Prefinished materials (601.7)
- Flashing (602.12)
- Exterior doors, including storm doors (602.1.10)
- Recycled construction materials (605.3)
- Bio-based products (606.1)
- Wood-based products (606.2)
- Manufacturer's environmental management system concepts (611.1)

Energy Efficiency

- Mandatory requirements (701.1)
- Building thermal envelope air sealing (701.4.3.1)
- Multi-family air leakage alternative (701.4.3.3)
- Fenestration air leakage (701.4.3.4)
- ICC IECC analysis (702.2.1)
- Energy performance analysis (702.2.2)
- UA improvement (703.2.1)
- Fenestration (703.2.5)
- Sun-tempered design (703.7.1)
- Passive cooling design (703.7.3)
- Passive solar heating design (703.7.4)

Indoor Environmental Quality

- Wood materials (901.4)
- Interior architectural coatings (901.9)
- Interior adhesives & sealants (901.10)
- Operable windows & sliding glass doors (902.1.5)

Energy Efficient

- Homeowner's manual (1001.1)
- Building construction manual (1002.1)

RELIABLE & ENERGY EFFICIENT

As our most popular and longest-standing products, the 400 Series product line offers a distinct blend of design, reliability and trade confidence. Designed for easy installation for replacement, remodel or new construction projects, 400 Series products feature our Perma-Shield® exterior cladding that revolutionized the window industry. They are also backed by our renowned limited warranty and the largest service network in the industry.

ENERGY-SAVING GLASS FOR ANY CLIMATE

Andersen makes windows and patio doors with options that make them ENERGY STAR® v. 6.0 certified throughout the United States.

Visit **andersenwindows.com/energystar** for more information and to verify that the product with your glass option is ENERGY STAR certified in your area.

ASK ABOUT ENERGY STAR

RIGOROUSLY TESTED

The exclusive Andersen® Perma-Shield system gives our windows and doors a tough, protective shell that safeguards the wood inside. It repels water, resists dents* and stays beautiful for years.

OPTIONS FOR THE HARSHEST WEATHER

400 Series windows with Stormwatch® Protection meet building code requirements in coastal areas.* Products with Stormwatch Protection are energy efficient, resist the effects of salt water and stand up to hurricane-force winds and wind-borne debris.** For details, visit **andersenwindows.com/coastal**.

StormWATCH PROTECTION

LOW MAINTENANCE, NEVER NEEDS PAINTING

The Perma-Shield exteriors on Andersen 400 Series windows and doors offer superior weather resistance and are virtually maintenance free.

QUALITY SO SOLID, THE WARRANTY IS TRANSFERABLE*

Many other window and door warranties end when a home is sold, but our coverage — 20 years on glass, 10 years on non-glass parts — transfers from each owner to the next. And, because it is not prorated, the coverage offers full benefits, year after year, owner after owner. So it can add real value when you decide to sell your home.

OWNER2OWNER® LIMITED WARRANTY

BUILT FOR YEARS TO COME*

Our products are built strong to last long.* We use the right materials in the right places, including solid wood, fiberglass and our own Fibrex® composite material. These give our windows and doors superior strength, stability and long-term beauty.

KEEPS THE WEATHER OUT

Our weather-resistant construction and careful selection of weatherstrip by product type, seals out drafts, wind and water whatever the weather.

* Visit andersenwindows.com/warranty for details.

** Andersen 400 Series casement window, other product performance may vary.

REPLACEMENT SOLUTIONS

Find the comfort and low maintenance your customers are looking for in replacement windows with Andersen. Our replacement and insert windows are available in custom sizes, designed for easy installation and arrive with an installation kit, so you finish in less time. Andersen® windows and patio doors have beautiful wood interiors that add value to your customers' homes — so they're not just replacing, they're upgrading.

400 SERIES WOODWRIGHT® DOUBLE-HUNG INSERT WINDOW

The classic, traditional style of Woodwright full-frame windows in a time-saving insert.

400 SERIES TILT-WASH DOUBLE-HUNG INSERT WINDOW

Our best-selling double-hung window in an insert for easy replacement.

