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USACE / NAVFAC / AFCEA UFGS-10655 (August 2004)  
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Preparing Activity: NAVFAC Superseding  
UFGS-10655N (August 2001)

## UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated 22 December 2004

Latest change indicated by CHG tags

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### SECTION TABLE OF CONTENTS

#### DIVISION 10 - SPECIALTIES

##### SECTION 10655

#### ACCORDION FOLDING PARTITIONS

08/04

#### PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 SUBMITTALS
- 1.3 GUARANTEE
- 1.4 DELIVERY, HANDLING AND STORAGE

#### PART 2 PRODUCTS

- 2.1 FOLDING PARTITIONS
- 2.2 MATERIALS
  - 2.2.1 Aluminum Extrusions
  - 2.2.2 Steel Sheets
  - 2.2.3 Fabric Covering
  - 2.2.4 Seals and Sweepstrips
  - 2.2.5 Ceiling Guards
- 2.3 PERFORMANCE REQUIREMENTS
  - 2.3.1 Fire Endurance
  - 2.3.2 Laboratory Acoustical Requirements
- 2.4 Electrical Operators
- 2.5 FABRICATION
  - 2.5.1 Framework
  - 2.5.2 Suspension System
  - 2.5.3 Covering
  - 2.5.4 Sound Insulation
  - 2.5.5 Air Release
  - 2.5.6 Seals
  - 2.5.7 Hardware
  - 2.5.8 Accessories

#### PART 3 EXECUTION

- 3.1 INSTALLATION
  - 3.1.1 Existing Work

- 3.1.2 Electrical Operators
- 3.1.3 Adjustment
- 3.2 FIELD TESTS
  - 3.2.1 Operational Test
  - 3.2.2 Visual Test
  - 3.2.3 Acoustical Test
- 3.3 CLEANING

-- End of Section Table of Contents --

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### SECTION 10655

#### ACCORDION FOLDING PARTITIONS

08/04

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

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).

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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NOTE: The following information should be shown on the drawings:

1. Location and size of partitions.
2. Direction of operation.
3. Partition supporting structure. The structural support for the partition is not part of this section; it must be indicated and specified separately.
4. 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: Issue (date) of references included in project specifications need not be more current than provided by the latest guide specification. Use of SpecsIntact automated reference checking is recommended for projects based on older guide specifications.  
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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	(2004a) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM B 221	(2004a) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B 221M	(2004) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)
ASTM E 336	(1997e1) Measurement of Airborne Sound Insulation in Buildings
ASTM E 557	(2000) Installation of Operable Partitions
ASTM E 84	(2004) Surface Burning Characteristics of Building Materials
ASTM E 90	(2004) Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

#### CHEMICAL FABRICS & FILM ASSOCIATION (CFFA)

CFFA-W-101-D	(2000) Vinyl Coated Fabric Wallcovering
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#### NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2005) National Electrical Code
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### 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 should be required.  
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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 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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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 01330 SUBMITTAL PROCEDURES:

#### SD-02 Shop Drawings

Partition layouts; G, [\_\_\_\_\_]

[ Wiring diagrams; G, [\_\_\_\_\_]]

Submit drawings for the system that include dimensions and weight of stacked partition, layout of the work, 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

Covering

[ Electrical operators]

#### SD-04 Samples

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

#### SD-06 Test Reports

Laboratory Acoustical Requirements

Acoustical test

#### SD-10 Operation and Maintenance Data

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

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

Submit in accordance with Section 01781 OPERATION AND  
MAINTENANCE DATA.

### 1.3 GUARANTEE

Partitions shall be guaranteed against defects in material and workmanship for a period of two years from date of installation. In addition, the pantographs, trolleys and tracks shall be guaranteed for 10 years 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 to 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 221MASTM 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 - 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

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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.

### 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.

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Folding partitions shall have been tested in accordance with 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 shall be of the same construction, materials, and model number as the partition to be provided and shall be fully operable. Test specimen shall 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 shall 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 shall operate smoothly with positive folding action and shall have a control device to prevent flattening of the folds when the panel is fully extended. Ferrous metal shall be either cadmium plated or zinc coated, except posts at the option of the door manufacturer shall 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 shall 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

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 class.

#### 2.5.5 Air Release

Provide an air release system which will allow 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 partition layouts, manufacturer's directions, and ASTM E 557. Structural support for the track support elements shall be as indicated.

##### 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. There shall be no light leakage from the lighted space to the darkened space. 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: partition shall be tested 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.

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