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NAVFAC **IGS-08520 (MAY 2002)**

Preparing Activity: LANTNAVFACENGCOM **Based on UFGS-08520N**

ITALIAN GUIDE SPECIFICATIONS

Use for ITALIAN projects only
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SECTION 08520

ALUMINUM WINDOWS
05/02

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NOTE: This guide specification is issued by the Atlantic Division, Naval Facilities Engineering Command for regional use in Italy.
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NOTE: This guide specification covers residential, commercial and heavy commercial grade aluminum windows.

1. Windows requiring a fire rating must be steel, and may occur in conjunction with aluminum windows which cannot be approved for this use. When steel windows are used in conjunction with aluminum, specify finish matching aluminum windows. Steel windows should be specified in Section 08510, "Steel Windows".

2. Aluminum windows are not acceptable for use as security windows which should be steel. Security steel windows are designed and constructed to give protection against unauthorized entrance and removal of materials from warehouses and other storage type areas; they are not designed for detention use. Guard windows for detention use are not included in this guide; where such windows are desired.

3. Specify the following items of related work under other sections of the specifications:

a. Glass and glazing and the furnishing of glazing clips and gaskets.

b. Calking and sealants.

c. Structural building supports at window mullions.

d. Wood subframes for windows in frame walls.

e. Drilling and tapping for attachment of window shades, drapery rods, and venetian blinds. The drilling and tapping of window frames to receive brackets for shades, venetian blinds, and curtain rods has been omitted from this specification. It is contemplated that this work will be done after erection of windows by the trade for the item to be installed. On projects where factory drilling for these items is required, revise this specification accordingly.

f. Brackets and supports for window shades, drapery rods, and venetian blinds.

g. Electrical requirements for motor driven operators.

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NOTE: On the drawings, show:

1. Design wind speed or pressure for building.

2. Sizes and types of windows; metal and wood subframes, casings, or stools; and hardware.

3. Sizes, location, and swing of ventilators; direction of slide for sliding ventilators; location and details of fixed sash.

4. Typical window sections and details. Show glass thickness. Show special glazing.

5. Method of anchoring windows to adjoining construction; size and types of clips, anchors, screws, or other fasteners.

6. Details of nonstructural mullions and mullion covers; details of anchoring and reinforcing nonstructural mullions at windows to receive window cleaner anchors.

7. Number and locations of window cleaner anchors.

8. Locations of windows requiring special operators. Show method of operation and concealment of operators, cables and rods. Show wiring diagram for motor driven operators.

9. Locations of windows designated as forced entry resistant.

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Comments and suggestion on this specification are welcome and should be directed to the technical proponent of the specification. A listing of the technical proponents, including their organization designation and telephone number, is on the Internet.

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

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PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

EUROPEAN COMMITTEE FOR STANDARDIZATION (CEN)

EN 42	(1995) Methods of Testing Windows, Part 1: Air Permeability Tests
EN 77	(1977) Methods of Testing Windows - Wind Resistance Tests
EN 86	(1980) Methods of Testing Windows, Water-Tightness Test Under Static Pressure
EN 288-4	(1992) Specification and Approval of Welding Procedures for Metallic Materials - Part 4: Welding Procedure Tests for the Arc Welding of Aluminum and its Alloys
EN 573-1	(1994) Aluminum and Aluminum Alloys - Chemical Composition and Form of Wrought Products - Part 1: Numerical Designation System
PREN 107	(1980, REV.) Methods of Testing Windows, Mechanical Tests
PREN 12365-1	(1996) Building Hardware - Gaskets and Weatherstripping for Doors, Windows, Shutters, and Curtain Walling Part 1: Performance Requirements and Classification
PREN 12519	(1996) Door and Window Terminology
PREN 13115	(1998) Windows - Classification of Strength

PREN 13126-13	(1998) Building Hardware - Hardware for Windows and Door Height Windows - Requirements and Test Methods - Part 13: Sash Balances

INTERNATIONAL STANDARDS ORGANIZATION (ISO)

ISO 6613	(1980) Windows and Door Height Windows - Air Permeability Test
ISO 7599	(1983) Anodizing of Aluminum and Its Alloys - General Specifications for Anodic Oxide Coatings on Aluminum

1.2 SUBMITTALS

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NOTE: Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item is required.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Recommended codes for Army projects are "RE" for Resident Engineer approval, "ED" for Engineering approval, and "AE" for Architect-Engineer approval. Codes following the "G" typically are not used for Navy projects.