400 SERIES REPLACEMENT CASEMENT & AWNING WINDOWS

Available without an installation flange for easy window replacement from inside or outside. Features predrilled, through-the-jamb installation holes for quick installation.

Our insert and replacement windows include flat, self-hanging shims, backer rod, installation screws and complete instructions.

CUSTOM-SIZE PATIO DOORS

Whether you need a hinged or gliding patio door for replacement, Andersen has a number of custom-size options to fit your project.

CUSTOM SIZES

CUSTOM-SIZE FULL-FRAME WINDOWS

When the existing window frame is rotted or deteriorated or you're modifying the size or shape of the existing window opening, our full-frame double-hung, casement, awning and specialty windows are available in custom sizes to fit your project.

GLASS OPTIONS

Andersen has the glass you need to get the performance you want. From SmartSun™ glass with HeatLock® coating that is ENERGY STAR® certified in all climate zones* to PassiveSun® glass that helps heat homes in northern areas, there's an option for every climate, project and customer. Check with your supplier for the selections that meet ENERGY STAR requirements in your area.

PERFORMANCE COMPARISON OF ANDERSEN® GLASS OPTIONS

GLASS	ENERGY		LIGHT	
	U-FACTOR How well a product prevents heat from escaping.	SOLAR HEAT GAIN COEFFICIENT How well a product blocks heat caused by sunlight.	VISIBLE LIGHT TRANSMITTANCE How much visible light comes through a product.	UV PROTECTION How well a product blocks ultraviolet rays.
SmartSun	●●●○	●●●●	●●◐○	●●●●
SmartSun with HeatLock Coating	●●●◐	●●●●	●●○○	●●●●
Low-E4®	●●●○	●●●○	●●●○	●●●○
Low-E4 with HeatLock Coating	●●●◐	●●●○	●●◐○	●●●○
Sun	●●●○	●●●●	●○○○	●●●○
PassiveSun	●●◐○	●○○○	●●●○	●●●○
PassiveSun with HeatLock Coating	●●●○	●○○○	●●◐○	●●●○
Clear Dual-Pane	●○○○	○○○○	●●●●	○○○○

Center of glass performance only. Ratings based on glass options as of January 2019. Visit andersenwindows.com for ENERGY STAR map and NFRC total unit performance data.

TIME-SAVING FILM

We help protect our products during delivery and construction with a translucent film on the glass. It also minimizes time spent masking on the jobsite, then peels away for a virtually spotless window.

ASK ABOUT ENERGY STAR

Visit **andersenwindows.com/glass** for more details on our glass options.

ADDITIONAL GLASS OPTIONS

TEMPERED safety glass, standard on patio doors

LAMINATED glass for added strength, enhanced security and sound control

PATTERNED glass lets in light while obscuring vision and adds a unique, decorative touch. Cascade and Reed patterns can be ordered with either a vertical or horizontal orientation.


Cascade


Fern


Obscure


Reed

ART GLASS

With art glass from Andersen, you can add interest, create focal points and make your work stand out. These finely crafted inserts are available in two distinctly different series — Classic and Artisan — to complement any home's architecture. Visit **andersenwindows.com/artglass** for more information.

STORMWATCH® PROTECTION

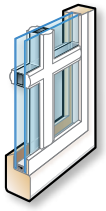
Most Andersen 400 Series windows are available with impact-resistant glass and structural upgrades to meet the tough building codes of hurricane-prone coastal areas. See your local code official for specific requirements.

StormWATCH PROTECTION

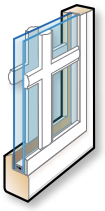
* Andersen 400 Series products only with SmartSun glass with HeatLock coating (argon gas blend), no grilles, no capillary breather tubes. Excludes patterned/textured glass.

GRILLE OPTIONS

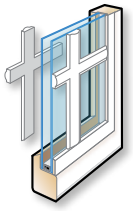
Grille patterns are available in widths and configurations to fit any architectural style or the taste of any customer. We can match virtually any existing grille pattern and we'll even work with you and your customers to create custom patterns.



