
USACE / NAVFAC / AFCEA / NASA UFGS-33 77 13.00 40 (January 2007)

Preparing Activity: NASA Superseding
UFGS-33 77 13.00 40 (June 2006)
NASA-16326S (December 2005)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

Latest change indicated by CHG tags

SECTION TABLE OF CONTENTS

DIVISION 33 - UTILITIES

SECTION 33 77 13.00 40

AIR MEDIUM-VOLTAGE CIRCUIT BREAKER

01/07

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 SUBMITTALS
- 1.3 GENERAL REQUIREMENTS

PART 2 PRODUCTS

- 2.1 SWITCHES
- 2.2 CONTACTS
- 2.3 HANDLES
- 2.4 HOOK STICKS

PART 3 EXECUTION

- 3.1 INSTALLATION
- 3.2 GROUNDING

-- End of Section Table of Contents --

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SECTION 33 77 13.00 40

AIR MEDIUM-VOLTAGE CIRCUIT BREAKER 01/07

NOTE: Delete, revise, or add to the text in this section to cover project requirements. Notes are for designer information and will not appear in the final project specification.

This section covers air-break, single-pole and gang-operated disconnecting/isolating switches 2.4 kilovolts and above. Drawing should indicate ratings and installation details.

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.

PART 1 GENERAL

1.1 REFERENCES

Not Used

1.2 SUBMITTALS

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.

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.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

[Fabrication Drawings](#) shall be submitted in accordance with paragraph entitled, "General Requirements," of this section.

[Installation Drawings](#) shall be submitted in accordance with the paragraph entitled, "Installation," of this section.

SD-03 Product Data

Equipment and performance data shall be submitted for air-break disconnect switches including life, test, system functional flows, safety features, and mechanical automated details.

Manufacturer's catalog data shall be submitted for the following items:

[Air-Break Disconnect Switches](#)
[Contacts](#)
[Handles](#)
[Hook Sticks](#)

SD-08 Manufacturer's Instructions

Manufacturer's instructions shall be submitted for [Air-Break Disconnect Switches](#) including special provisions required to install equipment components and system packages. Special notices shall detail impedances, hazards and safety precautions.

[SD-10 Operation and Maintenance Data](#)

Operation and Maintenance Manuals shall be submitted for the following equipment:

[Air-Break Disconnect Switches](#)

1.3 GENERAL REQUIREMENTS

NOTE: If Section [26 00 00.00 20](#) BASIC ELECTRICAL MATERIALS AND METHODS is not included in the project specification, applicable requirements therefrom should be inserted and the following paragraph deleted.

Section [26 00 00.00 20](#) BASIC ELECTRICAL MATERIALS AND METHODS applies to work specified in this section.

[Fabrication Drawings](#) shall be submitted for air-break disconnect switches consisting of fabrication and assembly details to be performed in the factory.

PART 2 PRODUCTS

2.1 SWITCHES

[Air-break disconnect switches](#) shall be the types and ratings indicated and shall be provided complete, as an integral unit consisting of a galvanized channel base, insulators, contacts, live parts, and switch blade. Mechanism shall be the quick-break type. Switches may be three-phase, gang-operated, or single-pole, hook-stick-operated, as required by the application and installation requirements or as indicated. If motor-operated air-break switches are used, the installation shall be as indicated.

2.2 CONTACTS

Switch contacts shall be a self-cleaning design to prevent galling, and the switch blade shall have a positive latch to prevent accidental opening.

2.3 HANDLES

Operating handles of gang-operated switches shall be located approximately [1500 millimeter 5-feet](#) above the ground and shall be provided with suitable attachments for padlocking the switches in both open and closed positions.

2.4 HOOK STICKS

NOTE: Operation & Maintenance organization may deem this sentence unnecessary.

One hook stick of suitable design and voltage rating shall be provided for each group of three single-pole hook-stick-operated switches.

PART 3 EXECUTION

3.1 INSTALLATION

Switches shall be mounted in accordance with the detailed instructions of the manufacturer. Installation shall include necessary timbers, hardware, insulators, and connections to the line wire or bus.

Prior to final acceptance the switch shall be energized and the circuit loaded (to the maximum load possible, but not less than 10 percent of expected full load) for a minimum of 10 minutes and the temperature measured, with a non-contact device, to verify contact pressure and alignment. The temperature detector shall be accurate within 0.5 degrees C. Each phase temperature shall be less than 5 degrees C above ambient and within 3 C degrees of each other. Temperatures outside these values warrant investigation.

Installation Drawings shall be submitted for air-break switches.

3.2 GROUNDING

NOTE: In locations where existing underground
utilities, equipment or structures may be damaged,
ground rod installation should be accomplished using
the water jetting method.

Switches and operating mechanisms shall be solidly bonded to the station structural steel or to the ground counterpoise or driven ground rods; joints in the operating mechanisms shall be flexible.

-- End of Section --