Submittal items not designated with a "G" are considered as being for information only for Army projects and for Contractor Quality Control approval for Navy projects.

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Submit the following in accordance with Section 01330, "Submittals Procedures."

SD-02 Shop Drawings

Windows; G

Windows Schedule

Drawings shall indicate elevations of windows, full-size sections, thicknesses and gages of metal, fastenings, proposed method of anchoring, size and spacing of anchors, details of construction, method of glazing, details of operating hardware, [mullion details,] [method and materials for weatherstripping,] [method of attaching screens,] [material and method of attaching subframes,] [stools,] [casings,] [sills,] [trim,] [window cleaner anchors,] installation details, and other related items.

Submit schedule with drawings indicating location of each window unit.

SD-03 Product Data

Windows; G

Hardware; G

Fasteners; G

Screens; G

Weatherstripping; G

Accessories; G

SD-04 Samples

Finishes

Windows

Submit color chart of standard factory color coatings when factory-finished color coating is to be provided.

[Submit one full-size window of each type proposed for use, glazing, hardware, anchors, and other accessories. Where screens or weatherstripping is required, fit sample windows with such items that are to be used. After approval, install each sample in the work, clearly identified, and record its location.]

[Submit one full-size corner of each window type proposed for use. Where screens or weatherstripping is required, fit sample with such items that are to be used.]

SD-06 Test Reports

Minimum condensation resistance factor

[Resistance to forced entry]

SD-07 Certificates

Windows

Submit certificates from independent testing agencies indicating compliance with requirements.

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NOTE: Choose one of the following options. Include the first choice for projects requiring a large number of windows. Include the second choice for projects requiring a limited number of windows.
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SD-10 Operation and Maintenance Data

Windows, Data Package 1; G

Submit in accordance with Section 01781, "Operation and Maintenance Data."

1.2.1 Report Requirements

Submit test reports for each type of window attesting that identical windows have been tested and meet the requirements specified herein for conformance to requirements including test size, [and] minimum condensation resistance factor (CRF) [, and resistance to forced entry].

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NOTE: Remove the window definitions which do not apply to this project.
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1.3 DEFINITIONS

PREN 12519.

1.3.1 Awning and Projected Windows

Awning and projected windows have one or more sash hinged or pivoted at the top or bottom which project outward or inward from the plane of the window, with or without fixed lites of glass. An awning window rotates about its top edge and projects outward from the plane of the window at the bottom. A projected window can project outward or inward depending on the project requirements.

1.3.2 Casement Windows

Casement windows contain inswinging and/or outswinging sash that project away from the plane of the frame and are side hinged or pivoted at the jambs and swing about the vertical axis. Sash are mounted by use of hinging hardware which allow them to swing. The sash are operated by means

of roto-operators or a handle. Locking handles are furnished to secure sash tightly in the frame in the closed position.

1.3.3 Double Hung Windows

Hung windows are vertically operating windows in which the sash weight is offset by a counterbalancing mechanism mounted in the window. One or more locking devices are furnished to secure the sash in the closed position.

1.3.4 Vertically Pivoted Windows

Vertically pivoted windows consist of sash pivoted either at head or sill or at the jambs in the center of the main frame which reverses or rotates a full 360^0 around its vertical axis. When rotated 180^0, where it is held for the purpose of cleaning the outside surfaces, it also provides a weather seal. Upon completion of the cleaning operation, the sash is rotated another 180^0 to the normal, closed position where it is again locked.

1.3.5 Horizontal Sliding Windows

Horizontal sliding windows consist of one or more horizontally operable sash in a sealing (or weathering) frame. When one sliding sash and one fixed lite make up the arrangement, the type is classified as a single slide. When two sash are separated by a fixed lite, the type is classified as a picture slide. When one sash is located at or near the center of the unit with a fixed lite at each end, the type is classified as a center slide. When two bi-parting sash are located at the center of the unit with fixed lites at each end, the type is classified as a bi-part center slide. When two adjacent sash by-pass, the type is classified as a double slide.

1.3.6 Fixed Window

Fixed windows consist of a glazed frame or a fixed sash and frame installed into the opening and are not operable. Provisions are made so they can be reglazed or replaced in the field.

