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UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2023
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SECTION 10 22 26.13

ACCORDION FOLDING PARTITIONS
08/16, CHG 2: 08/20

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NOTE: This guide specification covers the requirements for accordion folding partitions, manually and/or electrically operated.

Accordion partitions are folding partitions with independent covers enclosing a dead-air space and separated by an internal mechanism operating laterally across the face of the opening to a stack or closed position. Do not confuse accordion partitions with serpentine folding partitions which contain no internal operating mechanism or dead-air space between independent covers.

Folding partitions may be a sight barrier (noninsulated), or sound barrier (with sound liner), or both. Accordion-folding partitions have fabric covers which are joined to reflect a pantographic movement of the door surfaces when the door is either manually or electrically operated.

This section does not include folding or operable walls and partitions whose rigid panels are individually moved or hinged along their vertical edges to fold in serpentine fashion.

Associated work found in other sections includes:

Steel supporting members or hanger rods, [Section 05 50 13 MISCELLANEOUS METAL FABRICATIONS][Section 05 51 33 METAL LADDERS][Section 05 52 00 METAL RAILINGS][Section 05 51 00 METAL STAIRS].

Wood blocking, rough bucks, and headers, Section 06 10 00 ROUGH CARPENTRY.

Wood trim, wood or hardboard ceiling guard, or soffits, Section 06 20 00 FINISH CARPENTRY.

Lock cylinders, Section 08 71 00 DOOR HARDWARE.

Operator field connections to power sources and inner connection to control switches, Division 16, "Electrical."

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 should be shown on the drawings:

1. Location, size, and folding area of accordion partitions.

2. Direction of operation, header conditions indicating height, track anchorage, track channel, and jamb conditions.

3. Partition supporting structure. The structural support for the partition is not part of this section; it must be indicated and specified separately.

4. A schedule of partitions by type, sizes, and stack space and identified by mark number or letter

5. For electrically operated partitions, show power source and desired switch location.

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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.

****

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.

ASTM INTERNATIONAL (ASTM)

ASTM A653/A653M	(2023) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM B221	(2021) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B221M	(2021) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)
ASTM C423	(2023) Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
ASTM D751	(2006; R 2011) Coated Fabrics
ASTM E84	(2023) Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM E90	(2009; R2016) Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
ASTM E336	(2023) Standard Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings
ASTM E413	(2022) Classification for Rating Sound Insulation
ASTM E557	(2012; R 2020) Standard Guide for Architectural Design and Installation Practices for Sound Isolation between Spaces Separated by Operable Partitions

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

CDPH SECTION 01350	(2017; Version 1.2) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers

CHEMICAL FABRICS AND FILM ASSOCIATION (CFFA)

CFFA-W-101-D	(2002) Quality Standard for Vinyl Coated Fabric Wallcovering

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2023) National Electrical Code
NFPA 101	(2021; TIA 21-1) Life Safety Code
NFPA 286	(2019) Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS	SCS Global Services (SCS) Indoor Advantage

UNDERWRITERS LABORATORIES (UL)

UL 10B	(2008; Reprint May 2020) Fire Tests of Door Assemblies
UL 2818	(2022) GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings

1.2 SUBMITTALS

****

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-01 Preconstruction Submittals

Manufacturer's Qualifications; G[, [_____]]

Manufacturer's Sample Warranty

Statement of Code Compliance; G[, [_____]]

Statement of Standards Conformity; G[, [_____]]

Verification of Field Measurements; G[, [_____]]

[Existing Electrical Data

] SD-02 Shop Drawings

Submit Fabrication Drawings for Accordion Folding Partitions consisting of fabrication and assembly details to be performed in the factory.

Submit Installation Drawings for the following items in accordance with paragraph INSTALLATION, of this section.

Accordion Folding Partition Layouts; G[, [_____]]

Suspension System; G[, [_____]]

Finish Hardware; G[, [_____]]

Jamb Panels; G[, [_____]]

Accessories; G[, [_____]]

[Electrical Operators; G[, [_____]]

][Wiring Diagrams; G[, [_____]]

] Submit drawings for the system that include dimensions and weight of stacked partition, layout of the work including stacking area, track and jamb fastening methods, seal details, and installation details.[Submit wiring diagram and installation details for electrical operator.]

