Purpose and Applications: This guide specification covers Andersen® E-Series windows. These windows are suitable for new construction, remodeling or replacement applications.

Product Features: E-Series window products are extruded aluminum clad wood and each product is made to exact specifications. There are 50 standard exterior colors, 7 anodized finishes and custom colors available in various shapes and sizes to create dramatic window combinations. Wood interiors in 10 species, 12 finish options, between-the-glass blinds, shades and grilles are available.

This Document: This guide specification document is provided by Andersen Corporation as a technical support tool incident to the sale of its products. Andersen Corporation is solely responsible for its content. This document should be reviewed and edited to suit Project requirements by a qualified design professional. Performance values expressed in this document may vary based on size, configuration and specified options. Product data contained in this guide specification is accurate as of the date of issue indicated above. Due to ongoing product changes, this data may change over time. Consult manufacturer for complete product information.

Contact Information: Contact manufacturer for more information on this or other products made by Andersen Corporation: Andersen Windows, Inc., Andersen Service Center, 100 Fourth Ave North, Bayport, MN 55003-1096. Telephone: (800) 299-9029.

Website: <http://www.andersenwindows.com/for-professionals>

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Editor Note: Edit document to suit Project requirements and specifier practice. Specifier notes are shown in blue text like this. Optional text [**is shown in bold with brackets like this**]. Locations where language for Project-specific requirements is to be inserted are shown like this: <**insert language**>. Remove specifier notes and unused optional text in final version of the specification document.

Editor Note: The Construction Specifications Institute (CSI) recommends and supports use of its current MasterFormat section title and numbering system, shown below.

SECTION 08 52 13 – METAL-CLAD WOOD WINDOWS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Wood-framed, aluminum-clad windows of the following types: [**casement**] [**awning**] [**double-hung**] [**gliding**] [**direct-set fixed**] [**and**] [**sash-set fixed**].

Editor Note: Revise paragraph below to suit Project requirements. Add section numbers and titles according to CSI MasterFormat and specifier practice. This paragraph is intended for use only when a reader might reasonably expect to find work requirements in this Section, but those requirements are actually located in another, related section.

B. Related Sections: Section(s) related to this section include:

1. <**Insert Work Title**>: <**Insert Division number**> Section <**Insert Section title**>.

Editor Note: Standards numbers and titles in the article below are provided for specifier information and reference. The purpose of this Article is to fully identify standards that are referenced elsewhere using abbreviated nomenclature. Retain, edit or delete article to suit specifier practice and Project requirements.

1.2 REFERENCES

A. General: Standards listed by reference form a part of this specification section. Standards listed are identified by issuing authority, abbreviation, designation number, title or other designation. Standards subsequently referenced in this Section are referred to by issuing authority abbreviation and standard designation.

B. American Architectural Manufacturers Association (AAMA):

1. AAMA 450 - Voluntary Performance Rating Method for Mulled Fenestration Assemblies.

2. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products.

3. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.

4. AAMA 902 - Voluntary Specification for Sash Balances.

5. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.

6. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

7. NAFS - North American Fenestration Standard/Specification for windows, doors and skylights.

C. Andersen E-Series Product Installation Guides.

D. ASTM International (ASTM):

1. ASTM C1036 - Standard Specification for Flat Glass.

2. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.

3. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

4. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.

5. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.

6. ASTM F2090 - Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms.

Editor Note: Retain paragraph below when pine, FSC Certified – Mixed Credit certification is required and coordinate with Part 2 - Products.

E. Forest Stewardship Council (FSC): FSC Chain-of-Custody Certification.

F. Insulating Glass Certification Council (IGCC): Insulating Glass Unit Certification.

G. Insulating Glass Manufacturers Alliance of Canada (IGMAC) and Canadian General Standards Board (CGSB): Insulating Glass Units Standard CAN/CGSB 12.8-97.

H. International Standards Organization (ISO): ISO 14021 - Environmental Labels and Declarations -- Self-Declared Environmental Claims (Type II Environmental Labeling).

I. National Fenestration Rating Council (NFRC):

1. NFRC 100 - Procedure for Determining Fenestration Product U-Factors.

2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.

J. Texas Department of Insurance: Product Evaluation WIN-1875 for compliance with wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

K. U.S. Environmental Protection Agency (EPA): ENERGY STAR.

L. Window and Door Manufacturers Association (WDMA):

1. WDMA Hallmark Certification Program for Manufacturers.

2. WDMA I.S. 4 - Industry Specification for Preservative Treatment for Millwork.

1.3 ADMINISTRATIVE REQUIREMENTS

Editor Note: Retain paragraph below if pre-installation meetings are required and edit to suit Project requirements.

A. Pre-installation Meetings: Conduct pre-installation meeting to clarify Project requirements, substrate conditions, manufacturer’s installation instructions and manufacturer’s warranty requirements.

1.4 PERFORMANCE REQUIREMENTS

Editor Note: Project requirements in paragraph below might include but not be limited to design wind load, wind speed, maximum design deflection, importance factor, exposure category, and performance class.

A. Structural Performance Requirements:

1. Comply with requirements of NAFS.

2. <**Insert requirements**>.

Editor Note: Retain paragraph below if compliance with a whole-building rating system (such as USGBC LEED, GBI Green Globes, or other) or specific sustainability-related design and construction aspects are required. Edit to suit Project requirements. Project requirements might include but not be limited to energy performance, recycled material content, regional materials, and indoor air quality.

C. Environmental Performance Requirements: <**Insert requirements**>.

1.5 SUBMITTALS

A. Product Data: For each type of product required.

B. Shop Drawings: Showing methods of installation, plans, sections, elevations and details of walls, specified loads, flashings, vents, sealants, and interfaces with all materials not supplied by the window manufacturer, and identification of proposed component parts and finishes.

C. Samples: Selection and verification samples for finishes, colors and textures. Submit two complete sample sets of each type of material required.

D. Certificates: Signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.

E. Test and Evaluation Reports: Showing compliance with specified performance characteristics and physical properties.

F. Manufacturer Instructions: Manufacturer installation, storage, and other instructions.

Editor Note: Retain paragraph below if compliance with a whole-building rating system (such as USGBC LEED, GBI Green Globes, or other) or specific sustainability-related design and construction aspects is required. Edit to suit Project requirements.

