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This MANU-SPEC® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Specifier Notes precede specification text; delete notes in final copy of specification.

Trade/brand names with appropriate product model numbers, styles and types are used in Specifier Notes and in the specification text Article titled "Acceptable Material." Metric conversion, where used, is soft metric conversion. This MANU-SPEC specifies vinyl windows as manufactured by AMSCO Windows. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

**SECTION 08 54 00
 COMPOSITE WINDOWS**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: This section specifies composite double hung, casement, horizontal slider, awning, picture and specialty picture windows, as well as window combinations.

Specifier Note: Revise Paragraph below to suit project requirements. Add section numbers and titles per CSI *MasterFormat* and specifier's practice.

- B. Related Requirements:

Specifier Note: Include in this Paragraph only those sections and documents that directly affect the work of this section. If a reader of this section could reasonably expect to find a product or component specified in this section but it is actually specified elsewhere, then the related section number(s) should be listed in the Subparagraph below. Do not include Division 00 documents or Division 01 sections since it is assumed that all technical sections are related to all project Division 00 documents and Division 01 sections to some degree. Refer to other documents with caution since referencing them may cause them to be considered part of the Contract.

- 1. Section [_____].

1.02 REFERENCES

Specifier Note: Paragraph below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain References Paragraph when specifying products and installation by an industry reference standard. List retained standard(s) referenced in this section alphabetically. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Contract Conditions Section 01 42 00 - References may establish the edition date of standards. This Paragraph lists all reference standards used in this section but does not state compliance requirements. Only include here standards that are referenced in the body of the specification in PARTS 1, 2 and/or 3. Do not include references to building codes at any level.

- A. Reference Standards:

- 1. American Architectural Manufacturer's Association (AAMA):
 - a. AAMA/WDMA/CSA 101/I.S. 2/A440 Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.
 - b. AAMA 701/702 Combined Voluntary Specification for Pile Weatherstrip (701) and Replaceable Fenestration Weatherseals (702).
 - c. AAMA 902 Voluntary Specification for Sash Balances.

2. ASTM International (ASTM):
 - a. ASTM E2190 Standard Specification for Insulating Glass Unit Performance and Evaluation.

Specifier Note: Specify and insert below AWI standards required for window trim installation.

3. Architectural Woodwork Institute (AWI):
 - a. [_____].
4. National Fenestration Rating Council (NFRC):
 - a. NFRC 100 Procedure for Determining Fenestration Product U-Factors.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate work of this section with work of other trades for proper time and sequence to avoid construction delays. Comply with Section [01 31 00 - Project Management and Coordination].
- B. Preinstallation Meetings: Conduct preinstallation meeting [one week] prior to commencing [work of this section] [and] [on-site installations] to verify project requirements, substrate conditions and coordination with other building subtrades, and to review manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section [01 31 19 - Project Meetings].
- C. Sequencing: Sequence work of this section in accordance with Section [01 12 16 - Work Sequence] [and manufacturer's written recommendations for sequencing construction operations].
- D. Scheduling: Schedule work of this section in accordance with Section [01 32 13 - Scheduling of Work].

Specifier Note: Specify requirements for coordinating work that requires unusual scheduling with work of other sections.

1. [_____].

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Contract Conditions and Section 01 33 00 - Submittal Procedures.

1.04 ACTION SUBMITTALS

- A. General: Submit listed submittals in accordance with Contract Conditions and Section [01 33 00 - Submittal Procedures].
- B. Product Data: Submit specified products as follows:
 1. Manufacturer's performance data, including manufacturer's data sheet(s).
 2. Manufacturer's installation instructions.
 3. Catalog pages illustrating products to be incorporated into project.
 4. Material Safety Data Sheets (MSDS).
- C. Shop Drawings: Indicate materials, locations and/or dimensions of the following in full size scale:

Specifier Note: Retain or delete text below as needed to suit project requirements.

1. Unit elevations.
2. Head, jamb and sill, and component profiles.
3. Interior and exterior trim.
4. Junction between window combination units.
5. Location of isolation coating.
6. Description of related components [and exposed finishes].
7. Anchorage details, fasteners and caulking.
8. Location of manufacturer's nameplates.

Specifier Note: Samples are full-size actual products intended to illustrate the products to be incorporated into the project. Sample submittals are commonly necessary for such characteristics as colors, textures and other appearance issues.

D. Samples: Submit as follows:

1. Submit one [representative model] [complete full size window sample] of each window style.
2. Include:
 - a. Frame, sash, sill, insect screen, surface finish and hardware.
 - b. Complete set of color chips representing manufacturer's full range of available colors.
 - c. Samples of head, jamb, [meeting rail] [mullions] with dimensions of [4 9/16 inches (116 mm)] to indicate profile.
3. Identify:
 - a. Glazing and weatherproofing method.
 - b. Location of manufacturer's nameplates.

