BUILDING ELECTRICAL SYSTEMS

ELECTRIC SERVICE SWITCHBOARD FOR

1/1A, 2B, AND 5 "ESS*" SWITCHING EQUIPMENT BUILDINGS

1. GENERAL

1.01 This section covers the design of the Electric Service Switchboard for 1/1A, 2B, and 5 ESS switching equipment central office buildings.

1.02 Whenever this section is reissued, the reason(s) for reissue will be given in this paragraph.

1.03 The electric utility company should be consulted in the preliminary stages to determine the service available, the physical requirements, metering, and similar factors. A load analysis should be made as covered in Section 760-400-200 to determine the size and types of loads to be served. As a check on size, compare actual readings of a similar equipment building to the new design load estimate.

1.04 General design conditions for service entrance and electric service switchboards are covered in Section 760-400-220.

2. DESIGN

2.01 The electrical design for 1/1A, 2B, and 5 ESS switching equipment buildings is essentially the same, including ampacities.

2.02 The service voltage should be 480 volts because of its overall economy and because it provides for possible unforeseen growth at no extra cost. Because of the smaller loads associated with the 2B and small 5 ESS switches (less than 10,000 lines in 20 years), a 208-volt distribution voltage is recommended for these buildings.

2.03 The electric service switchboard should be sized for 800 amperes to provide for unforeseen growth. The service entrance conductors and main fuses, however, should be no greater than 400 amperes initially.

2.04 The service disconnect device should be a fused automatic molded case switch including an electrical trip for remote operation. This type of device has been selected for its low cost, fail-safe reliability, high-interrupting capacity, and its current limiting ability.

2.05 A lightning arrester shall be provided in all buildings except where service is obtained from an underground network. Refer to Section 760-400-520 and SD-81968-01 for specific application data.

2.06 Provide ground fault protection to trip the main disconnect on all 480-volt electric service switchboards. Provision for remote manual disconnect shall be included. Refer to Section 760-400-500 for application information.

2.07 The essential and nonessential distribution sections (Fig. 1 and 2) should be sized for the particular building, allowing ample space for growth. The automatic transfer switch size (100, 150, or 225 amperes) will depend on the essential load and the standby generator size.

2.08 The switchboard will require two or three sections depending upon the sizes of the distribution panels (Fig. 1 and 2). The switchboard can be freestanding with front and rear access, wall-mounted, or made up of stock panelboards. A voltmeter should be included, but not an ammeter. For receptable and other low-voltage requirements, a combined transformer-panelboard is recommended.

2.09 The switchboard should be designed for easy addition of future distribution panels and an additional transfer switch.

2.10 Although this switchboard is designed specifically for 1/1A, 2B, and 5 ESS switching equipment buildings, it can be adapted for larger buildings or to replace inadequate service equipment where major building enlargements are involved. In such cases where the original switchboard is in good condition but just too small, it is usually best to leave it

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undisturbed but change the supply point to the new switchboard. Refer to Section 760-400-310 for suggested methods of resupplying the old switchboard configuration.

3. REFERENCES

3.01 See the following Bell System Practices for further information.

SECTION	TITLE
760-400-200	Load Analysis for Telecommunications Buildings
760-400-220	Service Entrance and Electric Service Switchboard
760-400-310	Transformers
760-400-500	Ground Fault Protection
760-400-510	Grounding
760-400-520	Lightning Arresters