SD-03 Product Data

Framework

Suspension System

[Recycled Content for Aluminum Components; S

][Recycled Content for Steel Components; S

] Finish Hardware

Sound Seals and Sweepstrips

Covering

Ceiling Guard

Meeting Posts

Jamb Panels

Rolling Post

Pull-In Latch

[Electrical Operator

][Switches

] SD-04 Samples

Covering; G[, [_____]]

SD-06 Test Reports

Laboratory Acoustical Requirements

Acoustical Test

[SD-07 Certificates

Indoor Air Quality for Fabrics and Wallcoverings; S

] SD-10 Operation and Maintenance Data

Folding Partitions, Data Package 1; G[, [_____]]

[Electrical Operators, Data Package 5; G[, [_____]]

] Submit in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

SD-11 Closeout Submittals

Manufacturer's Guarantee

[1.3 CERTIFICATIONS

****
NOTE: The Government's preference is for use of products that have been certified for indoor air quality by a third-party organization such as Greenguard or SCS Global Services. However, it must be verified there is a certified product available that is both cost effective and appropriate for the project. Retain the following Section when the designer of record confirms local/regional availability of Greenguard or SCS products that does not impact cost effectiveness. In addition, when this Section is retained requiring Greenguard or SCS products, also include the Indoor Air Quality Certificates in SD-07 submittals of this section.
****

1.3.1 Indoor Air Quality Certification

1.3.1.1 Indoor Air Quality for Fabrics and Wallcoverings

Provide products certified to meet indoor air quality requirements by UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification or validation by other third-party program that products meet the requirements of this Section. Provide current product certification documentation from certification body. When product does not have certification, provide validation that product meets the indoor air quality product requirements cited herein.

]1.4 PRE-INSTALLATION REQUIREMENTS

1.4.1 Preconstruction Requirements

No less than 30 calendar days prior to the scheduled commencement of installation of Accordion Folding Partitions, submit the following to the Contracting Officer:

Manufacturer's Qualifications

Manufacturer's Sample Warranty

Statement of Code Compliance

Statement of Standards Conformity

Verification of Field Measurements and Existing Electrical Data

Fabrication Drawings and Installation Drawings

1.4.2 Product Data

Submit the following information for review:

Finish Hardware

Jamb Panels and Accessories

Sound Seals and Sweepstrips

Ceiling Guard, Meeting Posts, Rolling Post

Pull-In Latch

[Electrical Operator and Switches

]1.4.3 Manufacturer's Guarantee

Provide Manufacturer's Guarantee for partitions against defects in material and workmanship for a period of two years from date of installation. In addition, provide ten year guarantee for the pantographs, trolleys and tracks from date of acceptance for beneficial use.

1.5 DELIVERY, HANDLING AND STORAGE

Deliver materials to project site in manufacturer's original, unopened, and undamaged packages with labels legible and intact. Labels must indicate the manufacturer, brand name, size, finish, and placement location. Store folding partitions and accessories in unopened packages in a manner that will prevent damage. Handle partition materials in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 FOLDING PARTITIONS

Provide full accordion type partitions, factory finished, supported from overhead track without floor guides, and complete with all hardware, track, and accessories necessary for operation. Provide partition framework with a mechanism that gives stability and maintains uniform spacing of partition folds in all partition positions. Provide completely concealed framework with a [vinyl-coated fabric covering][_____]. Provide partitions [manually] [and] [electrically] operated, [bi-parting] [and] [one-way] type as indicated. Provide patterns and colors of [fabric][_____] [approved by the Contracting Officer] [as indicated].[Provide manufacturer's standard pendant pull on leading edge of manually operated partitions over 3600 mm 12 feet high.]

2.2 MATERIALS

2.2.1 Aluminum Extrusions

ASTM B221MASTM B221, Alloy 3003.

****

NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition (including verification of bracketed percentages included in this guide specification) before specifying product recycled content requirements.

Research shows the product is available from US national manufacturers above the minimum recycled content percentages shown below. Some manufacturers and regions have higher percentages. Based on research, select or insert desired minimum percentages into the empty set of brackets.
****

[Provide aluminum components that contain a minimum of [30][_____] percent recycled content. Provide data identifying percentage of recycled content for aluminum components.

]2.2.2 Steel Sheets

ASTM A653/A653M, [Z 180G90 coating designation].