Specifier Note: Use the following Paragraph when high value samples are submitted.

4. [Owner] [Architect] [Consultant] will return full-sized window samples to Contractor [for incorporation in work] [at project closeout] [_____].

1.05 INFORMATION SUBMITTALS

Specifier Note: Specify submittal of test reports or evaluation service reports intended to document required tests without repeating the test requirements specified in Division 01.

- A. General: Submit listed submittals in accordance with Contract Conditions and Section [01 33 00 - Submittal Procedures].
- B. Test and Evaluation Reports: Submit as follows:
 1. Certified test reports showing compliance with specified performance characteristics and physical properties.
 2. Test reports from approved independent testing laboratories certifying compliance:
 - a. Air Infiltration, Water Penetration and Structural Performance: To AAMA/WDMA/CSA 101/I.S. 2/A440 and specifications.

Specifier Note: Use this paragraph to specify thermal performance if required to suit the window type specified in Part 2.

- b. Thermal Performance: To NFRC 100 to suit specified window type.
- c. Seal Integrity of Insulating Glass Units: To ASTM E2190.

Specifier Note: Specify submittals intended to document manufacturer installation, storage and other instructions.

- C. Manufacturer's Instructions: Submit manufacturer's installation [storage] [and] [_____] instructions.
- D. Source Quality Control: Submit documentation verifying that components and materials specified in this section are from single manufacturer.

Specifier Note: Coordinate with Field Quality Control in PART 3. When product representative services are specified during construction operations to verify installation, include the following Paragraph for the submittal of instructions and reports. If no field inspections are required, delete the following Paragraph.

- E. Product Representative Reports: Product representative field reports specified.
- F. Qualification Statements:
 1. Submit letter of verification for Manufacturer's Qualifications.
 2. Submit letter of verification for Installer's Qualifications.

1.06 CLOSEOUT SUBMITTALS

- A. General: Submit listed submittals in accordance with Contract Conditions and Section [01 33 00 - Submittal Procedures].
- B. Operation and Maintenance Data:
 1. Submit operation and maintenance data for installed products in accordance with Section [01 78 23 - Operation and Maintenance Data]. Include:

Specifier Note: Edit or expand list of required operation and maintenance data submittals to suit project requirements.

- a. Manufacturer's instructions detailing maintenance requirements.
- b. Parts catalog showing complete list of available parts.
- c. List of replacement parts with cuts and identifying numbers.
- d. [_____].

C. Warranty Documentation: Submit warranty documents specified.

1.07 MAINTENANCE MATERIAL SUBMITTALS

Specifier Note: Specify by type and quantity the spare parts necessary for the Owner's use in facility operation and maintenance. Specify spare part characteristics under PART 2 as part of the product specification.

A. General: Submit listed submittals in accordance with Contract Conditions and Section [01 33 00 - Submittal Procedures].

1.08 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer:
 - a. Having [5] years experience manufacturing components similar to or exceeding requirements of project.
 - b. Having sufficient capacity to produce and deliver required materials without causing delay in work.
2. Manufacturer's Product Representative:
 - a. Capable of providing field service representation during construction.
3. Installer:
 - a. Acceptable to manufacturer, experienced in work of this section and has specialized in installation of work similar to that required for this project.

Specifier Note: Retain the following Paragraph when certification related to sustainability submittals is a project requirement.

B. Sustainability Standards Certification: Provide certification for [_____] materials certified by [certification organization's name] in accordance with [certification organizations standard].

Specifier Note: If a mock-up is required, retain Paragraph below.

C. Mock-Up: Construct mock-up where [indicated] [directed] by [Owner] [Architect] [Consultant] in accordance with Section [01 43 00 - Quality Assurance].

1. Install full-sized window in designated location to show window installation process and surrounding work.
2. Process: Install window and related construction using proposed procedures, colors, textures, finishes and quality of work.
3. Purpose: To judge quality of work, substrate preparation, operation of equipment and material application.
4. Locate where [directed] [indicated].
5. Do not proceed with work before receipt of written acceptance of mock-up.
6. When accepted, mock-up will demonstrate minimum standard of quality required for this work. [Approved mock-up may [not] remain part of finished work.] [Remove mock-up and dispose of materials when no longer required and when directed by [Owner] [Architect] [Consultant]].