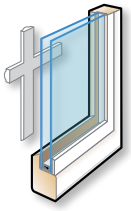
Permanent exterior
Permanent interior with spacer



Permanent exterior
Permanent interior



Permanent exterior
Removable interior



Removable interior

Finelight Grilles-Between-the-Glass*

FULL DIVIDED LIGHT

Permanently applied to the exterior and interior of the window with a spacer between the glass.

SIMULATED DIVIDED LIGHT

Permanent grilles on the exterior and interior with no spacer between the glass. We also offer permanent exterior grilles with removable interior grilles.

CONVENIENT CLEANING OPTIONS

Removable interior grilles come off for easy cleaning. Finelight™ grilles-between-the-glass are installed between the glass panes and feature a contoured profile in 1" (25) and ¾" (19) widths.

GRILLE BAR WIDTHS

Actual size shown.

¾" (19) ⅞" (22) 1 ⅛" (29) 2 ¼" (59)

To see all of the standard patterns available for a specific window, refer to the detailed product sections in this product guide.

* ⅞" (22), 1 ⅛" (29) and 2 ¼" (57) not available in Finelight grilles-between-the-glass.
Dimensions in parentheses are in millimeters.

CASEMENT & AWNING WINDOWS

SECTION REFERENCE

CUSTOM SIZING
in ⅛" (3) increments

Dimensions in parentheses are in millimeters.

PRODUCT PERFORMANCE

Andersen® 400 Series Window and Patio Door Altitude Limits

The chart below gives the altitude limit in feet for most 400 Series products in this catalog. If the installation of a given product is at an altitude greater than that shown in this chart, a capillary breather tube must be ordered. Be aware that the use of a capillary breather tube eliminates argon gas blend fill and will result in a slightly lower thermal performance (approximately 0.02 increase in window U-Factor). For NFRC certified total unit performance on units with capillary breather tubes for higher altitude applications, please visit **andersenwindows.com/nfrc**.

The use of dual-pane insulating glass without capillary breather tubes at altitudes higher than its rating will result in severe glass distortion, increased glass breakage potential and a risk for seal failure.

Smaller windows are most affected by altitude changes. An increase in altitude results in a decrease in atmospheric pressure. A sealed insulating glass unit attempts to combat this change by increasing its volume to reduce its pressure. One way to increase its volume is by glass deflection. A smaller window is stiffer and does not deflect as much as a larger window; therefore, it cannot relieve the pressure as readily. Thus, the load applied to the glass is greater, resulting in a greater risk for breakage. Another way the window tries to increase its volume is by increasing the edge area; i.e. the seal area. The increased pressure applied to the edge seal load for a smaller window is therefore greater, increasing the chance for seal failure.

