TOPIC 8. ELECTRICAL AND TELECOMMUNICATIONS ROOMS AND CLOSETS

1. GENERAL PROVISIONS FOR NEW BUILDINGS

a. Provide at least two means of egress from switchgear rooms, transformer vaults, generator rooms, and rooms over 1800 mm (6 feet) wide containing equipment rated over 1200 amperes. Egress by means of a ladder in an areaway is prohibited.

b. Provide doors that open under simple pressure leading from switchgear rooms, transformer vaults, generator rooms, and elevator machine rooms with door swing in the direction of exit travel.

c. Provide standard hardware on doors of electrical and telecommunications closets. Doors must swing out.

d. Refer to the HVAC Design Manual for necessary mechanical ventilation or mechanical cooling system to maintain indoor temperatures as required for proper operation of the equipment for all electrical and telecommunications rooms, elevator machine rooms, generator rooms, fire alarm equipment rooms, and computer rooms.

2. SWITCHGEAR ROOMS AND TRANSFORMER VAULTS IN NEW BUILDINGS

a. Refer to the Physical Security Design Manual. Locate switchgear rooms and transformer vaults as close as practical to the utility service entrance side of the building. Locate these areas on or above grade, but not in pipe basements.

b. For switchgear rooms and the vaults, provide one wall with double swing doors to the exterior, on grade with access to a service road. Establish the required size of switchgear rooms and transformer vaults after the electrical loads and equipment layouts have been determined. For high and low voltage switchgear, allow a minimum clearance of 4200 mm (4 ft.) on both ends and rear, and 1800 mm (6 ft.) in front, from any wall, column or other equipment.

3. ELECTRICAL CLOSETS IN NEW AND MAJOR ALTERATIONS TO EXISTING BUILDINGS

a. Except for the VA Hospital Building System (VAHBS) concept, provide one centrally located electrical closet for each wing length of 45 000 mm (150 ft.) or less. When the wing length exceeds 45 000 mm (150 ft.), provide a minimum of two electrical closets. Where feasible, centrally locate electrical closets in the area to be served. The minimum size of electrical closets containing step-down transformers should be 2400 mm (8 ft.) by 3000 mm (10 ft.). Size closets that do not contain transformers per the number of panels installed with 20% space wall space allotted for a future expansion. Walk-in closets should be a minimum 2100 mm (7 ft.) wide.

b. Where only one or two panels are to be installed in an area, shallow closets may be permitted. The depth of the closet should be 600 mm (2 ft.) minimum. The length should be 1800 mm (6 ft.) with double doors that swing 180 degrees out into the corridor.

c. Position closet locations such that structural beams do not have to be core drilled and that the conduit feeder risers are routed vertically through the stacked closets.

d. For the VAHBS concept, to reduce voltage drops, do not design electrical closets to serve large areas greater than 45 000 mm (150 ft.) from the service bays. Design electrical closets to be served horizontally from the service bay on the same floor.

4. TELECOMMUNICATIONS ROOMS IN NEW BUILDINGS

a. Design the quantity and locations of telecommunications rooms per the guidelines identified in Electrical Design Manual, Chapter 8. Contact VA Telecommunications Voice Engineering Division (TVE-005OP3B) at 301-734-0350 for assistance with systems design and preparation of construction documents.

b. For the VAHBS concept, locate the telecommunications rooms in the equipment bay.

8. EMERGENCY and/or STANDBY GENERATOR ROOMS - Locate emergency and/or standby generators in a separate building, on grade and near the normal power switchgear room. Refer to the Physical Security Design Manual. Size the emergency generator building to fit the equipment required with maintained clearances of minimum1500 mm (5 ft.) between generators and 1200 mm (4 ft.) between a generator and a wall or large piece of equipment. Refer to the Architecture Design Manual for Hospitals for recommended ceiling heights.

9. FIRE ALARM EQUIPMENT ROOMS - Preferably, locate fire alarm equipment at the Engineering Control Center (ECC). If an ECC is not included, locate the fire alarm equipment in a room adjacent to the Telephone Equipment Room. See also the Fire Protection Design Manual.

10. ALTERATIONS TO EXISTING BUILDINGS - Follow the recommended space requirements as described herein for new buildings.