1.09 DELIVERY, STORAGE & HANDLING

A. Delivery and Acceptance Requirements:

1. Deliver material in accordance with Section [01 61 00 - Common Product Requirements] and in accordance with manufacturer's written instructions.
2. Deliver materials in manufacturer's original packaging with identification labels intact and in sizes to suit project.

B. Storage and Handling Requirements:

1. Store materials protected from exposure to harmful weather conditions and at temperatures recommended by manufacturer.

C. Packaging Waste Management:

Specifier Note: The disposal of packaging waste into landfill sites demonstrates an inefficient use of natural resources and consumes valuable landfill space. Specifying appropriate packaging and construction waste management and disposal procedures may contribute to points required for USGBC's LEED® construction project certification.

Specifier Note: Include the following Subparagraphs to specify information that will provide direction to the Contractor for the disposal of construction waste materials using environmentally responsible methodology other than landfill resources.

1. Separate waste materials for [reuse] [and] [recycling] in accordance with Section [01 74 19 - Construction Waste Management and Disposal].

Specifier Note: USGBC's LEED® certification includes credits for the diversion of construction waste from landfill. Diversion can be tracked by either weight or volume but must be consistent for all materials. Manufacturer may reclaim packaging and delivery materials for recycling.

2. Remove packaging materials from site and dispose of at appropriate recycling facilities.
3. Collect and separate for disposal [paper] [plastic] [polystyrene] [corrugated cardboard] packaging material [in appropriate onsite bins] for recycling.
4. Fold metal and plastic banding. Flatten and place in designated area for recycling.

1.010 [FIELD] [SITE] CONDITIONS

Specifier Note: Specify the ambient conditions under which work must be performed in order for work results to provide the specified quality. Conditions can include factors such as temperature, humidity, lighting or conditions of completion of related work or substrate preparation.

A. Ambient Conditions:

1. Installation Location: Assemble and erect components only when temperatures are above [_____] degrees F (degrees C).
2. Maintain materials, substrates and surrounding air temperature between [_____] and [_____] degrees F (degrees C) prior to, during and 48 hours after completion of composite window installation.

Specifier Note: Coordinate Article below with Contract Conditions and with Section 01 78 36 - Warranties.

1.011 WARRANTY

- A. Warranty: Refer to Contract Conditions and Section [01 78 36 - Warranties] for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and does not limit, other rights Owner may have under other Contract Documents.
 1. Warranty Term: [_____] commencing on date of substantial completion.

Specifier Note: Include statements specific to this section that supplement or extend warranties contained in the Contract Conditions.

C. Special Warranty:

1. Warranty Term: [_____] commencing on date of substantial completion.

PART 2 PRODUCTS

Specifier Note: Retain Article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal," "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.01 COMPOSITE WINDOWS

A. Manufacturer:

1. Contact: AMSCO Windows, 1880 South 1045 West, Salt Lake City, UT 84104; Telephone: (888) 82-AMSCO (888 822-6726); E-mail: amsco@amscowindows.com; website: www.amscowindows.com.
2. Acceptable Material: Renaissance Series Composite Windows as manufactured by AMSCO Windows.
3. Single Source Responsibility: Provide components and materials specified in this section from single manufacturer.

Specifier Note: Substitution procedures must appear in Contract Conditions or in Section 01 25 00 - Substitution Procedures. Do not include substitution procedures here.

4. Substitution Limitations:

- a. Substitutions: [In accordance with [Contract Conditions] [Section 01 25 00 - Substitution Procedures] [No substitutions permitted].

B. Description:

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Contract Conditions and Section 01 41 00 - Regulatory Requirements. Repetitive statements should be avoided.

1. Regulatory Requirements: In accordance with Section [01 41 00 - Regulatory Requirements].
2. Compatibility: Ensure components and materials are compatible with specified accessories and adjacent materials.

2.02 PERFORMANCE CRITERIA

A. Windows: AAMA Gold Label certified with label attached to frame per AAMA requirements.

Specifier Note: Review manufacturer's technical data sheets and specify thermal transmittance value to suit project requirements.

B. Thermal Transmittance Value, to NFRC 100:

1. U-Value: [_____].
2. Solar Heat Gain Coefficient (SHGC): [_____].
3. Visible Transmittance: [_____].

2.03 COMPOSITE WINDOW STYLES

A. Double Hung: Provide to include block and tackle balances, sloped sill, tilt sashes, recessed tilt latches and jamb liners.

Specifier Note: Refer to manufacturer's product catalogs and technical data and specify size to suit project requirements. Custom sizes are available and are built at 1/8 inch (3.2 mm) increments.

1. Size:

- a. Frame Width: [_____] inches (mm).
- b. Frame Height: [_____] inches (mm).