1.4 DELIVERY AND STORAGE

Deliver windows to project site in an undamaged condition. Use care in handling and hoisting windows during transportation and at the jobsite. Store windows and components out of contact with the ground, under a weathertight covering, so as to prevent bending, warping, or otherwise damaging the windows. Damaged windows shall be repaired to an "as new" condition as approved. If windows can not be repaired, provide a new unit.

1.5 PROTECTION

Protect finished surfaces during shipping and handling using the manufacturer's standard method, except that no coatings or lacquers shall be applied to surfaces to which calking and glazing compounds must adhere.

PART 2 PRODUCTS

2.1 WINDOWS

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NOTE: Consult ANSI/AAMA 101 to calculate design pressure(s) applicable to the project. Adjust "design factors" because naval facilities are typically less than 100 miles from hurricane oceanline.
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NOTE: No reference similar to ANSI/AAMA 101 is available for windows in Europe. Provide details indicating weather-stripping, hardware, anchorage, separation of aluminum from dissimilar materials, and other criteria normally covered in ANSI/AAMA 101.
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Windows shall conform to the requirements specified herein. Provide windows of types, grades, performance classes, combinations and sizes indicated or specified. Design windows to accommodate hardware, glass, weatherstripping, screens, and accessories to be furnished. Each window shall be a complete factory assembled unit with or without glass installed. Dimensions shown are minimum. [Provide windows with insulating glass] [and a thermal break].

a. Windows shall have no water penetration at a pressure of 0.38 kPa of fixed area when tested in accordance with EN 86.

b. Air infiltration shall not to exceed 2.63 by 10-5 cm/m2 of fixed area at a test pressure of 0.30 kPa (80 km/hr) wind load in accordance with ISO 6613 or EN 42.

c. Fabricate windows of Type 6063 T5 aluminum as described in EN 573-1 with welding in accordance with EN 288-4.

d. Fabricate windows with materials, procedures, and methods which comply with testing requirements of PREN 13115 and PREN 107.

e. Fabricate windows to resist exterior wind loads in accordance with EN 77. In addition to compliance with EN 77, window framing members for each individual lite or glass shall not deflect to the extent that deflection perpendicular to the glass lite exceeds L/175 of the glass edge when subjected to uniform loads at indicated design wind speed or pressure.

The following manufacturers offer products meeting the requirements of this specification:

IMA s.r.l.
Via Tiberina, 152/B
06050 Pantalla - Todi (PG)
Tel: 075/88 8326
Fax: 075/88 8325

Abithal (Alcan)
Via Pontina, Km 31,500
00040 Roma
Tel: 06/910 0385
Fax: 06/910 0385

Alumix
Via Nettunense, 211
04011 Aprillia (LA)
Tel: 06/928 2653
Fax: 06/925 8586

2.1.1 Awning Windows

Provide top hinged-or-pivoted awning windows projecting outward at the bottom [as indicated]. Conceal operating mechanism within the frame members or enclose within a metal casing not less than 1.59 mm 0.0625 inch thick sheet aluminum.

2.1.2 Casement Windows

Provide side hinged-or-pivoted [inswinging] [outswinging] casement windows [as indicated]. Ventilators shall be [rotary crank] [handle] operated. Provide ventilators over 1650 millimeters 66 inches high with two separate locking devices or a two-point locking device operated by rods from a single lever handle. Conceal rods where possible. [Provide casement windows in combination with [fixed] [projected] windows specified below.]

2.1.3 [Single][Double] Hung Windows

Provide vertically operating [single] [double] hung windows with counterbalancing mechanisms [as indicated]. Provide sash balances in accordance with PREN 13126-13. Sash shall operate in either direction with a force not to exceed 200 N after the sash is in motion.

2.1.5 Projected Windows

Provide [inward] [outward] projected windows with concealed four bar friction hinges only.

2.1.7 Vertically Pivoted Windows

Provide vertically pivoted windows (pivoted at the head and sill) [as indicated].[Provide window with remotely operated venetian blind mounted between an access sash and the main sash.]

2.1.6 Horizontally Sliding Windows

Provide horizontally sliding windows with [single slide][center slide][double slide] operation. Sash shall operate in either direction with force not to exceed 115 N after the sash is in motion.

2.17 Fixed Windows

Provide non-operable [glazed frame] [sash and frame] fixed windows [as indicated].