G. Sustainable Design Submittals in Compliance with ISO 14021.

H. Qualification Statements: For manufacturer and installer.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Member in good standing of the Insulating Glass Certification Council (IGCC).

2. Hallmark Certified Manufacturer and member in good standing of the Window and Door Manufacturers Association (WDMA).

3. Member in good standing of the U.S. Green Building Council.

4. U.S. EPA ENERGY STAR Partner.

5. Capable of demonstrating an extended history of window and door design, production and innovation.

Editor Note: Retain paragraph below when a separate installer warranty is required.

B. Installer Qualifications:

1. Minimum five years’ experience in the commercial installation of products required for the Project.

2. Experience on at least five projects of similar size, type and complexity as the Project.

3. An entity utilizing workers competent in techniques required by manufacturer for product types and applications indicated.

1.7 DELIVERY, STORAGE AND HANDLING

A. Comply with manufacturer’s ordering instructions and lead time requirements to avoid construction delays.

B. Deliver materials to Project in manufacturer’s original unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials and accessories protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by manufacturer off ground, under cover and not exposed to weather and construction activities.

1.8 WARRANTY

Editor Note: Coordinate article below with Conditions of the Contract and with Division 01 Closeout Submittals (Warranty) Section.

A. Special Warranty: Manufacturer's transferrable, non-prorated limited warranty.

1. Warranty Period, Glass: 20 years.

2. Warranty Period, Non-Glass Parts: 10 years.

Editor Note: Retain paragraph below if a separate installation warranty, not provided by the manufacturer, is required and edit to suit Project requirements.

B. Special Warranty: Installer's standard form in which installer agrees to repair or replace windows that fail due to poor workmanship or faulty installation within the specified warranty period.

1. Warranty Period: <**Insert number of years**> years from date of Substantial Completion.

PART 2 PRODUCT

Editor Note: Add product features, performance characteristics, material standards, and descriptions as applicable. Use of terms such as "or equal" or "approved equal" or similar may cause ambiguity in specifications, requiring verification (procedural, legal and regulatory) and assignment of responsibility for the determination of "equal" products. Therefore it is recommended that terms such as these be avoided. Mahogany wood species will be either Sapele or Sipo, having color and characteristics similar to Central American mahoganies.

2.1 METAL-CLAD WOOD WINDOWS

A. General: Provide windows complying with the performance requirements indicated and tested according to NAFS.

B. Basis-of-Design Product: Subject to compliance with requirements provide Andersen Corporation: Andersen E-Series windows.

C. Substitution Limitations: [**No substitutions**] [**All other manufacturers: Submit substitution request in accordance with Section 01 25 00 - "Substitution Procedures"**] <**Insert substitution limitations**>.

2.2 MATERIALS

A. Construction:

1. Cladding: Extruded aluminum, minimum thickness 0.050 inch (1.27 mm).

2. Frame: Preservative treated laminated veneer lumber.

3. Interior Exposed Frame: Preservative treated solid lumber, kiln dried and suitable for stain or painted finish.

4. Sash: Preservative treated solid lumber, kiln dried and suitable for stain or painted finish.

B. Wood Species: [**Pine**] [**Pine, FSC Certified – Mixed Credit**] [**Vertical Grain Douglas Fir**] [**Oak**] [**Hickory**] [**Mahogany**] [**Cherry**] [**Walnut**] [**Maple**] [**Alder**] [**Custom**] <**Insert requirements**>.

Editor Note: If factory-applied interior finish is required, retain and edit paragraph below to suit Project requirements. If unfinished interior is required retain only the “Unfinished” option.

C. Interior Finish:

1. Stained: Factory-applied before assembly, water-based, [**Clear Coat**] [**Wheat**] [**Autumn Oak**] [**Golden Hickory**] [**Honey**] [**Cinnamon**] [**Russet**] [**Mocha**] [**Espresso**] <**Insert requirements**>.

2. Painted: Factory-applied before assembly, [**White**] [**Birch Bark**] [**Canvas**] [**Sandtone**] [**Terratone**] [**Forest Green**] [**Dark Bronze**] [**Black**] [**Cocoa Bean**] [**Red Rock**] [**Prairie Grass**] [**Dove Gray**] <**Insert requirements**>.

3. Primed: Factory-applied before assembly. <**Insert requirements**>.

4. Custom Finished: Factory-applied, [**custom finish as selected and approved by Architect**] <**Insert requirements**>.

5. Unfinished.

Editor Note: Andersen E-Series products are available in factory-applied baked-on silicone polyester enamel in 50 colors, in 2-, 3-, or 4-tone combinations of those colors, or with anodized aluminum finish in 7 colors. To view available finishes and colors go to: <http://www.andersenwindows.com/for-professionals>

D. Exterior Finish:

Editor Note: Retain sub-paragraphs below for painted frame and sash. Edit to suit Project requirements.

1. Painted Frame: Factory-applied baked-on silicone polyester enamel, in compliance with [**AAMA 2604**] [**AAMA 2605**] [**color as selected from manufacturer’s standard colors of no less than 50 options**] [**custom color as selected and approved by Architect**] <**Insert requirements**>.

2. Painted Sash: Factory-applied baked-on silicone polyester enamel, in compliance with [**AAMA 2604**] [**AAMA 2605**] [**color as selected from manufacturer’s standard colors of no less than 50 options**] [**custom color as selected and approved by Architect**] <**Insert requirements**>.

Editor Note: Retain sub-paragraphs below for anodized frame and sash. Edit to suit Project requirements.

3. Anodized Frame: Architectural quality, in compliance with AAMA 611 Class I [**Black**] [**Medium Bronze**] [**Dark Bronze**] [**Light Bronze**] [**Copper**] [**Champagne**] [**Clear**] <**Insert color**>.

4. Anodized Sash: Architectural quality, in compliance with AAMA 611 Class I [**Black**] [**Medium Bronze**] [**Dark Bronze**] [**Light Bronze**] [**Copper**] [**Champagne**] [**Clear**] <**Insert color**>.

Editor Note: Copy article below for each window type required, edit to suit Project and product requirements and re-insert text as many times as needed to describe additional window types.

Editor Note: The performance values and ratings indicated within this guide specification represent a variety of typical Andersen product configurations based on testing according to applicable industry standards. The performance of any specific product depends on unit size, glass type and other configuration and material variables. The values indicated may or may not be applicable to Project requirements. Many other product configuration and materials options are available. Consult with an Andersen Product Representative for more information.