2. Sash: Equip with:

- a. Integral finger pulls, even sight lines.
- b. Sash Balance:
 - 1) Factory calibrated block and tackle complying with AAMA 902.
 - 2) Designed to ensure balance shoes lock in place on pivot bar system once sash is tilted in.

3. Performance Class, AAMA/WDMA/CSA 101/I.S. 2/A440:

- a. Double Hung, 48 inches x 78 inches (1219 x 1981 mm) and Smaller: LC-25.

4. Weatherstripping, to AAMA 701/702:

- a. Sliding woven pile with fin seal.

- b. Compression type, replaceable weather seals.
- 5. Hardware: Provide the following:
 - a. Locks: Cam action type.
 - b. Latches: Recessed tilt type:
 - c. Pulls: Finger lift type.
 - d. Finish:
 - 1) Color Finish: [Matched to frame] [_____].
 - 2) Metal Finish: [Oil Rubbed Bronze] [Brushed Nickel] [Antique Brass] [Polished Brass].
- 6. Exterior Screens:
 - a. Mesh: Plastic coated fiberglass, 18 inches x 16 inches (457 x 406 mm), secured with continuous vinyl gasket.
 - b. Frames: Roll-formed aluminum with four knife-latch fasteners, color matched to window frames.
- B. Casement:

Specifier Note: Refer to manufacturer's product catalogs and technical data, and specify size to suit project requirements. Custom sizes are available and are built at 1/8 inch (3.2 mm) increments.

- 1. Size:
 - a. Frame Width: [_____] inches (mm).
 - b. Frame Height: [_____] inches (mm).
- 2. Performance Class, AAMA/WDMA/CSA 101/I.S. 2/A440:
 - a. Casement, 36 Inches x 72 Inches (914 x 1829 mm) and Smaller: LC-40.
- 3. Weatherstripping, to AAMA 701/702:
 - a. Sliding woven pile with fin seal.
 - b. Compression type with replaceable weather seals.
- 4. Hardware:
 - a. Operator: Dual stainless steel arm rotary with standard fold-down nesting handle:
 - 1) Color Finish: [Matched to frame] [_____].
 - 2) Metal Finish: [Oil Rubbed Bronze] [Brushed Nickel] [Antique Brass] [Polished Brass].
 - 3) Acceptable Material: AMSCO Windows Encore locking hardware.
 - b. Locking Mechanism: Single lever, multi-point type.
 - c. Hinge: Two-bar stainless steel adjustable type.
- 5. Interior Screens:
 - a. Mesh: Fiberglass, 18 inches x 16 inches (457 x 406 mm), secured with continuous vinyl gasket.
 - b. Frames: Roll-formed aluminum with integral plastic pull-tab fastener for easy removal, color matched to window frames.
- C. Horizontal Slider: Provide to include heavy-duty adjustable tandem-type brass rollers with steel axle.

Specifier Note: Refer to manufacturer's product catalogs and technical data, and specify size to suit project requirements. Custom sizes are available and are built at 1/8 inch (3.2 mm) increments.

- 1. Type: [Single vent] [Double vent].
- 2. Single Vent Size:
 - a. Frame Width: [_____] inches (mm).
 - b. Frame Height: [_____] inches (mm).
- 3. Double Vent Size:

- a. Frame Width: [_____] inches (mm).
- b. Frame Height: [_____] inches (mm).
4. Sash: With recessed finger pulls, even sight lines.
5. Performance Class, AAMA/WDMA/CSA 101/I.S. 2/A440:
 - a. Single Vent, 72 inches x 72 inches (1829 x 1829 mm) and Smaller: LC-25.
 - b. Double Vent, 120 inches x 72 inches (3048 x 1829 mm) and Smaller: R-15.
6. Weatherstripping, to AAMA 701/702: Sliding woven pile type with fin seal.
7. Hardware:
 - a. Locks: Cam action type.
 - b. Pulls: Finger type.
 - c. Finish:
 - 1) Color Finish: [Matched to frame] [_____].
 - 2) Metal Finish: [Oil Rubbed Bronze] [Brushed Nickel] [Antique Brass] [Polished Brass].
8. Exterior Screens:
 - a. Mesh: Fiberglass, 18 inches x 16 inches (457 x 406 mm), secured with continuous vinyl gasket.
 - b. Frames: Roll formed aluminum with integral plastic corner pull-tab fastener for easy removal, color matched to window frames.

D. Awning:

Specifier Note: Refer to manufacturer's product catalogs and technical data, and specify size to suit project requirements. Custom sizes are available and are built at 1/8 inch (3.2 mm) increments.

