UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated January 2021
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USACE / NAVFAC / AFCEC / NASA	**UFGS-08 56 63 (April 2006)**

Preparing Activity: NAVFAC	**Replacing without change UFGS-11191 (September 1999)**

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SECTION 08 56 63

DETENTION AND SECURITY WINDOWS
04/06

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NOTE: This guide specification covers the requirements for detention steel cell windows.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).
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NOTE: The following information shall be shown on the project drawings:

1. Jamb, head and sill sections.

2. Method of anchoring and spacing; type of anchor.

3. Window elevations and dimensions.

4. Type of glazing.

5. Elevations above finished floor.

6. Details of non-structural mullions and mullion covers.
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PART 1 GENERAL

1.1 REFERENCES

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NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

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

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B18.6.3	(2013; R 2017) Machine Screws, Tapping Screws, and Machine Drive Screws (Inch Series)

ASTM INTERNATIONAL (ASTM)

ASTM A90/A90M	(2013; R 2018) Standard Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings
ASTM A123/A123M	(2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153/A153M	(2016a) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A167	(2011) Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM A239	(2014; R 2019) Standard Practice for Locating the Thinnest Spot in a Zinc (Galvanized) Coating on Iron or Steel Articles

ASTM A627	(2003; R 2011) Standard Specification for Tool-Resisting Steel Bars, Flats, and Shapes for Detention and Correctional Facilities
ASTM A653/A653M	(2020) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A1011/A1011M	(2018a) Standard Specification for Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
ASTM B766	(1986; R 2015) Standard Specification for Electrodeposited Coatings of Cadmium
ASTM E283	(2019) Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
ASTM E330/E330M	(2014) Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
ASTM E331	(2000; R 2016) Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

STEEL WINDOW INSTITUTE (SWI)

SWI AGSW	(2002) Architect's Guide to Steel Windows

1.2 SUBMITTALS

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NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G". Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the

Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy, Air Force, and NASA projects, or choose the second bracketed item for Army projects.

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Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Window units

Indicate the elevations of windows, half-size sections, thicknesses and gages of metal, fastenings, proposed method of anchoring, the size and spacing of anchors, details of construction, method of glazing, mullion details, casings, sills, trim, other related items, and installation details.

SD-03 Product Data

Window units

Fasteners

Accessories

Include finishes.

SD-06 Test Reports

Air infiltration

Water infiltration

Mullion and transom bar wind load

1.3 QUALITY ASSURANCE

The requirements specified in this section govern where there is a difference between this section and the referenced industry specifications.

1.3.1 Test Reports

1.3.1.1 Air and Water Infiltration Tests

ASTM E283 and ASTM E331. Air infiltration shall not exceed 0.8 L/s per meter one-half cubic foot per minute per foot of crack length when subjected to a static pressure of 75 Pa 1.56 pounds per square foot (equivalent to a wind velocity of 40 km/hr 25 miles per hour). The amount of water infiltration shall be "zero" when tested in accordance with ASTM E331.

1.3.1.2 Mullion and Transom Bar Wind Load Tests

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NOTE: Specify wind loading requirements in areas subject to high wind velocities in excess of 110 km/hr 70 MPH; otherwise delete. The wind loading of 960 Pa 20 psf is based on a 145 km/hr 90 mph wind velocity at 61 m 200 feet above grade.
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NOTE: Delete when not applicable.
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ASTM E330/E330M. Members shall withstand a uniform wind load of 960 Pa 20 pounds per square foot of window area without deflecting more than 1/175 of the span.

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver windows to project site in an undamaged condition. Store windows and components at the site on edge, out of contact with the ground, and under a weathertight covering.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Steel Bars

SWI AGSW.

2.1.2 Sheet Steel

ASTM A1011/A1011M.

2.1.3 Zinc-Coated Sheet Steel

ASTM A653/A653M.

2.1.4 Zinc-Coated Steel

ASTM A90/A90M, ASTM A123/A123M or ASTM A153/A153M.

2.1.5 Corrosion Resisting Sheet Steel

ASTM A167.

2.1.6 Screws and Bolts

ASTM B766 or ASME B18.6.3, as applicable.

