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UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated January 2021
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05/11

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SECTION 08 88 53

DETENTION AND SECURITY GLAZING
05/11

NOTE: This guide specification covers the requirements for security glazing.

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).

PART 1 GENERAL

1.1 REFERENCES

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 ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

AAMA MCWM-1	(1989) Metal Curtain Wall Manual

ASTM INTERNATIONAL (ASTM)

ASTM C158	(2002; R 2017) Standard Test Methods for Strength of Glass by Flexure (Determination of Modulus of Rupture)
ASTM C864	(2005; R 2015) Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers
ASTM C920	(2018) Standard Specification for Elastomeric Joint Sealants
ASTM C1036	(2016) Standard Specification for Flat Glass

GLASS ASSOCIATION OF NORTH AMERICA (GANA)

GANA Glazing Manual	(2008) Glazing Manual
GANA Sealant Manual	(2008) Sealant Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 80	(2019) Standard for Fire Doors and Other Opening Protectives

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

CID A-A-59502	(Basic) Plastic Sheet, Polycarbonate

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-03 Product Data

Glazing materials

Include glass manufacturer's printed literature for setting and sealing materials and for cleaning of each type of glazing material specified.

SD-04 Samples

Glazing materials

Submit samples, 250 mm 10 inches square, factory labeled, for each type of glazing specified.

SD-08 Manufacturer's Instructions

Glass setting

1.3 DELIVERY, STORAGE, AND HANDLING

Deliver products to the site in their original unopened containers, plainly labeled with manufacturers' names and brands. Store all glass and setting materials in safe, dry locations and do not unpack until needed for installation. Handle and install materials in a manner that protects them from damage.

1.4 ENVIRONMENTAL CONDITIONS

Do not start glazing work until the outdoor temperature is above 4 degrees C 40 degrees F and rising unless approved provisions are made to warm the glass and rabbet surfaces. Provide sufficient ventilation to prevent condensation of moisture on glazing work during installation. Do not perform glazing work during wet weather.

1.5 WARRANTY

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NOTE: The warranty clause in this guide specification has been approved by NAVFACENGCOMHQ in accordance with the requirements of Naval Facilities Acquisition Supplement (NFAS).
NFAS can be found at the following link:
https://portal.navfac.navy.mil/portal/page/portal/navfac/navfac_forbusinesse
The paragraph in this specification may be used without any HQ approval or request for waiver.

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Warranty glass units against development of material obstruction to vision as a result of delamination, other than through glass breakage for at least a 5 year period from the date of acceptance of the work. Provide new units for units failing to comply with terms of this warranty no later than 45 working days following receipt of notice from the Government.

PART 2 PRODUCTS

2.1 DETENTION GLAZING ASSEMBLIES

2.1.1 Glass-Clad Polycarbonate

Two glass outer layers (plies), bonded to a core of one or more plastic layers (plies).

2.1.2 Plastic Laminated (Bonded) Construction

Two or more layers (plies) of plastic sheet bonded together with polyurethane.

2.1.3 Glass Laminated (Bonded) Construction

Two or more layers (plies) of chemically-strengthened float glass bonded together with polyvinyl butyral (PVB).

2.2 DETENTION GLAZING MATERIALS

2.2.1 Glass, Chemically Strengthened

ASTM C158, transparent prestressed.

2.2.2 Glass, Annealed, Wire

ASTM C1036, Type II, Class 1, form 1, Quality q8, 6 mm 1/4 inch thick, with diamond or square mesh.

2.2.3 Polycarbonate, Transparent, Rigid Sheet Plastic

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NOTE: The type, class, and thickness of polycarbonate glazing material to be used in detention glazing assemblies is specified in paragraph entitled "Detention Glazing Types" by Type. Note that mar-resistant coating is to be provided in Glazing Types 3, 5, and 5W only.
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CID A-A-59502, [Type I Grade A] [Type III Grade A] [clear] [transparent], thickness as specified.

2.3 DETENTION GLAZING TYPES

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NOTE: Glazing types should be indicated on project drawings.
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a. Type 1: Tempered Glass; Conform to Section 08 81 00 GLAZING.

b. Type 2: 11 mm 7/16 inch nominal glass-clad polycarbonate: 3 mm 1/8 inch clear chemically-strengthened glass, 1.3 mm 0.050 inch polyurethane interlayer, 3 mm 1/8 inch polycarbonate sheet, 1.3 mm 0.050 inch polyurethane interlayer, 3 mm 1/8 inch clear chemically-strengthened glass.

c. Type 3: 10 mm 3/8 inch nominal laminated plastic: 4.8 mm 3/16 inch mar-resistant (hard coat) polycarbonate (threat side), 0.9 mm 0.034 inch polyurethane interlayer, 4.8 mm 3/16 inch polycarbonate sheet.