1. Size:
 - a. Frame Width: [_____] inches (mm).
 - b. Frame Height: [_____] inches (mm).
2. Performance Class, AAMA/WDMA/CSA 101/I.S. 2/A440:
 - a. Awning, 60 Inches x 36 Inches (1524 x 914 mm) and Smaller: LC-30.
3. Weatherstripping, to AAMA 701/702.
 - a. Sliding woven pile with fin seal.
 - b. Compression type, replaceable weather seals.
4. Hardware:
 - a. Operator: Dual stainless steel rotary arm with standard fold-down nesting handle.
 - 1) Color Finish: [Matched to frame] [_____].
 - 2) Metal Finish: [Oil rubbed bronze] [Brushed nickel] [Antique brass] [Polished brass].
 - 3) Acceptable Material: AMSCO Windows Encore locking hardware.
 - b. Locking Mechanism: Dual lever type.
 - c. Hinge: Two-bar stainless steel type.
5. Interior Screens:
 - a. Mesh: Fiberglass, 18 inches x 16 inches (457 x 406 mm), secured with continuous vinyl gasket.
 - b. Frames: Roll-formed aluminum with integral plastic corner pull-tab fastener for easy removal, color matched to window frames.

E. Picture Window:

Specifier Note: Refer to manufacturer's product catalogs and technical data, and specify size to suit project requirements. Custom sizes

are available and are built at 1/8 inch (3.2 mm) increments.

1. Type: [Direct set] [Double hung picture window] [Fixed casement] [Transom picture window].
2. Size:
 - a. Direct Set:
 - 1) Frame Width: [_____] inches (mm).
 - 2) Frame Height: [_____] inches (mm).
 - b. Double Hung Picture Window:
 - 1) Frame Width: [_____] inches (mm).
 - 2) Frame Height: [_____] inches (mm).
 - c. Fixed Casement:
 - 1) Frame Width: [_____] inches (mm).
 - 2) Frame Height: [_____] inches (mm).
 - d. Transom Picture Window:
 - 1) Frame Width: [_____] inches (mm).
 - 2) Frame Height: [_____] inches (mm).
3. Performance Class, AAMA/WDMA/CSA 101/I.S. 2/A440:
 - a. Direct Set, 120 Inches x 72 Inches (3048 x 1829 mm) and Smaller: LC-55.
 - b. Double Hung Picture Window, 96 Inches x 72 Inches (2438 x 1829 mm) and Smaller: LC-25.
 - c. Fixed Casement, 72 Inches x 72 Inches (1829 x 1829 mm) and Smaller: HC-40.
 - 1) Weatherstripping, to AAMA 701/702: Compression type with replaceable weather seals.
 - d. Transom Picture Window, 96 Inches x 72 Inches (2438 x 1829 mm) and Smaller: LC-30.

F. Specialty Picture Window:

Specifier Note: Refer to manufacturer's product catalogs and technical data, and specify size to suit project requirements. Custom sizes are available and are built at 1/8 inch (3.2 mm) increments.

1. Type: Direct Set.
2. Size:
 - a. Frame Width: [_____] inches (mm).
 - b. Frame Height: [_____] inches (mm).
 - c. Leg Height: [_____] inches (mm).
3. Shape: [Round top] [Arch top] [Octagon] [Full circle] [Half circle] [Quarter circle] [Quarter angle] [Trapezoid] [Quarter rectangular] [Eyebrow rectangular].
4. Performance Class, AAMA/WDMA/CSA 101/I.S. 2/A440:
 - a. Direct Set, 120 Inches x 72 Inches (3048 x 1829 mm) and Smaller: LC-55.

G. Window Combinations:

Specifier Note: More than one window style can be combined in an installation to meet aesthetic or other requirements. Refer to manufacturer's product catalogs and technical data for combination availability, and retain or delete Paragraph below to suit project requirements. Coordinate window types and combinations with window schedule.

1. Combination: Combine the following:
 - a. Window 1:
 - 1) Style: [_____].

- 2) Quantity: [_____].
- b. Window 2:
 - 1) Style: [_____].
 - 2) Quantity: [_____].

2. Joinery: Provide mull strips to suit specified window combination.

2.04 MATERIALS

A. Composition: To AAMA/WDMA/CSA 101/I.S. 2/A440.

- 1. Mono Color: Extruded solid compound of thermoplastic resins, encapsulated with a solar reflective acrylic-based capstock.

B. Main Frame: To AAMA/WDMA/CSA 101/I.S. 2/A440.

- 1. Construction:
 - a. Applied nail fin with 1 3/8 inch (34.9 mm) setback.

Specifier Note: 2 inch (51 mm) jam extension is optional.