2.1.8 Forced Entry Resistant Windows

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NOTE: Conventional aluminum windows offer nominal resistance to forced entry by unskilled or opportunistic intruders. While there is no way to make a window absolutely "burglar proof," windows can provide reasonable assurance that entry, or attempted entry, will leave ample evidence of "forced entry." Provide details of steel reinforcing to resist concentrated loads applied to sash or ventilator in an attempt to open or remove sash or ventilator from window frame and specifies no measured time delay. These windows provide moderate degree of security against unskilled or opportunistic intruder at little or no additional cost. When forced entry resistant windows are specified, coordinate glazing requirements and specify impact resistant glass and glazing materials in Section 08800, "Glazing."

For projects requiring security windows, specify steel security windows in Section 08510, "Steel Windows." Protection in high crime areas against skilled professional intruders requires a more sophisticated approach to physical security. Consult Design Manual 13.1 "Physical Security" for recommendations.

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Provide forced entry resistant windows [as indicated].

2.1.10 Glass and Glazing

Materials are specified in Section 08800, "Glazing".

2.1.11 Calking and Sealing

Are specified in Section 07920, "Joint Sealants".

2.1.13 Sash Poles

Seamless aluminum tube, 1.59 mm 0.0625 inch minimum wall thickness, 25 mm one inch diameter, [_____] m feet long, with cast aluminum hook and protective cover or tip on the lower end. Finish shall match windows.

2.2 FABRICATION OF ALUMINUM FRAMES

Provide aluminum frames to receive windows fabricated of extruded aluminum shapes to contours approximately as shown on drawings. Frames that are to

receive fixed glass shall have removable glass stops and glazing beads. Use countersunk stainless steel Phillips head screws for exposed fastenings spaced not more than 30 centimeters on centers. Mill joints in frame members to a hairline watertight fit, reinforce, and either weld along concealed lines of contact or secure mechanically. Shapes shown are representations of design, function, and required profile. Dimensions shown are minimum. Shapes of equivalent design, dimensions, profile, and function may be submitted. Such shapes are subject to approval of samples and shop drawings by the Contracting Officer.

2.2.1 Provisions for Glazing

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NOTE: Specify glass thickness and vinyl gaskets in Section 08800, "Glazing". Inside glazing is preferred, especially for windows above first floor and other locations where access is difficult. Windows designed for inside glazing may not be available in double-hung type; check manufacturers' literature. Where project requires insulating glass, show sash members, glazing beads, and hardware of sufficient size and weight to receive and support glass of thickness specified. Allow 3 mm 1/8 inch minimum between each side of insulating glass and metal frame and between edges of glass and frame for glazing compound and expansion. Drawings should clearly indicate method for securing insulating glass in place.

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Design windows and rabbets suitable for glass thickness shown [or specified]. Design sash for [inside] [outside] [single] [double] glazing and for securing glass with [metal beads,] [glazing clips,] [glazing channels,] or glazing compound.

2.2.2 Weatherstripping

Provide for ventilating sections of all windows to ensure a weather-tight seal meeting the infiltration requirements specified. Provide easily replaceable factory-applied weatherstripping. Use molded vinyl, molded or molded-expanded neoprene or molded or expanded Ethylene Propylene Diene Terpolymer (EPDM) weatherstripping for compression contact surfaces. Use treated woven pile or wool, or polypropylene or nylon pile bonded to nylon fabric and metal or plastic backing strip weatherstripping for sliding surfaces. Do no use neoprene or polyvinylchloride weatherstripping where they will be exposed to direct sunlight. Weatherstripping shall have the following physical characteristics when tested in accordance with PREN 12365-1.

a. Close Force: Maximum 30 N

b. Deflection Recovery: Minimum 70%

c. Long Term Recovery: Minimum 60%, long term working range 5 mm x 7

mm greater than or equal to 3.5 mm.

2.2.3 Fasteners

Use fasteners as standard with the window manufacturer for windows, trim, and accessories. Self-tapping sheet-metal screws are not acceptable for material more than 2 mm 1/16 inch thick. Provide exposed fasteners of non-magnetic stainless steel or aluminum, treated to match window finish. Provide concealed fasteners (after installation) of stainless steel (minimum of 16% chrome), steel cadmium plated, steel-zinc plated, or steel-nickel/chrome plated steel.

2.2.4 Drips and Weep Holes

Provide continuous drips over heads of top ventilators. Where fixed windows adjoin ventilators, drips shall be continuous across tops of fixed windows. Provide drips and weep holes as required to return water to the outside.