Product	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
Casement & Awning Windows				CR12 CN12 CR13 CN13 CR135 CN135 CR14 CN14 CR15 CN145 CR16 CN15 CR45 CN155 CR155 CN16 CR125 AN251 AN281	C12 C14 AN251 C15 C13 C155 C135 C16 C145 CW12 A281 C125 CXW12		CW13 CW145 CW135 CW15 CW14 CW155 CX125 CW16 AX251 AW251 CW125 AW281 CXW125	CX13 AXW281 CX135 AX31 CX14 AX351 CX145 AX41 CX15 AX451 CX155 AX51 CX16 AX551 AX61	A335/CP353 CXW45 CP3535 CXW5/CP305 CXW3/CP303 CXW155 CXW35 CXW6 CXW4
		4,000							10,000
Casement/Awning Transom & Picture Windows		CTR1510 CTR3010 CTR5010 CTR1810 CTR2910 CTR5210 CTR2010 CTR3410 CTR51110 CTR2410 CTR4010 CTR6010 CTR2810 CTR4810 CTR7010					P3030 P3050 P3035 P3055 P3040 P3060 P3045	P3535 P5050 P3540 P3555 P3545 P3560 P3550 P4040	P4045 P4060 P5060 P4050 P4545 P4560 P5055 P4550 P4055 P4555
Woodwright® Double-Hung Windows E = equal sash C = cottage sash Designate product code as WDH, WU, WH or WA.		18210 34210 20210 28210 24210 210210 30210 38210 26210		1832 3032 1836 3036 18310 3832 1842 1862 2632 1856C 2636 2032 2832 2036 3436 2432 1846 2836 18410 3432 1852 21032 1856E 3836 18510 2436 21036	20310 2056C 2042 3442 2046 38310 20410 3842 210310 24310 21042 2442 30310 26310 3042 2642 2052 28310 2056E 34310 20510 2842 2062	2446 2646 24410 2846 2452 21046 2456E 3046 24510 3048 2462 3446 2456C 3846	26410 28410 2652 2852 2656E 2856E 26510 28510 3052 2862 34410 2856C 3452 210410 38410 21052 2662 3852 2656C 30410	21056E 3056E 210510 3456E 21062 3856E 21056C	30510 3456C 3062 38510 3056C 3862 34510 3856C 3462
		4,000							
Woodwright® Transom Windows	WTR1810 WTR4210 WTR31015 WTR31017 WTR1815 WTR3410 WTR41010 WTR4217 WTR1817 WTR1823 WTR5610 WTR41017 WTR18111 WTR1827 WTR4215 WTR6210 WTR18121 WTR1831 WTR2017 WTR5617 WTR31010 WTR2010 WTR2410 WTR2815 WTR2015 WTR2415 WTR2817 WTR3415 WTR2417 WTR3010 WTR3417 WTR2810 WTR3015 WTR3810 WTR41015 WTR3017 WTR3815 WTR5615 WTR6217 WTR3817 WTR6215			WTR20111 WTR28121 WTR20121 WTR30111 WTR2023 WTR31021 WTR2027 WTR4221 WTR2031 WTR41021 WTR310111 WTR5621 WTR42111 WTR6221 WTR410111 WTR30121 WTR56111 WTR34111 WTR62111 WTR34121 WTR24111 WTR38111 WTR24121 WTR38121 WTR28111	WTR2423 WTR3823 WTR2427 WTR31023 WTR2431 WTR4223 WTR2823 WTR41023 WTR3023 WTR5623 WTR3423 WTR6223	WTR2827 WTR31027 WTR2831 WTR4227 WTR3027 WTR41027 WTR3427 WTR5627 WTR3827 WTR6227	WTR3031 WTR3431 WTR3831	WTR31031 WTR4231 WTR41031 WTR5631 WTR6231	
Woodwright® Picture Windows		WPW10310 WPW1042 WPW1046 WPW10410 WPW1052 WPW1056 WPW10510 WPW1062					WPW30310 WPW3056 WPW3042 WPW30510 WPW3046 WPW3062 WPW30410 WPW3052	WPW34310 WPW3456 WPW3442 WPW34510 WPW3446 WPW3462 WPW34410 WPW3452	WPW310310 WPW31056 WPW42410 WPW31042 WPW310510 WPW4252 WPW31046 WPW31062 WPW4256 WPW310410 WPW42310 WPW5642 WPW4262 WPW41052 WPW5646 WPW410310 WPW41056 WPW56410 WPW41042 WPW410510 WPW5652 WPW41046 WPW41062 WPW56510 WPW410410 WPW56310 WPW5662 WPW5656 WPW4242 WPW42510 WPW31052 WPW4246
		5,000		6,000		7,000	8,000	9,000	
Tilt-Wash Double-Hung Windows E = equal sash C = cottage sash		TW18210 TW2828 TW21032 TW34210 TW1832 TW1842 TW3032 TW3432 TW1836 TW1846 TW30210 TW38210 TW18310 TW18410 TW18510 TW3832 TW2432 TW1852 TW1862 TW24210 TW26210 TW1856E TW1856C TW1872 TW2632 TW2832 TW20210 TW1876 TW28210 TW210210 TW2032		TW2036 TW20410 TW38310 TW20310 TW2052 TW2056C TW2042 TW2056E TW2436 TW2046 TW20510 TW24310 TW28310 TW2062 TW2636 TW21036 TW3436 TW26310 TW210310 TW34310 TW30310 TW3036 TW3836 TW2836 TW2072 TW2076	TW2442 TW2446 TW2646 TW2642 TW24410 TW2846 TW2842 TW2452 TW21046 TW21042 TW2456E TW3046 TW3042 TW24510 TW3048 TW3442 TW2462 TW3446 TW3842 TW2456C TW3846 TW2472 TW2476	TW26410 TW2656C TW2672 TW2652 TW28410 TW2676 TW2656E TW2852 TW2872 TW26510 TW2856E TW2876 TW2862 TW3052 TW2856C TW34410 TW210410 TW3452 TW21052 TW38410 TW30410 TW3852 TW2662 TW28510	TW21056E TW3456E TW21072 TW210510 TW34510 TW21076 TW21062 TW3462 TW3072 TW21056C TW3456C TW3076 TW3056E TW3856E TW3472 TW30510 TW38510 TW3476 TW3062 TW3856C TW3872 TW3056C TW3862 TW3876