- 2. Frame Depth: [4 9/16 inches (116 mm)] [6 9/16 inch (167 mm) with jam extension].
- 3. Joinery: Mechanically fastened tongue and groove frame corners.

C. Vent Sash: To AAMA/WDMA/CSA 101/I.S. 2/A440.

- 1. Joinery: Mechanically fastened with mortise and tenon sash corners.

Specifier Note: Retain fixed sash if specifying double hung picture, fixed casement, transom picture or horizontal slider window only.

D. Fixed Sash: To AAMA/WDMA/CSA 101/I.S. 2/A440.

- 1. Construction:
 - a. Equal sight lines.
 - b. Attached to frame with screws and sealant.
- 2. Joinery: Mechanically fastened with mortise and tenon sash corners.

E. Color:

Specifier Note: White is standard. Almond and Taupe colors and interior pine wood veneer finish are optional. Refer to manufacturer's product catalogs and technical data, and specify color to suit project requirements.

- 1. Color: [White] [Almond] [Taupe] [and] [Interior pine wood veneer finish].

F. Glazing:

Specifier Note: Glazing thickness of 7/8 inch (22.2 mm) is standard. Optional glazing thickness of 1 inch (25.4 mm) is available with casement and direct set picture windows only. Retain glazing thickness to suit project requirements.

- 1. Nominal Thickness: [7/8 inch (22.2 mm)] [1 inch (25.4 mm)].

Specifier Note: Tinted glazing and high visibility (HV) glazing are optional. The most common insulated glazing types are included below, but other glazing types are available for special applications, including tinted, reflective, heat strengthened, tempered, patterned and laminated. If more than one type of glazing is required for the project, note each type clearly on drawings or in the window schedule.

Specifier Note: Refer to manufacturer's product catalogs and technical data, and specify glazing type to suit project requirements.

- a. Glazing Type: [Clear/Clear] [Clear/Low-E] [Clear/Tint Low-E] [Clear/HV Low-E] [Clear/Clear, with argon gas fill] [Clear/Low-E, with argon gas fill] [Clear/Tint Low-E, with argon gas fill] [Clear/HV Low-E, with argon gas fill] [_____] secured to fixed sash vent or frame using glazing tape.

b. Spacer Bar: [Warm edge steel type] [Aluminum box type].

G. Grids: Color matched to frame.

Specifier Note: Simulated Divided Lite (SDL) is PVC unless pine wood interior veneer is selected. If interior pine wood veneer is selected, then the interior grid is pine wood and the exterior grid is PVC.

1. Simulated Divided Lite (SDL): Surface-applied to interior and exterior with 5/8 inch (29 mm) flat, bronze aluminum shadow bar sealed between the glass.
 - a. Profile: 1 1/8 inch (25.4 mm), beveled.
2. Grids Sealed Between the Glass:
 - a. Material: Aluminum.
 - b. Profile:
 - 1) Flat: [5/8 inch (15.9 mm)] [13/16 inch (4.8 mm)].
 - 2) Sculptured: [3/4 inch (19.1 mm)] [1 inch (25.4 mm)].
3. Pattern: [Standard Colonial] [Perimeter] [Border] [Craftsman] [_____].

H. Fabrication: Square and true to AAMA/WDMA/CSA 101/I.S. 2/A440 and supplemented as follows:

1. Tolerance:
 - a. Rectangular Units:
 - 1) Measuring 6 Feet (1.8 m) Diagonally or Less: Plus or minus 0.056 inch (1.5 mm), maximum.
 - 2) Measuring Between 6 Feet and 12 Feet (1.8 and 3.7 m) Diagonally: Plus or minus 0.12 inch (3.0 mm), maximum.
 - 3) Measuring Over 12 Feet (3.7 mm) Diagonally: Plus or minus 0.1875 inch (4.5 mm), maximum.
 - b. Non-Rectangular Units: Plus or minus 0.25 inch (6.4 mm), maximum.
2. Brace frames to maintain shape and rigidity during shipment and installation.

I. Accessories:

Specifier Note: Refer to manufacturer's product catalogs and technical data, and specify accessories to suit project requirements.

1. Exterior Framing:

Specifier Note: Beveled narrow trim frame is standard. Other exterior frame types are optional. Retain or delete exterior framing types below to suit project requirements.

- a. Beveled narrow trim frame.
- b. Beveled brick mould frame.
- c. Flat 3 1/2 inch (89 mm) exterior frame.
- d. Sill nose to complete sloped sill appearance.
2. Isolation Coating: Alkali-resistant bituminous paint.
3. Joint Sealing:

Specifier Note: Refer to Section 07 92 00 - Joint Sealants and insert appropriate text to suit project requirements.

a. Preformed Joint Seals: [_____].