2.3 WINDOW <**Insert window designation(s) used on Drawings**>.

A. Window Type and Performance Requirements: [**Casement**] [**French** **Casement**] [**Awning**] [**Single-Hung**] [**Double-Hung Full-Frame**] [**Double-Hung Insert**] [**Gliding**] [**Specialty Fixed Window**] [**Sash-Set Casement**] [**Double-Hung Full-Frame Picture Window**] [**As indicated on Drawings**] [**As indicated in window schedule**] <**Insert window type**>.

Editor Note: Awning windows have a maximum performance rating of PG65.

2. [**Casement**] [**and**] [**Awning**] Performance Class CW and Grade, Non-Impact-Resistant: [**PG50**] [**PG55**] [**PG60**] [**PG65**] [**PG70**] <**Insert requirements**>.

Editor Note: Retain sub-paragraph below for French casement windows.

3. [**French Casement**] Performance Class LC and Grade, Non-Impact-Resistant: [**PG40**] <**Insert requirements**>.

Editor Note: Retain sub-paragraphs below for Double-Hung Full-Frame, Single-Hung and Double-Hung Insert windows. Double-Hung Insert windows have a maximum performance rating of PG30.

4. [**Double-Hung Full-Frame**] [**Single-Hung**] [**and**] [**Double-Hung Insert**] Performance Class LC and Grade, Non-Impact-Resistant: [**PG30**] [**PG35**] [**PG40**] [**PG45**] [**PG50**] [**PG55**] <**Insert requirements**>.

Editor Note: Retain sub-paragraphs below for Sash-Set Casement, Double-Hung Full-Frame Picture, and Double-Hung Insert Picture windows. Double-Hung Full-Frame Picture Windows have a maximum performance rating of PG55. If two-tone color is required for casement windows, impact rating is not available. Maximum performance rating for Double-Hung Insert Picture Windows is PG30.

Editor Note: Retain sub-paragraph below for Specialty Windows.

6. Specialty Performance Class CW and Grade, Non-Impact-Resistant: [**PG55**] [**PG60**] [**PG65**] [**PG70**] [**PG75**] <**Insert requirements**>.

Editor Note: Retain sub-paragraph below for gliding windows.

7. Gliding Performance Class CW and Grade, Non-Impact-Resistant: [**PG30**] <**Insert requirements**>.

Editor Note: WDMA standard is < 0.3 cfm/ft². Retain sub-paragraph below for commercial buildings.

B. Air Infiltration Requirements:

1. Air Infiltration Rate: **< 0.2 cfm/sf²**.

Editor Note: Some Andersen products are ENERGY STAR certified with select glass options. Contact manufacturer for more information. Retain when ENERGY STAR certification is required.

B. Environmental Certifications:

1. ENERGY STAR performance requirements.

2. Indoor air quality performance.

C. Weatherstrip:

Editor Note: Retain sub-paragraph below when double-hung or gliding windows are required.

1. Type and Material for Hung or Gliding: Three fins and pile, polypropylene.

Editor Note: Retain sub-paragraph below when casement or awning windows are required.

2. Type and Material for Casement or Awning: Flexible tubular, vinyl.

D. Installation Flange Type: [**Extruded vinyl**] [**Extruded aluminum**] [**None**].

E. Hardware:

Editor Note: Retain sub-paragraphs below for casement and awning windows and edit to suit Project requirements.

1. Operator Gear Type and Material: Rotary, die-cast zinc and stainless steel components.

2. Hinge Type and Material: [**Concealed hinge and track**] [**Piano hinge**], 300 Series stainless steel.

3. Crank Handle Type, Material and Finish: Folding, **die-cast zinc,** [**plated**] [**painted**].

4. Operator Cover Material and Finish: [**Polycarbonate, integral color**] [**Die-cast zinc, plated**].

5. Sash Lock Type and Material: Single-actuation, die-cast zinc and engineered polymer components.

Editor Note: Bronze, Gold, White, and Black are painted finishes. Polished Brass, Antique Brass, Pewter, Oil-Rubbed Bronze, Satin Chrome and Bright Chrome are plated finishes.

6. Crank and Sash Lock Color: [**Bronze**] [**Gold**] [**White**] [**Black**] [**Polished Brass**] [**Antique Brass**] [**Pewter**] [**Oil-Rubbed Bronze**] [**Satin Chrome**] [**Bright Chrome**].

Editor Note: Retain sub-paragraphs below for French Casement windows and edit to suit Project requirements.

7. Operator Gear Type and Material: Rotary, die-cast zinc and stainless steel components.

8. Hinge Type and Material: Piano hinge, 300 Series stainless steel.

9. Crank Handle Type, Material and Finish: Folding, **die-cast zinc,** [**plated**] [**painted**].

10. Operator Cover Material and Finish: [**Polycarbonate, integral color**] [**Die-cast zinc, plated**].

11. Sash Lock Type and Material: Multi-point, die-cast zinc components.

Editor Note: Bronze, White, and Black are painted finishes. Polished Brass, Antique Brass, Satin Chrome and Bright Chrome are plated finishes.

12. Crank and Lock Lever Finish: [**Bronze**] [**White**] [**Black**] [**Polished Brass**] [**Antique Brass**] [**Satin Chrome**] [**Bright Chrome**].

Editor Note: Retain sub-paragraphs below for Push Out Casement and Push Out Awning windows and edit to suit Project requirements.

13. Hinge Type and Material: Friction hinge/stay, 300 Series stainless steel.

14. Sash Lock Type and Material: Lever, die-cast zinc.

Editor Note: White and Black are painted finishes. Polished Brass, Antique Brass, Satin Chrome and Oil-rubbed Bronze are plated finishes.

15. Sash Lock Color: [**White**] [**Black**] [**Polished Brass**] [**Antique Brass**] [**Satin Chrome**] [**Oil-rubbed Bronze**].

Editor Note: Sub-paragraph below applies to casement windows only. Retain when window opening control device is required.

16. Window Opening Control Device and Color: Provide device to restrict operable sash to less than four inches maximum clear opening, releasable in compliance with ASTM F2090, [**White**] [**Stone**].

Editor Note: Retain sub-paragraph below when vent limitation hardware is required. Vent limitation hardware cannot be used on windows required for emergency escape and rescue, and is not available on Push Out windows.