2.2.5 Combination Windows

Windows used in combination shall be the same grade and performance class and shall be factory assembled. Where factory assembly of individual windows into larger units is limited by transportation considerations, prefabricate, match mark, transport, and field assemble.

2.2.6 Mullions and Transom Bars

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NOTE: Specify the design pressure for mullions.
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Provide mullions between multiple window units which meet the design pressure of [72] [96] [192] [_____] kilograms per square meter (ksm) [15] [20] [40] [_____] pounds per square foot (psf). Provide mullions with a structural thermal break. Secure mullions and transom bars to adjoining construction and window units in such a manner as to permit expansion and contraction and to form a weathertight joint. [Where window cleaner anchors are required, reinforce mullions and anchor to adjoining construction so as to provide safe and adequate support.] Provide mullion covers on the interior and exterior to completely close exposed joints and recesses between window units and to present a neat appearance. [Provide special covers over structural support at mullions as indicated.]

2.2.7 Accessories

Provide windows complete with necessary hardware, fastenings, clips, fins, anchors, glazing beads, and other appurtenances necessary for complete installation and proper operation. [Furnish extruded aluminum subframe receptors [and subsill] with each window unit.]

2.2.7.1 Hardware

The item, type, and functional characteristics shall be the manufacturer's

standard for the particular window type. Provide hardware of suitable design and of sufficient strength to perform the function for which it is used. Equip all operating ventilators with a lock or latching device which can be secured from the inside. Provide hardware of aluminum, stainless steel, or other corrosion-resistant base material compatible with aluminum. Steels other than stainless steel shall be cadmium, zinc, or nickel/chrome plated.

2.2.7.2 Fasteners

Provide concealed anchors of the type recommended by the window manufacturer for the specific type of construction. Anchors and fasteners shall be compatible with the window and the adjoining construction. Provide a minimum of three anchors for each jamb located approximately 150 mm 6 inches from each end and at midpoint.

2.2.7.3 Window-Cleaner Anchors

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NOTE: Window-cleaner anchors should be shown and specified for windows having sills more than [1800 mm] [6 feet] above grade, adjoining balconies, or adjoining roofs, unless window cleaning methods at activity make use of anchors unnecessary. Coordinate window cleaning procedures and requirements with using activity. When requested by using activity, removable or tilting-type sash may be provided instead of anchors. Removable or tilting-type sash may be specified as Contractor option when these units are desired by using activity and are economically competitive with double-hung sash equipped with anchors. When appropriate, add the following at end of paragraph entitled "Window-Cleaner Anchors":

"Removable or tilting-type sash may be provided in lieu of double-hung windows equipped with window cleaner anchors. Sash shall be designed so that both sides of glass can be readily cleaned from interior without dismantling any part of window or screens. Provide removable and tilting-type sash with tamper-proof hardware to prevent sash removal by unauthorized personnel."

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Provide double head anchors for windows [indicated] [specified]. Anchors shall be stainless steel of size and design conforming to requirements. Provide two anchors for each single window [and each adjacent fixed glass window unit]. Fasten anchors 1120 mm 44 inches above the window sill in accordance with details.

2.2.8 Finishes

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NOTE: Specify anodic and organic coatings as Contractor's option when these finishes are determined to be economically competitive in the project area, unless the project requires use of one or the other to match an existing condition.

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Exposed aluminum surfaces shall be factory finished with an [anodic coating] [or] [organic coating]. [Color shall be [_____] [as indicated].] All windows [for each building] shall have the same finish.

2.2.8.1 Anodic Coating

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NOTE: Anodizing quality is available in four grades: Architectural, decorative, bright anodizing and general engineering quality. The thickness of the anodic coating is measured in micrometers in the following classes: AA 5, AA 10, AA 15, AA 20 and AA 25, with the numbers indicating the minimum average thickness in micrometers. Consult manufacturers' product literature for product availability prior to selecting a thickness. Specify AA 20 where windows will be subject to excessive wear, highly corrosive industrial atmospheres, where dusts, salts, and other destructive elements that attack metal are in existence. Specify AA 10 or AA 15 where lighter exposure is anticipated.

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Clean exposed aluminum surfaces and provide an anodized finish conforming to ISO 7599. Provide the following finish:

a. Quality: [Architectural] [_____].

b. Thickness: [AA 10] [AA 15] [AA 20].

c. Color: [medium bronze] [dark bronze] [black] [as indicated] [clear].