Specifier Note: Refer to Section 07 92 00 - Joint Sealants and insert appropriate text to suit project requirements.

- b. Joint Sealant Material Designation: [_____].
- c. Sealant Selection:
 - 1) Exterior Perimeter Openings: Sealant type: [_____].

- 2) Interior Frame Perimeters: Sealant type: [_____].
- 3) Sills: Sealant type [_____].
- d. Joint Cleaner: Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
- e. Primer: As recommended by manufacturer.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verification of Conditions: Verify that conditions of substrates previously installed under other sections or contracts are acceptable for product installation in accordance with manufacturer's instructions prior to composite window installation.
 1. Inform [Owner] [Architect] [Consultant] of unacceptable conditions immediately upon discovery.
 2. Proceed with installation only after unacceptable conditions have been remedied [and after receipt of written approval from [Owner] [Architect] [Consultant]].

Specifier Note: Specify actions required to prepare the surface, area or site for incorporation of specified windows. Describe requirements for exposure or removal of existing assemblies, components, products or materials.

3.02 PREPARATION

Specifier Note: Specify preparatory work required prior to installation of specified windows.

- A. Ensure structure or substrate is adequate to support specified windows.
- B. Surface Preparation: Prepare surface in accordance with manufacturer's written recommendations and coordinate with Section [01 71 00 - Examination and Preparation].

3.03 WINDOW INSTALLATION

- A. Coordinate installation of [systems] [components] [products] in accordance with Section [01 73 19 - Installation].
- B. Coordinate window installation work with work of other trades for proper time and sequence to avoid construction delays.
- C. Install windows plumb and level.
- D. Install windows with [continuous frames] [mull strips] to suit selected window combinations in accordance with manufacturer's instructions.
- E. Accurately fit, align, securely fasten and install free from distortion or defects.

3.04 ISOLATION COATING

- A. Application: Apply isolation coating in order to isolate aluminum from the following materials:
 1. Dissimilar metals, except stainless steel, zinc, or white bronze of small area.
 2. Concrete, mortar and masonry.
 3. Wood.

3.05 INSULATION INSTALLATION

Specifier Note: Refer to Section 07 21 16 - Blanket Insulation, select appropriate text and specify to suit project requirements. Foamed insulations may be appropriate for use with some window installations when recommended by manufacturer and [Owner] [Architect] [Consultant].

- A. Install insulation in order to maintain continuity of thermal protection with building elements and spaces.
- B. Fit insulation closely around frames.

3.06 VAPOR RETARDER INSTALLATION

Specifier Note: Retain the following paragraph when a vapor retarder is to be field applied to window frames. Refer to Section 07 26 00 - Vapor Retarders for additional specification information, select text and specify here to suit project requirements.

- A. Install specified vapor retarder sheet material to window frame in locations recommended by manufacturer.

1. Seal to Existing Vapor Retarder:
 - a. Apply continuous bead of sealant to perimeter of existing vapor retarder, ensuring no gaps exist in the sealant bead.
 - b. Smooth out folds and ripples in sheet over sealant.
 - c. Lap material at corners.
 - d. Staple lapped sheets into wood substrate at sealant bead.
 - e. Apply joint sealing tape to lapped joint in order to complete joint seal.

3.07 AIR BARRIER INSTALLATION

Specifier Note: Retain the following paragraph when an air barrier is to be field applied to window frames. Refer to Section 07 27 00 - Air Barriers for additional specification information, select text and specify here to suit project requirements.

- A. Install specified air barrier sheet material to window frame in locations recommended by manufacturer and in accordance with manufacturer's instructions.
- B. Lap material at corners and position lap seal over firm surface.
- C. Secure specified air barrier sheet material to existing [surface] [air barrier] using manufacture's recommended adhesive.

3.08 SILL INSTALLATION

Specifier Note: Use the following paragraph as a guide and edit to suit project requirements using manufacturer's literature.

- A. Install metal sills with uniform wash to exterior. Install to be level in length and straight in alignment, with plumb upstands and faces. Use [one piece] [_____] inch (mm) lengths at each location.
- B. Cut sills [to fit] [_____] inch (mm) longer than window opening.
- C. Secure sills in place with anchoring devices located at [ends] [and] [joints of continuous sills]. Evenly space anchors 24 inches (600 mm) on center. Minimum [3] anchoring devices per sill.
- D. Fasten [expansion joint cover plates] [and] [drip deflectors] with self-tapping stainless steel screws.
- E. Maintain 0.2 inch - 0.3 inch (6 - 9 mm) space between butt ends of continuous sills. For sills over 47 inches (1200 mm) in length, maintain 0.1 inch - 0.2 inch (3 - 6 mm) space at each end.