****
NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition (including verification of bracketed percentages included in this guide specification) before specifying product recycled content requirements.

Research shows the product is available from US national manufacturers above the minimum recycled content percentages shown below. Some manufacturers and regions have higher percentages. Based on research, select or insert desired minimum percentages into the empty set of brackets.
****

[Provide steel components that contain a minimum of [10][_____] percent recycled content. Provide data identifying percentage of recycled content for steel components.

]2.2.3 Fabric Covering

****
NOTE: Specify minimum total weight and minimum coating weight for the fabric covering type selected using the listing below:

Total Weight (kilograms per square meter): Type I - 0.237; Type II - 0.442; Type III - 0.748
Coating Weight (kilograms per square meter): Type I - 0.170; Type II - 0.237; Type III - 0.407
Total Weight (ounces per square yard): Type I - 7; Type II - 13; Type III - 22
Coating Weight (ounces per square yard): Type I - 5; Type II - 7; Type III - 12
****

CFFA-W-101-D, Type II. Fabrics and wallcoverings must meet emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type). Provide certification or validation of indoor air quality for fabrics and wallcoverings.

2.2.4 Seals and Sweepstrips

****

NOTE: Accordion partitions need a floor and ceiling seal to avoid gaps that will lower the advertised sound transmission rating. For any partition that requires a sound rating, use seals and ceiling guards provided by the manufacturer of the partition. Provide a baffle in the ceiling plenum above the partition with a STC rating equal to the partition. Provide a floor surface that will allow the bottom sweep to make a positive seal.

****

Provide perimeter seals of manufacturer's standard product, without crack or craze when subjected to severe usage.

2.2.5 Ceiling Guards

Furnish partitions with ceiling guards or integral track and ceiling guards as recommended by the manufacturer.

2.3 PERFORMANCE REQUIREMENTS

2.3.1 Fire Endurance

****

NOTE: Select flame spread and smoke developed criteria to suit project.

****

For partitions more than 5.6 square meters 60 square feet in area, provide fabric and lining with flame spread rating of 25 or less, fuel contribution rating of 15 or less, smoke generation of 50 or less when tested in accordance with ASTM E84. Complete assembly must also meet or surpass the requirements of NFPA 101 and UL 10B.

2.3.2 Laboratory Acoustical Requirements

****

NOTE: Specify sound transmission class as determined by project requirements. The requested rating should be between 35 and 45 STC. 39 and 40 STC are widely available. If more is required, another type of moveable partition should be used. Specify a panel weight of no less than 14 kg per square meter 3 psf for STC of 35, 24 kg per square meter 5 psf for STC of 45.

****

Provide certificates verifying folding partitions have been tested in accordance with ASTM C423 and ASTM E90 by a laboratory accredited by the U.S. Bureau of Standards and have attained a sound transmission class (STC) of not less than [40] [_____] in a fully extended position. Partition tested must be of the same construction, materials, and model number as the partition to be provided and be fully operable. Test specimen must be not less than [12 square meters in area] [4200 by 2700 mm] [126 square feet in area] [14 feet by 9 feet]. Panel weight must be [14] [24] kg per square meter [3] [5] lbs per square ft.

[2.4 ELECTRICAL OPERATORS

****
NOTE: Specify electrical operators for those partitions whose size and weight preclude manual operation. Refer to manufacturers' literature. Indicate those partitions requiring electrical operation on the project drawings. Delete this paragraph when electrically operated partitions are not required in the project.
****

Provide manufacturer's recommended standard electrical operator for [each partition] [partitions indicated]. Provide wiring diagrams.

]2.5 FABRICATION

2.5.1 Framework

Fabricate framework, including posts, pantographs, hinges, hinge plates, and rods from either extruded aluminum or ferrous metal. Arrange frames requiring pantographs for horizontal pantograph action with pantographs located at top and bottom of the frame. Provide pantographs spaced not over 1200 mm 4 feet apart. Provide intermediate pantograph at center of doors less than 2400 mm 8 feet high unless the door has vertical metal reinforcing. The pantographs must operate smoothly with positive folding action and have a control device to prevent flattening of the folds when the panel is fully extended. Ferrous metal must be either cadmium plated or zinc coated. Posts, at the option of the door manufacturer, may have phosphate treatment and manufacturer's shop finish paint.

