
USACE / NAVFAC / AFCEA / NASA UFGS-33 77 36.00 40 (November 2008)

Preparing Activity: NASA Superseding
UFGS-33 77 36.00 40 (August 2008)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2009

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SECTION 33 77 36.00 40

MEDIUM-VOLTAGE UTILITY FUSES

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NOTE: This specification covers the requirements for distribution fuse cutouts. The drawings should show current rating, load-break fuses if required, combination lightning arresters and fuse cutouts if required, and mounting details.

Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable items(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).

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 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.

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE C37.42 (1996) High Voltage Expulsion Type Distribution Class Fuses, Cutouts, Fuse Disconnecting Switches and Fuse Links**

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA SG 2 (1993) Standard for High-Voltage Fuses

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. Keep submittals 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-03 Product Data

Submit **Equipment and Performance Data** for distribution fuse cutouts in accordance with paragraph entitled, "General Requirements," of this section.

Submit manufacturer's catalog data for the following items:

Distribution Fuse Cutouts

SD-02 Shop Drawings

Submit **Fabrication Drawings** for fuse cutouts in accordance with paragraph entitled, "General Requirements," of this section.

Submit installation drawings for **Distribution Fuse Cutouts** in accordance with the paragraph entitled, "Installation," of this section.

SD-08 Manufacturer's Instructions

Submit manufacturer's instructions for **Fuse Cutouts** including special provisions required to install equipment components and system packages. Special notices must detail impedances, hazards and safety precautions.

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.

Submit **Fabrication Drawings** for fuse cutouts consisting of fabrication and assembly details to be performed in the factory.

Submit **Equipment and Performance Data** for distribution fuse cutouts including life, test, system functional flows, safety features, and mechanical automated details.

PART 2 PRODUCTS

2.1 EQUIPMENT STANDARDS

Distribution fuse cutouts must conform to the requirements of **NEMA SG 2** and **IEEE C37.42** and as specified.

2.2 FUSE CUTOUTS

Distribution fuse cutouts for application on distribution systems must be the self-contained, enclosed, dropout type, or open type when required for higher voltage or interrupting rating. Install loadbreak cutouts only if specifically indicated.

The interrupting capacity must be sufficient to break the maximum system fault current to which the cutout will be subjected. The minimum interrupting capacity must be 16,000 amperes root mean square asymmetric.

Cutouts must be either heavy-duty or extra-heavy-duty classification. Cutouts installed on three-phase, 13.2-kilovolt (kV) or 13.8-kV systems must be rated at 15 kV. The installation of cutouts rated at 7.8 kV on these systems will not be allowed.

Fuse links must have a continuous rating equal to approximately 150 percent of the full-load line current when used for transformer protection, and approximately 100 percent of the conductor rated capacity when used for circuit protection. The 15-kV cutout must have a wet withstand, 10-second voltage rating of 37 kV, with a 95-kV basic impulse level (BIL). The continuous current rating must be 100 amperes unless otherwise indicated. Fuse disconnects must be rated not less than 100 amperes and have attachments to permit manual operation of the disconnect under load without external arcing.

Where indicated, combine lightning arresters and fuse cutouts.

PART 3 EXECUTION

3.1 INSTALLATION

Install Distribution fuse cutouts in accordance with the manufacturer's installation instructions.

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