3.09 CAULKING INSTALLATION

Specifier Note: Use the following paragraph as a guide and edit to suit project requirements. Refer to Section 07 92 00 - Joint Sealants for additional information, select appropriate text and specify to suit project requirements.

- A. Seal joints between windows and windowsills with sealant. Embed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstand and window-frame. Caulk butt joints in continuous sills.
- B. Apply sealant in accordance with Section [07 92 00 - Joint Sealants]. Conceal sealant within window units except where exposed use is permitted by [Owner] [Architect] [Consultant].

3.010 WINDOW TRIM INSTALLATION

Specifier Note: Refer to Section 06 20 00 - Finish Carpentry and insert appropriate text to suit project requirements. Specify AWI performance standard below.

- A. Perform finish carpentry to Architectural Woodwork Institute (AWI) [_____] standard(s).
- B. Scribe and cut specified interior trim, exterior trim, casings, mouldings and wood sills [as required [as indicated]].
- C. Form joints to conceal shrinkage.

3.011 FIELD QUALITY CONTROL

Specifier Note: Specify quality control and related quality assurance requirements for onsite activities and installed materials, manufactured units, equipment, components and accessories.

- A. Tests, Inspection: Coordinate [field] [site] test with Section [01 45 00 - Quality Control].

Specifier Note: Specify requirements if manufacturer's product representative is to provide field quality control services for instruction or supervision of onsite personnel during product installation, application, erection or construction. Product representative's field reports are included under PART 1, Submittals.

B. Product Representative Services:

Specifier Note: Use the following Subparagraphs only when product representative field services are provided and are required to verify the quality of installed components. Establish the number and duration of periodic site visits required by the product representative and specify below. Consult product representative for services required. Delete if field services are not required.

1. Coordinate product representative services with Section [01 45 00 - Quality Control]. Have product representative review work involved in handling, installation/application, protection and cleaning of product[s], and submit written reports in an acceptable format to verify compliance of work with Contract.
2. Product Representative Field Services: Provide product representative field services consisting of product use recommendations and periodic site visits for product installation inspection in accordance with manufacturer's instructions.
3. Schedule site visits to review work at stages listed:
 - a. After delivery and storage of products, and when preparatory work on which work of this section depends is complete, but before installation begins.
 - b. [Twice] during progress of work at [25%] and [60%] complete.
 - c. Upon completion of work, after cleaning is carried out.
4. Obtain reports within [3] days of review and submit immediately to [Owner] [Architect] [Consultant].

Specifier Note: Specify final actions required in order to prepare installed products to perform properly. Only include the following Article when installation includes control settings or movable parts.

3.012 ADJUSTING

- A. Adjust window operators and components for correct function and operation in accordance with manufacturer's written instructions.
- B. Lubricate moving parts to operate smoothly and fit accurately.

3.013 CLEANING

- A. Perform cleanup in accordance with Section [01 74 00 - Cleaning and Waste Management] [and] Section [01 74 13 - Progress Cleaning].
- B. Remove and deliver all window labels to final building owner.
- C. Remove protective covers and marking tapes from windows. Clean interior and exterior glass and surfaces of windows.
- D. Upon completion, remove surplus materials, rubbish, tools and equipment in accordance with Section [01 74 23 - Final Cleaning].

Specifier Note: Specify special measures needed to minimize waste, collect recyclable waste and dispose of or recycle field-generated construction waste created during demolition, construction or final cleaning.

E. Waste Management:

1. Coordinate recycling of waste materials with Section [01 74 19 - Construction Waste Management and Disposal].
2. Collect recyclable waste and dispose of or recycle field generated construction waste created during demolition, construction or final cleaning as follows:
 - a. Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.
 - b. Divert unused or damaged wood materials from landfill to [recycling] [reuse] [composting] facility approved by [Owner] [Architect] [Consultant].
 - c. Divert unused metal materials from landfill to metal recycling facility approved by [Owner] [Architect] [Consultant].
 - d. Divert unused caulking material from landfill to official hazardous material collections site approved by [Owner]

[Architect] [Consultant].

e. Plastic caulking tubes are not recyclable and must not be diverted for recycling with other plastic materials.

3. Remove recycling containers and bins from site.

3.014 PROTECTION

- A. Protect installed product from damage during construction in accordance with Section [01 76 00 - Protecting Installed Construction].
- B. Repair damage to adjacent materials caused by composite window installation.

END OF SECTION