17. Vent Limitation Hardware: Provide fixed vent limiters to limit sash travel.

Editor Note: Retain sub-paragraphs below for single-hung, double-hung full-frame and double-hung insert windows and edit to suit Project requirements.

18. Sash Lock/Tilt Mechanism Type and Material: Self-latching, die-cast zinc.

19. Sash Lift Type and Material: Surface mounted, die-cast zinc.

Editor Note: Bronze, Gold, White, and Black are painted finishes. Polished Brass, Antique Brass, Pewter, Oil-Rubbed Bronze, Satin Chrome and Bright Chrome are plated finishes.

20. Sash Lock and Sash Lift Finish: [**Bronze**] [**Gold**] [**White**] [**Black**] [**Polished Brass**] [**Antique Brass**] [**Pewter**] [**Oil-Rubbed Bronze**] [**Satin Chrome**] [**Bright Chrome**].

21. Balancer Type and Material: [**Spring-loaded block and tackle**] [**AAMA** **902** **Class 5 spiral**], galvanized steel.

22. Jamb Liner:

a. Type and Material: Concealed, rigid vinyl.

b. Color: [**Beige**] [**White**].

c. Interior Inserts: [**Vinyl**] [**Wood-veneered vinyl, species to match window**].

d. Exterior Inserts: [**Vinyl**] [**Aluminum, color to match window**].

23. Window Opening Control Device: Provide device to restrict operable sash to less than four inches maximum clear opening and releasable, in compliance with ASTM F2090, [**Black**] [**Stone**] [**White**].

Editor Note: Retain sub-paragraphs below for gliding windows and edit to suit Project requirements

24. Sash Lock Mechanism Type and Material: Flush mounted die-cast zinc.

25. Sash Lift Type and Material: Surface mounted die-cast zinc.

Editor Note: Bronze, Gold, White, and Black are painted finishes. Polished Brass is a plated finish.

26. Sash Lock and Lift Color: [**Bronze**] [**Gold**] [**White**] [**Black**] [**Polished Brass**].

27. Roller Type and Material: Dual adjustable, brass.

28. Head and Sill Track Material and Color: Rigid vinyl, [**Beige**] [**White**].

Editor Note: Retain paragraph below when blinds-between-the-glass are required. For use with Perma-Shield gliding door. Coordinate with required U-Factor in GLAZING Article and with manufacturer’s information on product availability.

F. Blinds-Between-the-Glass:

Editor Note: Retain paragraph below when divided lights are required. Grille type and location are a determining factor in overall window thermal performance. Coordinate with required U-Factor in GLAZING Article and with manufacturer’s information on product availability.

G. Divided Lights:

Editor Note: Retain sub-paragraph below when Full Divided Light grilles are required and edit to suit Project requirements. Removable interior grille is available in 7/8 inch width only. Grille spacers will match the insulated glass spacer available in Black, Stainless Steel or White – see glazing articles.

1. Full Divided Light: Permanent exterior and interior attachment, spacer between glass panes.

1. Exterior Style: [**Chamfer**] [**Contemporary**].
2. Interior Style: [**Ovolo**] [**Contemporary**]

c. Width: [**5/8 inch (16mm)**] [**7/8 inch (22mm)**] [**1-1/8 inches (29mm)**] [**1-1/2 inches (38mm)**] [**2-1/4 inches (57mm**].

d. Pattern: [**As shown in Drawings**] <**Insert pattern designation**>.

e. Spacer Color: [**Match insulated glass spacer color**].

f. Exterior Color: [**Match window**] <**Insert requirements**>.

g. Interior Finish: [**Match window**] <**Insert requirements**>.

Editor Note: Retain sub-paragraph below when Simulated Divided Light Grilles are required and edit to suit Project requirements. Removeable interior grille only available in 7/8 inch (22mm).

2. Simulated Divided Light: [**Permanent exterior and interior attachment, no spacer between glass panes**] [**Permanent exterior attachment, removable interior, no spacer between glass panes**] [**Permanent exterior only, no spacer between glass panes**] [**Removable only, no spacer between glass panes**].

a. Style: [**Ovolo**] [**Contemporary**].

b. Width: [**5/8 inch (16mm)**] [**7/8 inch (22mm)**] [**1-1/8 inches (29mm)**] [**1-1/2 inches (38mm)**] [**2-1/4 inches (57mm**].

c. Pattern: [**As shown in Drawings**] <**Insert pattern designation**>.

d. Spacer Color: [**Match insulated glass spacer color**].

e. Exterior Color: [**Match window**] <**Insert requirements**>.

f. Interior Finish:

Editor Note: Retain sub-paragraph below when Finelight Grilles-Between-the-Glass are required and edit to suit Project requirements.

3. Finelight Grille: Permanently installed between glass panes.

a. Pattern: [**As shown in Drawings**] <**Insert pattern designation**>.

Editor Note: Retain sub-paragraph below when 5/8-inch-wide between-glass grilles are required.

b. Width, Shape and Color: 5/8 inch, flat, [**Match window**] <**Insert requirements**>.

Editor Note: Retain sub-paragraph below when 1-inch-wide between-glass grilles are required.

c. Width, Shape and Color: [**3/4 inch (19mm)**] [**1 inch (25mm)**], contoured, [**Match window**] <**Insert requirements**>.

d. Material: Aluminum.

H. Insect Screens:

Editor Note: Retain sub-paragraphs below when casement, French casement and awning window insect screens are required and edit to suit Project requirements. Retractable insect screens are available only on casement, French casement, push out casement, awning and push out awning windows.

1. Type: Conventional.

a. Frame Material: Aluminum.

b. Painted Finish and Color: [**Factory-applied baked-on silicone polyester enamel**] [**Match window frame**] **<Insert color>** [**Bronze**] [**White**] [**Gold**] [**Black**].

c. Veneered Finish and Species: Wood veneer to match window.

d. Insect Screen Material: [**Fiberglass mesh**] [**Aluminum wire mesh**] [**Stainless steel wire mesh, TruScene**].

2. Type: Retractable.

a. Frame Material: Wood-veneered aluminum to match window.

b. Insect Screen Material: Fiberglass mesh.

c. Insect Screen Pull Type, Material and Color: Surface mounted, die-cast zinc, [**Bronze**] [**White**] [**Black**] [**Gold**] [**Oil-rubbed** **Bronze**] [**Polished Brass**] [**Antique Brass**] [**Pewter**] [**Bright Chrome**] [**Satin Chrome**].

