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USACE / NAVFAC / AFCEA / NASA

UFGS-10 22 26.13 (October 2007)

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Preparing Activity: NAVFAC

Superseding

UFGS-10 22 26.13 (April 2006)

UFGS-10 22 26.13 40 (October 2006)

## UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated October 2009

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### SECTION 10 22 26.13

#### ACCORDION FOLDING PARTITIONS 10/07

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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 [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."

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

Recommended changes to a UFGS 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 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.

ASTM INTERNATIONAL (ASTM)

ASTM A 653/A 653M	(2009) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM B 221	(2008) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B 221M	(2007) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)
ASTM C 423	(2008a) Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
ASTM D 751	(2006) Coated Fabrics
ASTM E 336	(2009) Measurement of Airborne Sound Insulation in Buildings
ASTM E 413	(2004) Rating Sound Insulation
ASTM E 557	(2000; R 2006) Installation of Operable Partitions
ASTM E 84	(2009c) Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM E 90	(2009) Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

CHEMICAL FABRICS & FILM ASSOCIATION (CFFA)

CFFA-W-101-D	(2002) Vinyl Coated Fabric Wallcovering
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NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 101 (2008; Amendment 2009) Life Safety Code

NFPA 286 (2006) Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth

NFPA 70 (2008; AMD 1 2008) National Electrical Code - 2008 Edition

UNDERWRITERS LABORATORIES (UL)

UL 10B (2008; Rev thru Apr 2009) Fire Tests of Door Assemblies

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 to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control.

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. 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.

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" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.][for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

#### SD-01 Preconstruction Submittals

Manufacturer's Qualifications[; G][; G, [\_\_\_\_\_]]

Manufacturer's Sample Warranty

Statement of Code Compliance[; G][; G, [\_\_\_\_\_]]

Statement of Standards Conformity[; G][; G, [\_\_\_\_\_]]

Verification of Field Measurements[; G][; 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 entitled, "Installation," of this section.

Accordion Folding Partition Layouts[; G][; G, [\_\_\_\_\_]]

Suspension System[; G][; G, [\_\_\_\_\_]]

Finish Hardware[; G][; G, [\_\_\_\_\_]]

Jamb Panels[; G][; G, [\_\_\_\_\_]]

Accessories[; G][; G, [\_\_\_\_\_]]

[ Electrical Operators[; G][; G, [\_\_\_\_\_]]]

[ Wiring diagrams[; G][; 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

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][; G, [\_\_\_\_\_]]

#### SD-06 Test Reports

Laboratory Acoustical Requirements

Acoustical test

#### SD-07 Certificates

Submit Certificates to the Contracting Officer for this installation clearly indicating:

Statement of Code Compliance[; G][; G, [\_\_\_\_\_]]

Statement of Standards Conformity[; G][; G, [\_\_\_\_\_]]

#### SD-10 Operation and Maintenance Data

Folding partitions, Data Package 1; [; G][; G, [\_\_\_\_\_]]

[ Electrical operators, Data Package 5; [; G][; G, [\_\_\_\_\_]]]

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

#### SD-11 Closeout Submittals

Manufacturer's Guarantee

### 1.3 PRE-INSTALLATION REQUIREMENTS

#### 1.3.1 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

1.3.2 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 ]

1.3.3 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.

1.4 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 B 221, Alloy 3003.

## 2.2.2 Steel Sheets

ASTM A 653/A 653M, [Z 180G90 coating designation].

## 2.2.3 Fabric Covering

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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  
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

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CFFA-W-101-D, Type II.

## 2.2.4 Seals and Sweepstrips

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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.

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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

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

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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 E 84. Complete assembly must also meet or surpass the requirements of NFPA 101 and UL 10B.

### 2.3.2 Laboratory Acoustical Requirements

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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 C 423 and ASTM E 90 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

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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.  
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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 D 751 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 E 413.

#### 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

##### 3.1.1 Existing Work

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NOTE: Show the structural support necessary to  
accommodate the size and weight of the partition.  
ASTM E 557 has design as well as installation  
criteria.  
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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 E 557. 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

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

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

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**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.

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Field sound performance: provide partition testing by an independent  
certified acoustical consultant in accordance with [ASTM E 336](#), and achieve  
a Noise Isolation Class (NIC) of [\_\_\_\_\_] plus or minus two. Adjust and/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 --