continued on next page

- Deflection of glass will occur on units with larger glass areas. If interior/exterior grilles are used on double-hung windows, gliding windows or gliding patio doors, some interference may occur, affecting operation of these units.
- Altitude limits for patio doors shown in two-panel configurations. These limits also qualify for same size panels used in one or multiple panel configurations.
- **Contact your Andersen supplier for altitude limits for custom-sized windows and patio doors.**

PRODUCT PERFORMANCE

Center of Glass Performance Data for products with **Low-E4® SmartSun™** Glass

For current performance information, please visit **andersenwindows.com**.

Andersen® Product	VT[1]	SC[2]	SHGC[3]	RHG[4]	Fading Tuv[5]	Fading Tdw[6]	%RH @ Center[7]	IGST[8]
400 Series Casement, Awning & Tilt-Wash Double-Hung Full-Frame Windows	66%	0.32	0.28	66	5%	21%	61%	56°F
400 Series Gliding Window, Half Circle, Circle & Oval Windows	66%	0.31	0.27	66	5%	21%	61%	56°F
400 Series Casement/Awning Picture & Transoms, Woodwright® Double-Hung, Picture & Transom Full-Frame, Woodwright® Double-Hung, Picture & Transom Insert, Tilt-Wash Picture & Transom Full-Frame, Tilt-Wash Double-Hung, Picture & Transom Insert Windows	65%	0.31	0.27	65	5%	21%	61%	56°F
400 Series Elliptical Windows, Frenchwood® Hinged Inswing Patio Doors, Frenchwood® Patio Door Sidelights, Sidelight Transoms & Transoms	65%	0.31	0.27	66	5%	21%	61%	56°F
400 Series Frenchwood® Gliding Patio Doors	64%	0.32	0.27	66	5%	21%	61%	56°F
400 Series Flexiframe®, Arch & Springline™ Windows	63%	0.31	0.27	65	4%	20%	61%	56°F
400 Series Complementary Springline & Arch Hinged Inswing Patio Doors	65%	0.31	0.27	207	5%	21%	61%	56°F

Center of Glass Performance Data for products with **Low-E4®** Glass

For current performance information, please visit **andersenwindows.com**.

Andersen Product	VT[1]	SC[2]	SHGC[3]	RHG[4]	Fading Tuv[5]	Fading Tdw[6]	%RH @ Center[7]	IGST[8]
400 Series Casement, Awning & Tilt-Wash Double-Hung Full-Frame Windows	73%	0.48	0.42	100	17%	34%	61%	56°F
400 Series Gliding Window, Half Circle, Circle & Oval Windows	73%	0.48	0.42	99	17%	34%	61%	56°F
400 Series Casement/Awning Picture & Transoms, Woodwright® Double-Hung, Picture & Transom Full-Frame, Woodwright® Double-Hung, Picture & Transom Insert, Tilt-Wash Picture & Transom Full-Frame, Tilt-Wash Double-Hung, Picture & Transom Insert Windows	72%	0.47	0.41	98	16%	33%	61%	56°F
400 Series Elliptical Windows, Frenchwood Hinged Inswing Patio Doors, Frenchwood Patio Door Sidelights, Sidelight Transoms & Transoms	72%	0.48	0.41	98	16%	33%	61%	56°F
400 Series Frenchwood Gliding Patio Doors	71%	0.47	0.41	98	16%	33%	61%	56°F
400 Series Flexiframe, Arch & Springline Windows	70%	0.46	0.40	95	14%	31%	61%	56°F
400 Series Complementary Springline & Arch Hinged Inswing Patio Doors	72%	0.48	0.41	310	16%	33%	61%	56°F

Center of Glass Performance Data for products with **Low-E4® Sun** Glass

For current performance information, please visit **andersenwindows.com**.