Editor Note: Retain sub-paragraphs below when push out casement and push out awning window insect screens are required and edit to suit Project requirements. Retractable insect screens are available only on casement, French casement, push out casement, awning and push out awning windows.

3. Type: Hinged.

a. Frame Material: Wood-veneered aluminum.

b. Hinge Type: Pivot.

c. Insect Screen Material: [**Fiberglass mesh**] [**Aluminum wire mesh**].

d. Insect Screen Pull Type, Material and Color: Surface mounted, die-cast zinc, [**White**] [**Black**] [**Polished Brass**] [**Antique Brass**] [**Oil-rubbed** **Bronze**].

4. Type: Retractable.

a. Frame Material: Wood-veneered aluminum to match window.

b. Insect Screen Material: Fiberglass mesh.

c. Insect Screen Pull Type, Material and Color: Surface mounted, die-cast zinc, [**Bronze**] [**White**] [**Black**] [**Gold**] [**Oil-rubbed** **Bronze**] [**Polished Brass**] [**Antique Brass**] [**Pewter**] [**Bright Chrome**] [**Satin Chrome**].

Editor Note: Retain sub-paragraphs below when single-hung, double-hung insert and gliding window insect screens are required and edit to suit Project requirements. Gliding window insect screens are available in half configuration only.

5. Type: Conventional [**full**] [**half**].

a. Frame Material: Aluminum.

b. Painted Finish and Color: [**Factory-applied baked-on silicone polyester enamel**] [**Match window frame**] **<Insert color>** [**Color as selected by Architect from manufacturer’s available exterior colors**].

c. Insect Screen Material: [**Fiberglass mesh**] [**Aluminum mesh**] [**Stainless steel wire mesh, TruScene**].

Editor Note: Retain paragraph below when blinds or shades are required in casement, awning and fixed (rectangular shape only) windows and edit to suit Project requirements.

I. Blinds and Shades:

1. Type: [**System 3 applied to interior of sash**] [**Between-glass blinds**].

2. Removable Storm Panel and Finish: Aluminum, [**Bronze**] [**White**] [**Black**] [**Gold**] [**Wood veneer to match window**].

Editor Note: Retain sub-paragraph below only when blinds are required.

3. Blinds Control Knob Color: [**Bronze**] [**White**] [**Black**] [**Gold**].

4. Blinds Color: [**Almond**] [**Tan**] [**White**].

5. Shade Color: [**Almond**] [**Pearl**] [**Vanilla**] [**Winter White**].

Editor Note: Retain paragraph below when exterior trim or accessories are required and edit to suit Project requirements.

J. Exterior Trim and Accessories:

1. Type: [**2 inch Brick Mould**] [**3-1/2 inch Brick Mould**] [**2 inch Adjustable Brick Mould**] [**2 inch Ovolo Brick Mould**] [**Expandable Brick Mould with Flange**] [**Expandable Brick Mould without Flange**].

2. Type: [**3-1/2 inch Flat Casing**] [**5-1/2 inch Flat Casing**] [**3-1/2 inch Backband and Bead Casing**] [**Expandable Flat Casing**].

3. Type: [**1-1/2 inch Sill Nose**] [**1-1/2 inch Extended Sill Nose**] [**1 inch Narrow Sill Nose**].

4. Type: [**As indicated**] <**Insert requirements**>.

5. Material: Factory-applied extrudedaluminum with corner keys.

6. Finish and Color: [**Painted**] [**Anodized**] [**Match windows**] <**Insert requirements**>.

Editor Note: Windows installed in combination must be designed and installed so as to attain a level of structural performance meeting requirements of the authority having jurisdiction. Refer to product literature or consult with an Andersen product representative. Structural steel is provided by third party.

K. Mullions: [**Laminated veneer lumber**] [**Structural steel**] configured to be structurally sound and designed in accordance with AAMA 450.

Editor Note: Retain article below when non-impact-resistant glazing using Andersen Low-E4 glass is required. Glass type is a significant factor in determining overall window U-Factor. Copy article below for each window type, edit to suit Project and product requirements and re-insert text as many times as needed to describe additional window types. Specific performance values indicated below are based on 3.0 mm glass thickness, 1-inch Full Divided Light (Divided Light with Spacer) Grilles and Argon gas blend-filled insulated glazing units where applicable. To view the performance values, go to <http://www.andersenwindows.com/for-professionals>

2.4 NON-IMPACT-RESISTANT GLAZING <**Insert window designation(s) used on Drawings**>.

Editor Note: Select required U-Factor in paragraph below and coordinate with required glazing type. U-Factors provided are based on whole-window performance, not on center-of-glass. Coordinate selection below with manufacturer’s product information. Actual unit performance values will vary depending upon Performance Grade (PG) rating, glass options, accessories such as grilles, unit size and type. Consult Andersen Product Representative for more information.

A: Thermal Transmission (U-Factor), NFRC 100:

Editor Note: Retain sub-paragraph below for casement windows.

1. Casement: [**0.33 without grilles**] [**0.35 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for French casement windows.

2. French Casement: [**0.30 without grilles**] [**0.32 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for awning windows.

3. Awning: [**0.30 without grilles**] [**0.31 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for double-hung windows.

4. Double-Hung: [**0.30 without grilles**] [**0.32 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for double-hung insert windows.

5. Double-Hung Insert: [**0.31 without grilles**] [**0.33 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for gliding windows.

6. Gliding: [**0.32 without grilles**] [**0.33 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for direct-set fixed windows.

7. Direct-set fixed: [**0.28 without grilles**] [**0.30 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for sash-set casement windows.

8. Sash-Set Casement: [**0.30 without grilles**] [**0.32 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for double-hung picture windows.

9. Double-Hung Picture: [**0.30 without grilles**] [**0.32 with grilles**] <**Insert U-Factor value**>.

B. Solar Heat Gain Coefficient (SHGC), NFRC 200:

Editor Note: Retain sub-paragraph below for casement windows.

1. Casement: [**0.29 without grilles**] [**0.26 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for French casement windows.

2. French Casement: [**0.28 without grilles**] [**0.26 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for awning windows.

3. Awning: [**0.29 without grilles**] [**0.26 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for double-hung windows.

4. Double-Hung: [**0.30 without grilles**] [**0.27 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for double-hung insert windows.