d. Type 4: 11 mm 7/16 inch nominal laminated glass: 3 mm 1/8 inch clear chemically-strengthened glass, 2.3 mm 0.090 inch polyvinyl butyral interlayer, 3 mm 1/8 inchclear chemically-strengthened glass, 2.3 mm 0.090 inchpolyvinyl butyral interlayer, 3 mm 1/8 inch clear chemically-strengthened glass.

e. Type 4W: Add a separate (not laminated) 6 mm 1/4 inchannealed wire glass on staff side to Type 4.

f. Type 5: 14.3 mm 9/16 inch nominal glass-clad polycarbonate: 3 mm 1/8 inch clear chemically-strengthened glass (threat side), 1.3 mm 0.050 inch polyurethane interlayer, 6 mm 1/4 inch polycarbonate sheet, 1.3 mm 0.050 inch polyurethane interlayer, 3 mm 1/8 inch clear chemically-strengthened glass.

g. Type 5W: Add a separate (not laminated) 6 mm 1/4 inchannealed wire glass on staff side to Type 5.

h. Type 6: 8 mm 5/16 inch nominal laminated glass: 3 mm 1/8 inch clear chemically-strengthened glass, 2.3 mm 0.090 inch polyvinyl butyral interlayer, 3 mm 1/8 inchclear chemically-strengthened glass.

2.4 SETTING MATERIALS

Provide types required for the applicable setting method specified in GANA Glazing Manual and GANA Sealant Manual, except as modified in this

section. Do not use metal sash putty, nonskinning compounds, nonresilient preformed sealers, or impregnated preformed gaskets. Materials exposed to view shall be gray or neutral color.

2.4.1 Glazing Compound

Use for face glazing metal sash. Verify compatibility with materials in glazing assembly.

2.4.2 Elastomeric Sealant

ASTM C920, Type S, Grade NS, Class 12.5, use NT. Use for channel or stop glazing metal sash. Sealant shall be chemically compatible with setting blocks, edge blocks, and sealing tapes [, and with plastic sheet]. Color of sealant shall be white.

2.4.3 Preformed Channels

Neoprene, AAMA MCWM-1, as recommended by the glass manufacturer for the particular condition. Channels shall be chemically compatible with plastic sheet.

2.4.4 Sealing Tapes

Preformed, semisolid, polymeric-based material of proper size and compressibility for the particular condition. Use only where glazing rabbet is designed for tape and tape is recommended by the glass or sealant manufacturer. Provide spacer shims for use with compressible tapes. [Tapes shall be chemically compatible with plastic sheet.]

2.4.5 Setting Blocks and Edge Blocks

ASTM C864 neoprene of 70 to 90 Shore "A" durometer hardness, chemically compatible with sealants used, and of sizes recommended by the glass manufacturer.

2.4.6 Accessories

As required to provide a complete installation, including glazing points, clips, shims, angles, beads, and spacer strips. Provide noncorroding metal accessories. Provide primer-sealers and cleaners as recommended by the glass and sealant manufacturers.

PART 3 EXECUTION

3.1 GLAZING TYPES

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NOTE: Glazing types should be indicated on project drawings.
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Locations and types of glass for use in glazed openings as indicated.

3.2 PREPARATION

Determine the sizes to provide the required edge clearances by measuring the actual opening to receive the glass. Leave labels in place until the installation is approved. Securely attach movable items or keep in a

closed and locked position until glazing compound has thoroughly set.

3.3 GLASS SETTING

Items to be glazed shall be either shop or field glazed using glass of the quality and thickness specified. Preparation and glazing shall conform to applicable recommendations in the GANA Glazing Manual and GANA Sealant Manual. Handle and install glazing materials in accordance with manufacturer's instructions. Use beads or stops furnished with items to be glazed to secure glass in place.

3.3.1 Wire Glass

Install glass for fire doors in accordance with installation requirements of NFPA 80.

3.3.2 Plastic Sheet

Conform to manufacturer's recommendations for edge clearance, type of sealant and tape, and method of installation.

3.4 CLEANING

Clean glass surfaces and remove labels, paint spots, putty, and other defacement. Glass shall be clean at the time the work is accepted. [Clean plastic sheet in accordance with manufacturer's instructions.]

3.5 SCHEDULE

Some metric measurements in this section are based on mathematical conversion of inch-pound measurements, and not on metric measurement commonly agreed to by the manufacturers or other parties. The inch-pound and metric measurements are as follows:

PRODUCTS	INCH-POUND	METRIC
Glass thickness	1 inch	25.4 mm

-- End of Section --