2.5.2 Suspension System

Provide a suspension system consisting of steel or aluminum track and trolleys designed to support the weight of the partition. Provide steel track of 1.5 mm 16 gage minimum, phosphate treated and finished, or zinc or cadmium coated. Provide extruded aluminum track with minimum thickness of 3 mm 1/8 inch. Tracks may have an integral ceiling guard. Trolleys must have at least two ball bearing nylon or steel tired wheels spaced according to manufacturer's design criteria and four at an end post.

2.5.3 Covering

Covering fabrics must conform to the requirements of ASTM D751 and NFPA 286.

Attach fabric to the framework with fasteners that permit easy removal of the cover but prevent sagging or separation. Position vertical seams in the bottoms of valleys and reinforce. Provide top and bottom edges of cover fabrics with 12 mm 1/2 inch minimum turned hems.

2.5.4 Sound Insulation

Provide sound insulation as necessary to achieve the specified sound transmission mission class, conforming to ASTM E413.

2.5.5 Air Release

Provide an air release system which allows trapped air within the

partition to be released during the stacking process.

2.5.6 Seals

Provide perimeter seals as necessary to produce the sound transmission class specified [and to pass the visual field test specified].

2.5.7 Hardware

Provide hardware of the heavy-duty type standard with the manufacturer. Provide pulls and latches for all partitions. Provide partitions with [keyed locks] [privacy latches] [magnetic contact latches] [foot bolts].

2.5.8 Accessories

Provide [multiple meeting posts] [rolling posts] [switches] [ceiling guards] [recessed tracks] [curved tracks] as indicated.

PART 3 EXECUTION

3.1 INSTALLATION

Do not install building construction materials that show visual evidence of biological growth.

3.1.1 Existing Work

****
NOTE: Show the structural support necessary to accommodate the size and weight of the partition. ASTM E557 has design as well as installation criteria.
****

Check openings scheduled to receive accordion folding partitions for correct dimensions.

Install partitions in accordance with the approved Accordion Folding Partition Layouts, manufacturer's directions, and ASTM E557. Provide structural support for the track support elements as indicated.

Submit to the Contracting Officer a certification of the following:

Statement of Code Compliance for the completed partition installation.

Statement of Standards Conformity

[3.1.2 Electrical Operators

****
NOTE: Delete this paragraph when electrically operated partitions are not required.
****

Conform Electrical components and installation to the requirements of NFPA 70. Provide the partition manufacturer's standard drive and control components required to operate the partition properly. Power source is as indicated.

]3.1.3 Adjustment

[Adjust manually operated partitions to open and close from any position with a maximum horizontal force of 130 N 30 pounds applied to pendant pull, box or handle.][Adjust drive components and limit switches of electrically operated partitions to ensure the partitions operate properly upon activation of the control switch.]

3.2 FIELD TESTS

3.2.1 Operational Test

Operate partition at least three times to demonstrate that partition is capable of being moved from the stored position to the fully extended position smoothly and quietly [and without overloading the drive components]. [Activate the emergency release mechanism and demonstrate proper operation of the partition in the manual mode.] Adjust partitions which do not operate properly and retest.

3.2.2 Visual Test

****
NOTE: Delete this paragraph when light leakage will not be objectionable.
****

Conduct visual field tests for light leakage with all room lights turned on in the space on one side of the partition. Darken space on the other side of the partition. Light leakage from the lighted space to the darkened space is not acceptable. If light leakage does occur, adjust the partition to correct the problem and retest.

3.2.3 Acoustical Test

****
NOTE: Delete this paragraph in projects requiring STC ratings of less than 40. Noise Isolation Class (NIC) is a number that can measured, and usually runs up to 10 points below laboratory results, i.e. lab STC 40, field NIC 30. This test is rarely necessary.
****

Field sound performance: provide partition testing by an independent certified acoustical consultant in accordance with ASTM E336, and achieve a Noise Isolation Class (NIC) of [_____] plus or minus two. Adjust or modify partitions which do not comply, and retest.

3.3 CLEANING

Clean any soiled parts of the partition according to manufacturer's instructions.

3.4 SUPPORT SERVICE

Equipment and component maintenance must be supported by a service organization which is reasonably convenient to the site of installation.

-- End of Section --