5. Double-Hung Insert: [**0.30 without grilles**] [**0.27 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for gliding windows.

6. Gliding: [**0.31 without grilles**] [**0.28 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for direct-set fixed windows.

7. Direct-Set Fixed: [**0.36 without grilles**] [**0.32 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for sash-set casement windows.

8. Sash-Set Casement: [**0.33 without grilles**] [**0.30 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for double-hung picture windows.

9. Double-Hung Picture: [**0.31 without grilles**] [**0.28 with grilles**] <**Insert SHGC value**>.

C. Visible Light Transmittance (VLT), NFRC 200:

Editor Note: Retain sub-paragraph below for casement windows.

1. Casement: [**0.48 without grilles**] [**0.43 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for French casement windows.

2. French Casement: [**0.48 without grilles**] [**0.43 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for awning windows.

3. Awning: [**0.48 without grilles**] [**0.43 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for double-hung windows.

4. Double-Hung: [**0.51 without grilles**] [**0.45 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for double-hung insert windows.

5. Double-Hung Insert: [**0.51 without grilles**] [**0.45 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for gliding windows.

6. Gliding: [**0.53 without grilles**] [**0.47 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for direct-set fixed windows.

7. Direct-Set Fixed: [**0.62 without grilles**] [**0.55 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for sash-set casement windows.

8. Sash-Set Casement: [**0.56 without grilles**] [**0.50 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for double-hung picture windows.

9. Double-Hung Picture: [**0.53 without grilles**] [**0.47 with grilles**] <**Insert VLT value**>.

Editor Note: Sound Transmission Class (STC)/Outdoor Indoor Transmission Classification (OITC) performance varies depending on window type and features. Consult Andersen Product Representative for more information.

D. Sound Transmission Class (STC)/Outdoor Indoor Transmission Classification (OITC), ASTM E90:

Editor Note: Retain sub-paragraph below for casement windows. In all cases, the second set of optional performance data is for upgraded glass.

1. Casement: [**29/25**] [**33/28 with unbalanced glass**] [**33/29 with laminated glass**] <**Insert STC/OITC value**>.

Editor Note: Retain sub-paragraph below for awning windows. In all cases, the second set of optional performance data is for upgraded glass.

2. Awning: [**29/25**] [**33/28 with unbalanced glass**] [**33/29 with laminated glass**] <**Insert STC/OITC value**>.

Editor Note: Retain sub-paragraph below for double-hung windows. In all cases, the second set of optional performance data is for upgraded glass.

3. Double-Hung: [**28/24**] [**32/27 with unbalanced glass**] [**33/29 with laminated glass**] <**Insert STC/OITC value**>.

Editor Note: Retain sub-paragraph below for direct-set casement windows. In all cases, the second set of optional performance data is for upgraded glass.

4. Direct-set Casement: [**28/24**] [**34/29 with laminated glass**] <**Insert STC/OITC value**>.

Editor Note: Retain sub-paragraph below for sash-set casement windows. In all cases, the second set of optional performance data is for upgraded glass.

5. Sash-Set Casement: [**29/25**] [**32/29 with unbalanced glass**] [**33/29 with laminated glass**] <**Insert STC/OITC value**>.

E. Glass Units: Provide insulating glass units certified through [**Insulating Glass Certification Council as conforming to the requirements of IGCC and ASTM E2190**] [**Insulating Glass Manufacturers Alliance of Canada (IGMAC) conforming to the requirements of Canadian General Standards Board CAN/CGSB 12.8**].

1. Manufacturer Designation: Andersen Low-E4 Glass.

2. Glazing Configuration: [**Dual-pane**] [**Triple-pane**].

3. Tint: [**Bronze**] [**Gray**] [**Green**] [**None**].

4. Seal and Spacer Type: Dual sealed insulating glass units with polyisobutylene primary seal, silicone secondary seal and stainless steel spacers.

5. Glass Spacer Color: [**Black**] [**Stainless Steel**] [**White**]

6. Glass Type: [**Annealed glass, ASTM C1036**] [**Fully tempered glass, ASTM C1048**].

7. Opacity: [**Obscure**] [**Cascade Vertical**] [**Fern**] [**Reed Vertical**] [**Reed Horizontal**] [**Satin Etch**] [**None**].

Editor Note: Retain sub-paragraphs below when laminated glass is required and edit to suit Project.

8. Laminate Interlayer Thickness: [**0.030**] [**0.060**] inch.

Editor Note: Retain article below when non-impact-resistant glazing using Low-E4 SmartSun glass is required. Retain article below when non-impact-resistant glazing is required and edit to suit Project requirements. Glass type is a significant factor in determining overall window U-Factor. Copy article below for each window type, edit to suit Project and product requirements and re-insert text as many times as needed to describe additional window types. Specific performance values indicated below are based on 3.0 mm glass thickness, 1-inch Full Divided Light (Divided Light with Spacer) Grilles and Argon gas blend-filled insulated glazing units where applicable. To view the performance values, go to <http://www.andersenwindows.com/for-professionals>

2.5 NON-IMPACT-RESISTANT GLAZING <**Insert window designation(s) used on Drawings**>.

Editor Note: Select required U-Factor in paragraph below and coordinate with required glazing type. U-Factors provided are based on whole-window performance, not on center-of-glass. Coordinate selection below with manufacturer’s product information. Actual unit performance values will vary depending upon Performance Grade (PG) rating, glass options, accessories such as grilles, unit size and type. Consult Andersen Product Representative for more information.

A: Thermal Transmission (U-Factor), NFRC 100:

Editor Note: Retain sub-paragraph below for casement windows.

1. Casement: [**0.33 without grilles**] [**0.34 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for French casement windows.

2. French Casement: [**0.30 without grilles**] [**0.31 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for awning windows.

3. Awning: [**0.30 without grilles**] [**0.31 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for double-hung windows.

4. Double-Hung: [**0.30 without grilles**] [**0.31 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for double-hung insert windows.

5. Double-Hung Insert: [**0.31 without grilles**] [**0.32 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for gliding windows.

6. Gliding: [**0.31 without grilles**] [**0.33 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for direct-set fixed windows.

7. Direct-Set Fixed: [**0.27 without grilles**] [**0.29 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for sash-set casement windows.

8. Sash-Set Casement: [**0.30 without grilles**] [**0.32 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for double-hung picture windows.