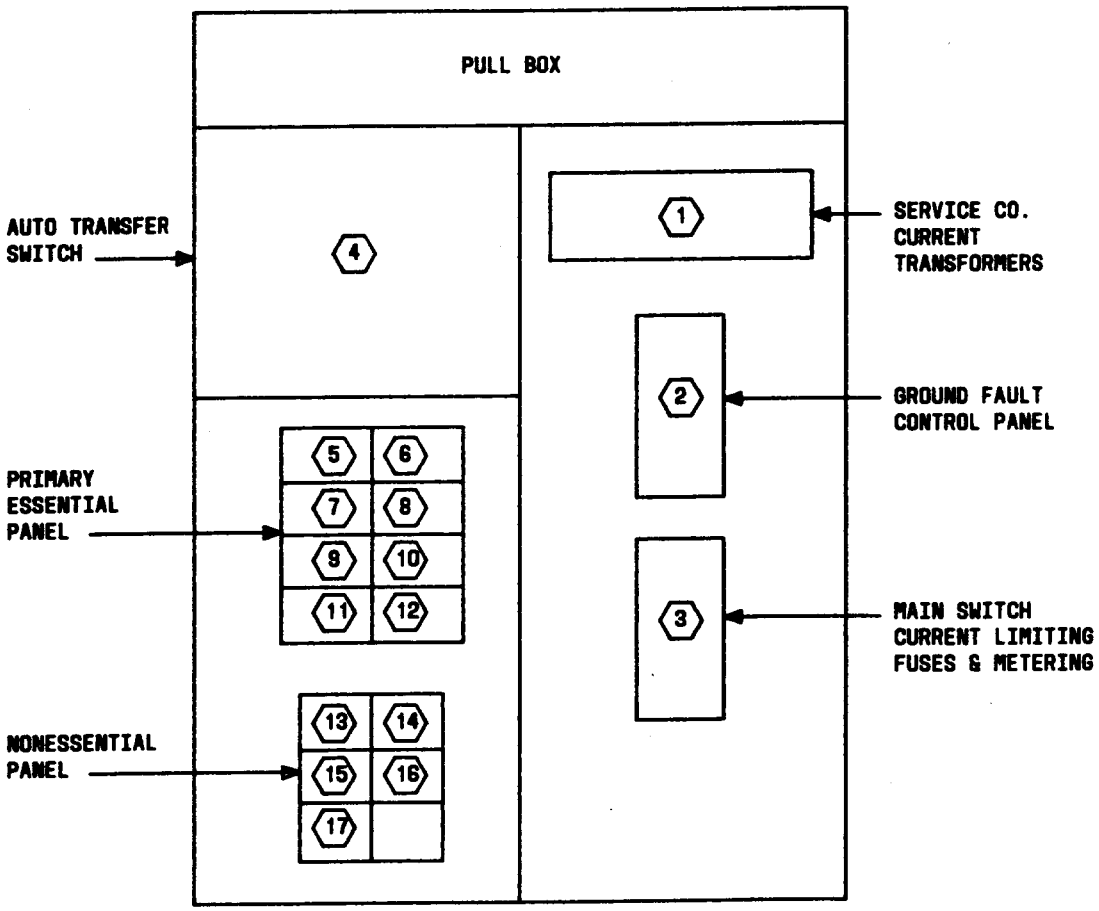

Fig. 1—Main Switchboard Elevation

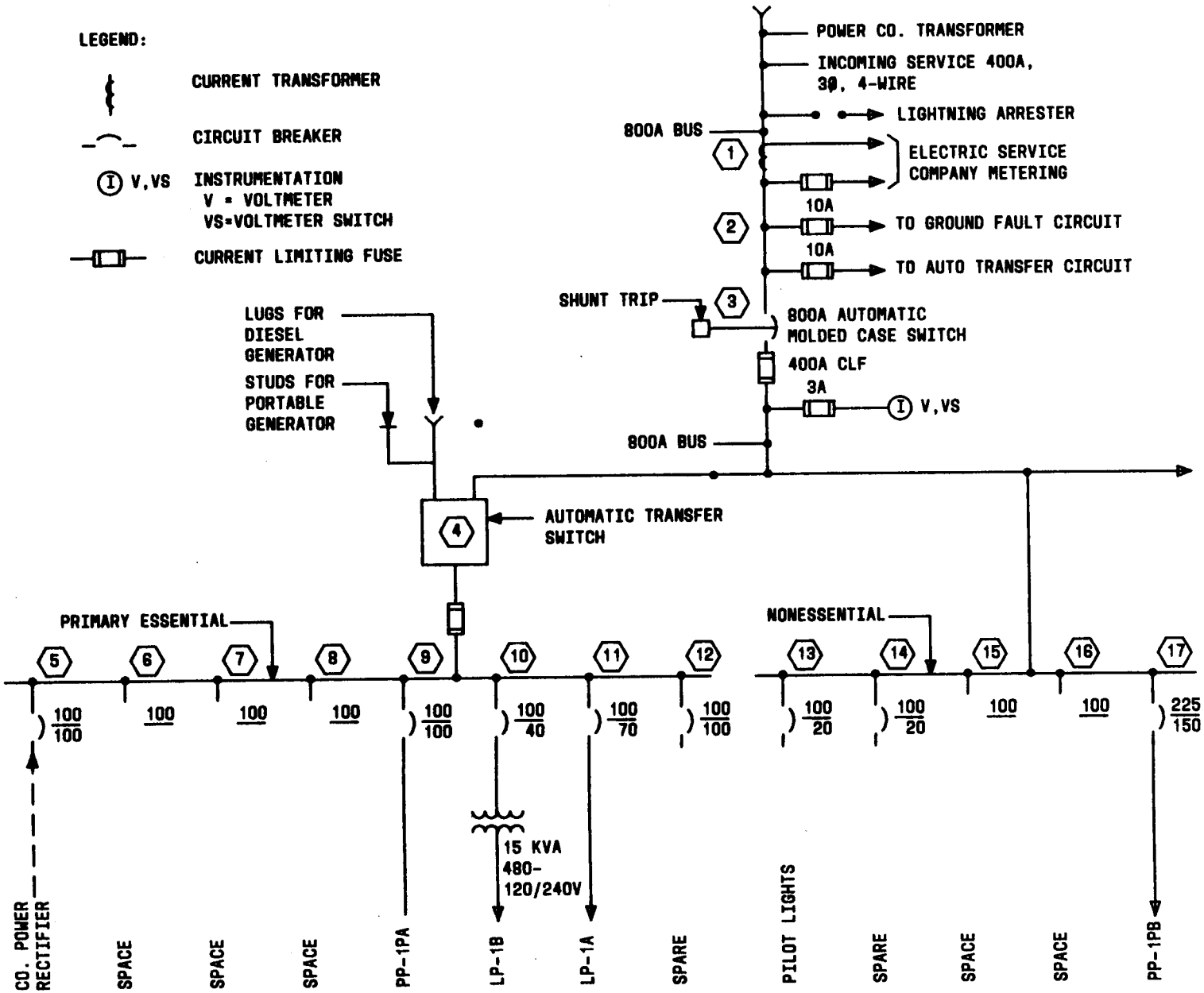

Fig. 2—One-Line Diagram