Andersen Product	VT[1]	SC[2]	SHGC[3]	RHG[4]	Fading Tuv[5]	Fading Tdw[6]	%RH @ Center[7]	IGST[8]
400 Series Casement, Awning & Tilt-Wash Double-Hung Full-Frame Windows	40%	0.30	0.26	62	17%	25%	61%	56°F
400 Series Gliding Window, Half Circle, Circle & Oval Windows	40%	0.29	0.26	62	17%	25%	59%	55°F
400 Series Casement/Awning Picture & Transoms, Woodwright® Double-Hung, Picture & Transom Full-Frame, Woodwright® Double-Hung, Picture & Transom Insert, Tilt-Wash Picture & Transom Full-Frame, Tilt-Wash Double-Hung, Picture & Transom Insert Windows	40%	0.29	0.25	61	16%	24%	59%	55°F
400 Series Elliptical Windows, Frenchwood Hinged Inswing Patio Doors, Frenchwood Patio Door Sidelights, Sidelight Transoms & Transoms	40%	0.29	0.25	61	16%	24%	59%	55°F
400 Series Frenchwood Gliding Patio Doors	39%	0.29	0.25	61	15%	23%	61%	56°F
400 Series Flexiframe, Arch & Springline Windows	37%	0.28	0.24	59	13%	22%	61%	56°F
400 Series Complementary Springline & Arch Hinged Inswing Patio Doors	40%	0.29	0.25	193	16%	24%	59%	55°F

• "Low-E4®," "Low-E4® SmartSun™" and "Low-E4® Sun" are Andersen trademarks for "Low-E" glass.
• Based on NFRC testing/simulation conditions using Windows v7.4.6.0 and NFRC validated spectral data. 0°F outside temperature, 70°F inside temperature and a 15 mph wind.
1) Visible Transmittance (VT) measures how much light comes through the glass. The higher the value, from 0 to 1, the more daylight the glass lets in. Visible Transmittance is measured over the 380 to 760 nanometer portion of the solar spectrum.
2) Shading Coefficient (SC) defines the amount of heat gain through the glass compared to a single light of clear $^1/_8$" (3) glass.
3) Solar Heat Gain Coefficient (SHGC) defines the fraction of solar radiation admitted through the glass both directly transmitted and absorbed and subsequently released inward. The lower the value, the less heat is transmitted through the glass.
4) Relative Heat Gain (RHG) is the amount of heat gain through a glazing incorporating U-Factor and Solar Heat Gain Coefficient.
5) Transmission Ultra-Violet Energy (Tuv). The transmission of short-wave energy in the 300-380 nanometer portion of the solar spectrum. The energy can cause fabric fading.
6) Transmission Damage Function (Tdw). The transmission of UV and visible light energy in the 300-600 nanometer portion of the solar spectrum. The value includes both the UV and visible light energy that can cause fabric fading. This rating has also been referred to as the Krochmann Damage Function. This rating better predicts fading potential than UV transmission alone. The lower the Damage Function rating, the less transmission of short-wave energy through the glass that can potentially cause fabric fading. Fabric type is also a key component of fading potential.
7) Percent relative humidity before condensation occurs at the center of glass, taken using center of glass temperature.
8) Inside glass surface temperatures are taken at the center of glass.
• This data is accurate as of February 2019. Due to ongoing product changes, updated test results, or new industry standards, this data may change over time. Contact your Andersen supplier for current performance information or upgrade options.
• Contact your Andersen supplier or visit andersenwindows.com/nfrc for total unit performance data on windows and patio doors (including units with patterned glass, tempered glass and glass with capillary breather tubes).