2.2.8.2 Organic Coating

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NOTE: When anodic and organic coatings are determined to be economically competitive in the project area, specify baked enamel finish or high performance finish as an option to anodic coating.If a color other than bronze, black ,or clear is needed, specify organic coating only.

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Clean and prime exposed aluminum surfaces. Provide a [baked enamel (50% polyvinylidine fluoride or 50% silicon polyester) finish with total dry film thickness not less than 0.025 mm] [high-performance finish (70%

polyvinylidine fluoride) with total dry film thickness of not less than 0.03 mm]. Color: [as indicated] [_____].

2.2.9 Screens

Provide one insect screen for each operable exterior sash or ventilator. Design screens to be rewirable, easily removable from inside the building, and to permit easy access to operating hardware.

2.3 SPECIAL OPERATORS

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NOTE: Remote and group operated windows will require special operators. Identify these windows on the drawings and show method of operation.
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For windows having operating hardware or locking or latching devices located more than 1800 mm 6 feet above the floor, provide suitably designed operators or locking or latching devices necessary for convenient and proper window operation.

2.3.1 Pole Operators

Poles shall be of proper length to permit window operation from 1500 mm 5 feet above the floor. Provide one pole operator for each room, and one pole hanger for each pole. Locate hangers where directed.

2.3.2 Extension Crank Operators

Provide removable handles for crank-operated rotary-type operators located more than 1800 mm 6 feet above the floor. Provide one removable handle for each room.

2.3.3 Mechanical Operators

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NOTE: When motor driven operators are specified, specify electrical characteristics in Section 16402, "Interior Distribution System."
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Provide [manual] [electric motor driven] operators for group operation of continuous rows of windows [located [_____] mm feet above the floor]. Operators shall be capable of opening and closing windows without appreciable deflection, vibration or rattle. Provide means of adjustment for transmission lines. Operators shall control window units in groups [as recommended by the window manufacturer] [or] [as indicated].

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Method of Installation

Install in accordance with the window manufacturer's printed instructions and details. Build in windows as the work progresses or install without forcing into prepared window openings. Set windows at proper elevation, location, and reveal; plumb, square, level, and in alignment; and brace, strut, and stay properly to prevent distortion and misalignment. Protect ventilators and operating parts against accumulation of dirt and building materials by keeping ventilators tightly closed and locked to frame. Bed screws or bolts in sill members, joints at mullions, contacts of windows with sills, built-in fins, and subframes in mastic sealant of a type recommended by the window manufacturer. Install windows in a manner that will prevent entrance of water and wind. Fasten insect screens securely in place.

3.1.2 Dissimilar Materials

Where aluminum surfaces are in contact with, or fastened to masonry, concrete, wood, or dissimilar metals, except stainless steel or zinc, the aluminum surface shall be protected from dissimilar materials with one or more of the following methods. Surfaces in contact with sealants after installation shall not be coated with any type of protective material.

a. Apply caulking material between the aluminum and the dissimilar metal.

b. Painting the dissimilar metal with a prime coat of zinc-chromate primer, or other suitable primer, followed by one coat of aluminum paint or other suitable protective coating, excluding those containing lead pigmentation.

c. Paint the dissimilar metal with one coat of heavy-bodied bituminous paint.

d. Use of a gasket in permanently dry locations.

3.1.3 Anchors and Fastenings

Make provision for securing units to each other, to masonry, and to other adjoining construction. Windows installed in masonry walls shall have head and jamb members designed to recess into masonry wall not less than 11 mm 7/16 inch.

3.1.4 Adjustments After Installation

After installation of windows and completion of glazing and field painting, adjust all ventilators and hardware to operate smoothly and to provide weathertight sealing when ventilators are closed and locked. Lubricate hardware and operating parts as necessary. [Adjust double hung windows to operate with maximum applied force of 25 pounds in either direction, not including breakaway friction force.]

3.2 CLEANING

Clean interior and exterior surfaces of window units of mortar, plaster,

paint spattering spots, and other foreign matter to present a neat appearance, to prevent fouling of weathering surfaces and weather-stripping, and to prevent interference with the operation of hardware. Replace all stained, discolored, or abraded windows that cannot be restored to their original condition with new windows.

-- End of Section --