9. Double-Hung Picture: [**0.29 without grilles**] [**0.31 with grilles**] <**Insert U-Factor value**>.

B. Solar Heat Gain Coefficient (SHGC), NFRC 200:

Editor Note: Retain sub-paragraph below for casement windows.

1. Casement: [**0.19 without grilles**] [**0.18 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for French casement windows.

2. French Casement: [**0.19 without grilles**] [**0.18 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for awning windows.

3. Awning: [**0.19 without grilles**] [**0.18 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for double-hung windows.

4. Double-Hung: [**0.20 without grilles**] [**0.18 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for double-hung insert windows.

5. Double-Hung Insert: [**0.20 without grilles**] [**0.18 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for gliding windows.

6. Gliding: [**0.20 without grilles**] [**0.19 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for direct-set fixed windows.

7. Direct-Set Fixed: [**0.24 without grilles**] [**0.21 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for sash-set casement windows.

8. Sash-Set Casement: [**0.22 without grilles**] [**0.20 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for double-hung picture windows.

9. Double-Hung Picture: [**0.20 without grilles**] [**0.18 with grilles**] <**Insert SHGC value**>.

C. Visible Light Transmittance (VLT), NFRC 200:

Editor Note: Retain sub-paragraph below for casement windows.

1. Casement: [**0.43 without grilles**] [**0.39 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for French casement windows.

2. French Casement: [**0.43 without grilles**] [**0.39 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for awning windows.

3. Awning: [**0.43 without grilles**] [**0.39 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for double-hung windows.

4. Double-Hung: [**0.46 without grilles**] [**0.40 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for double-hung insert windows.

5. Double-Hung Insert: [**0.46 without grilles**] [**0.40 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for gliding windows.

6. Gliding: [**0.48 without grilles**] [**0.42 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for direct-set fixed windows.

7. Direct-set Fixed: [**0.56 without grilles**] [**0.50 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for sash-set casement windows.

8. Sash-Set Casement: [**0.51 without grilles**] [**0.45 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for double-hung picture windows.

9. Double-Hung Picture: [**0.47 without grilles**] [**0.42 with grilles**] <**Insert VLT value**>.

Editor Note: Sound Transmission Class (STC)/Outdoor Indoor Transmission Classification (OITC) performance varies depending on window type and features. Consult Andersen Product Representative for more information.

D. Sound Transmission Class (STC)/Outdoor Indoor Transmission Classification (OITC), ASTM E90:

Editor Note: Retain sub-paragraph below for casement windows. In all cases, the second set of optional performance data is for upgraded glass.

1. Casement: [**29/25**] [**33/28 with unbalanced glass**] [**33/29 with laminated glass**] <**Insert STC/OITC value**>.

Editor Note: Retain sub-paragraph below for awning windows. In all cases, the second set of optional performance data is for upgraded glass.

2. Awning: [**29/25**] [**33/28 with unbalanced glass**] [**33/29 with laminated glass**] <**Insert STC/OITC value**>.

Editor Note: Retain sub-paragraph below for double-hung windows. In all cases, the second set of optional performance data is for upgraded glass.

3. Double-Hung: [**28/24**] [**32/27 with unbalanced glass**] [**33/29 with laminated glass**] <**Insert STC/OITC value**>.

Editor Note: Retain sub-paragraph below for direct-set fixed windows. In all cases, the second set of optional performance data is for upgraded glass.

4. Direct-set Fixed: [**28/24**] [**33/29with unbalanced glass**] [**34/29 with laminated glass**] <**Insert STC/OITC value**>.

Editor Note: Retain sub-paragraph below for sash-set casement windows. In all cases, the second set of optional performance data is for upgraded glass.

5. Sash-Set Casement: [**29/25**] [**32/29 with unbalanced glass**] [**33/29 with laminated glass**] <**Insert STC/OITC value**>.

E. Glass Units: Provide insulating glass units certified through [**Insulating Glass Certification Council as conforming to the requirements of IGCC and ASTM E2190**] [**Insulating Glass Manufacturers Alliance of Canada (IGMAC) conforming to the requirements of Canadian General Standards Board CAN/CGSB 12.8**].

1. Manufacturer Designation: Andersen Low-E4 SmartSun Glass.

2. Glazing Configuration: [**Dual-pane**] [**Triple-pane**].

3. Tint: [**Bronze**] [**Gray**] [**Green**] [**None**].

4. Seal and Spacer Type: Dual sealed insulating glass units with polyisobutylene primary seal, silicone secondary seal and stainless steel spacers.

5. Glass Spacer Color: [**Black**] [**Stainless Steel**] [**White**]

6. Glass Type: [**Annealed glass, ASTM C1036**] [**Fully tempered glass, ASTM C1048**].

7. Opacity: [**Obscure**] [**Cascade Vertical**] [**Fern**] [**Reed Vertical**] [**Reed Horizontal**] [**Satin Etch**] [**None**].

Editor Note: Retain sub-paragraphs below when laminated glass is required and edit to suit Project.

8. Laminate Interlayer Thickness: [**0.030**] [**0.060**] inch.

Editor Note: Retain article below when non-impact-resistant glazing using Andersen Low-E4 enhanced triple-pane glass is required. Glass type is a significant factor in determining overall window U-Factor. Copy article below for each window type, edit to suit Project and product requirements and re-insert text as many times as needed to describe additional window types. Specific performance values indicated below are based on 3.0 mm glass thickness, 1-inch Full Divided Light (Divided Light with Spacer) Grilles and Argon gas blend-filled insulated glazing units where applicable. To view the performance values, go to <http://www.andersenwindows.com/for-professionals>

2.6 NON-IMPACT-RESISTANT GLAZING <**Insert window designation(s) used on Drawings**>.

Editor Note: Select required U-Factor in paragraph below and coordinate with required glazing type. U-Factors provided are based on whole-window performance, not on center-of-glass. Coordinate selection below with manufacturer’s product information. Actual unit performance values will vary depending upon Performance Grade (PG) rating, glass options, accessories such as grilles, unit size and type. Consult Andersen Product Representative for more information.

A: Thermal Transmission (U-Factor), NFRC 100:

Editor Note: Retain sub-paragraph below for casement windows.

1. Casement: [**0.31 without grilles**] [**0.31 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for awning windows.

2. Awning: [**0.28 without grilles**] [**0.28 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for double-hung windows.