2.2 WINDOW UNITS

Units shall conform to the SWI AGSW, except as modified herein.

2.3 FABRICATION

Form permanent joints by welding or by mechanically fastening as specified [for each type window]. Use joints of strength required to maintain the structural value of members connected. Weld joints solid, remove excess metal, and dress smooth on exposed and contact surfaces. Closely fit joints formed with mechanical fastenings and make permanently watertight. Assemble frames at the plant, and ship as a unit with hardware unattached.

2.3.1 Window Sections

Where fixed window sections adjoin, provide a fixed sash, fabricated from similar frame members and of the manufacturer's standard type suitable for the purpose. [Roll weathering surfaces integrally to provide two-point, parallel-surface contact with an overlap at both inside and outside points of closure.]

2.3.2 Drainage Holes

Provide drips and weep holes, as required, to return water to outside, minimum of two per window.

2.3.3 Fasteners

Use flat or oval head spanner, twist-off or safety head screws and bolts with standard threads on windows, trim and accessories. Self tapping sheet-metal screws are not acceptable.

2.3.4 Fastener Finish

Fabricate windows with hot-dipped galvanized finish, using stainless steel or hot-spun galvanized steel fasteners. Use heavily cadmium plated steel fasteners for windows with painted finish or electrogalvanized in accordance with ASTM A239. Finish exposed heads of fasteners to match finish of windows.

2.3.5 Frames

Form frames from low carbon steel not less than 12 U.S. gage. Frames shall be one piece, channel shaped sections, at each jamb and between jamb at head and sill. Cope or miter and weld frame members at corners full depth of the frame for maximum strength and weathertightness; dress exposed welds smooth. Provide frame members with dimensions and profiles indicated. Provide 20 by 57 mm 3/8 by 2 1/4 inch, tool resistant steel flats conforming to ASTM A627, penetrated by 22 mm 7/8 inch tool-resistant steel rounds conforming to ASTM A627 in frame members.

2.4 PROVISIONS FOR GLAZING

Design for outside single glazing and for securing glass with metal beads and glazing compound. Glazing specified in Section 08 88 53 DETENTION AND

SECURITY GLAZING.

2.5 SCREENS

Provide manufacturer's standard screens for window units with movable sash, galvanized frame.

2.6 ACCESSORIES

Provide windows complete with necessary hardware, fastenings, clips, fins, anchors, glazing beads, and other appurtenances necessary for complete installation of windows.

2.7 ANCHORS

Use hot-dip, zinc-coated steel anchors of the type indicated or specified. Use cadmium or zinc-coated nuts, bolts, and other fasteners for ferrous material.

2.8 SHOP PRIMED FINISH

After fabrication, clean surfaces of windows, fins, mullions, cover plates [and screen frames], provide a hot-dip galvanized, phosphate-treated and shop primed finish. The methods of cleaning, chemical treating, galvanizing, and painting shall conform to SWI AGSW. Windows shall receive finish paint coats as specified in Section 09 90 00 PAINTS AND COATINGS.

PART 3 EXECUTION

3.1 INSTALLATION

Install windows in accordance with the manufacturer's printed instructions and details, except as specified otherwise in this section. Build in windows as the work progresses. Set windows at indicated elevation, location, and reveal. Set plumb, square, level, and in alignment. Brace, strut, and stay to prevent distortion and misalignment.

3.2 ANCHORS AND FASTENINGS

Place anchorage as wall construction progresses. Build in anchors or bolt anchors and fastenings to the jambs of openings and weld securely to the windows or frames and to the adjoining construction. Space anchors not more than 400 mm 16 inches apart on jambs, and install a minimum of four anchors on each side of each opening. Anchors and fastenings shall have sufficient strength to hold the member firmly in position.

3.3 SEALANTS

Section 07 92 00 JOINT SEALANTS.

3.4 CLEANING

Clean metal surfaces of windows, inside and outside, of mortar, plaster, paint, and other foreign matter to present a neat appearance and to

prevent fouling of weathering surfaces. Clean and touch-up abraded surfaces of steel windows. Replace stained, discolored, or abraded windows that cannot be restored to their original condition with new windows.

-- End of Section --