3. Double-Hung: [**0.30 without grilles**] [**0.30 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for direct-set fixed windows.

4. Direct-Set Fixed: [**0.21 without grilles**] [**0.21 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for sash-set casement windows.

5. Sash-Set Casement: [**0.28 without grilles**] [**0.28 with grilles**] <**Insert U-Factor value**>.

Editor Note: Retain sub-paragraph below for double-hung picture windows.

6. Double-Hung Picture: [**0.29 without grilles**] [**0.29 with grilles**] <**Insert U-Factor value**>.

B. Solar Heat Gain Coefficient (SHGC), NFRC 200:

Editor Note: Retain sub-paragraph below for casement windows.

1. Casement: [**0.27 without grilles**] [**0.24 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for awning windows.

2. Awning: [**0.26 without grilles**] [**0.24 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for double-hung windows.

3. Double-Hung: [**0.28 without grilles**] [**0.25 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for direct-set fixed windows.

4. Direct-set Fixed: [**0.33 without grilles**] [**0.30 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for sash-set casement windows.

5. Sash-Set Casement: [**0.31 without grilles**] [**0.28 with grilles**] <**Insert SHGC value**>.

Editor Note: Retain sub-paragraph below for double-hung picture windows.

6. Double-Hung Picture: [**0.29 without grilles**] [**0.26 with grilles**] <**Insert SHGC value**>.

C. Visible Light Transmittance (VLT), NFRC 200:

Editor Note: Retain sub-paragraph below for casement windows.

1. Casement: [**0.44 without grilles**] [**0.39 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for awning windows.

2. Awning: [**0.44 without grilles**] [**0.40 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for double-hung windows.

3. Double-Hung: [**0.46 without grilles**] [**0.41 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for direct-set fixed windows.

4. Direct-Set Fixed: [**0.56 without grilles**] [**0.51 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for sash-set casement windows.

5. Sash-Set Casement: [**0.51 without grilles**] [**0.46 with grilles**] <**Insert VLT value**>.

Editor Note: Retain sub-paragraph below for double-hung picture windows.

6. Double-Hung Picture: [**0.48 without grilles**] [**0.43 with grilles**] <**Insert VLT value**>.

Editor Note: Sound Transmission Class (STC)/Outdoor Indoor Transmission Classification (OITC) performance varies depending on window type and features. Consult Andersen Product Representative for more information.

D. Sound Transmission Class (STC)/Outdoor Indoor Transmission Classification (OITC), ASTM E90:

Editor Note: Retain sub-paragraph below for casement windows.

1. Casement: [**30/24**] <**Insert STC/OITC value**>.

Editor Note: Retain sub-paragraph below for awning windows.

2. Awning: [**30/24**] <**Insert STC/OITC value**>.

Editor Note: Retain sub-paragraph below for double-hung windows.

3. Double-Hung: [**28/24**] <**Insert STC/OITC value**>.

Editor Note: Retain sub-paragraph below for direct-set fixed windows.

4. Direct-set fixed: [**31/25**] <**Insert STC/OITC value**>.

E. Glass Units: Provide insulating glass units certified through [**Insulating Glass Certification Council as conforming to the requirements of IGCC and ASTM E2190**] [**Insulating Glass Manufacturers Alliance of Canada (IGMAC) conforming to the requirements of Canadian General Standards Board CAN/CGSB 12.8**].

1. Manufacturer Designation: Andersen Low-E4 Enhanced Triple-Pane Glass.

2. Glazing Configuration: Triple-pane.

3. Tint: [**Bronze**] [**Gray**] [**Green**] [**None**].

4. Seal and Spacer Type: Dual sealed insulating glass units with polyisobutylene primary seal, silicone secondary seal and stainless steel spacers.

5. Glass Spacer Color: [**Black**] [**Stainless Steel**] [**White**]

6. Glass Type: [**Annealed glass, ASTM C1036**] [**Fully tempered glass, ASTM C1048**].

7. Opacity: [**Obscure**] [**Cascade Vertical**] [**Fern**] [**Reed Vertical**] [**Reed Horizontal**] [**Satin Etch**] [**None**].

Editor Note: Retain sub-paragraphs below when laminated glass is required and edit to suit Project.

8. Laminate Interlayer Thickness: [**0.030**] [**0.060**] inch.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that all substrate conditions are suitable for installation in compliance with manufacturer’s recommendations.

B. Do not begin installation until substrates have been properly prepared and any conditions not in compliance with manufacturer’s recommendations have been corrected.

3.2 INSTALLATION

A. General: Comply with manufacturer’s product recommendations, including but not limited to the Andersen Unit Installation Guide, installation information in product literature and on product packaging. Comply with Drawings [**and Shop Drawings**] for installing windows, hardware, accessories, and other components.

B. Install windows plumb, level and square. Anchor windows securely to structure in correct orientation to flashing and adjacent construction as indicated. Comply with product installation instructions for proper flashing integration into wall system. Install windows so as to drain water penetration to the exterior.

C. Adjust sashes, insect screens, ventilators, hardware and accessories as applicable for correct fit. Adjust weatherstrip for smooth operation and weather-tight closure.

3.3 FIELD QUALITY CONTROL

A. Manufacturer’s Field Services: If requested by Owner, provide manufacturer’s field service consisting of product use recommendations and periodic site visits for observation of product installation in accordance with manufacturer’s recommendations.

1. Site Visits: <**Insert site visit requirements**>.

Editor Note: Retain article below if field tests for air and water leakage are required. Edit to suit Project requirements including testing services and methodology.

B. Field Testing: Provide field testing of installed units.

1. Test units in compliance with AAMA 502.

2. Use test equipment calibrated according to ASTM E1105.

3.4 CLEANING

A. Refer to manufacturer for guidance on timing for when best to remove protective films and non-permanent labels after installation.

B. Remove excess sealant, soiling, dirt and other substances. Clean window frame and glass surfaces. Avoid damaging coatings and finishes.

C. Touch-up, repair or replace glass or other window components broken, scratched or damaged during construction prior to Substantial Completion.

D. Remove and lawfully dispose of construction debris from Project site.

3.5 PROTECTION

A. Protect installed windows and finish surfaces from damage during construction until completion of Project and acceptance by Owner.

(END OF SECTION 08 52 13 – METAL-CLAD WOOD WINDOWS)