ELECTRICAL PRIMARY DISTRIBUTION SYSTEM

There are 22 buildings on the new site of WSH. The electrical systems in 18 buildings are connected to an underground loop constructed in 1981-1982 and modified in 1987 and 1990 to include buildings 122 and 127.

In 1990, a master meter was installed across the street from building 124, replacing all individual building meters except for buildings 100 and 104 which still have individual meters.

Virginia Power supplies WSH with electricity through power poles and wires suspended between Route 250 and building 123, with side feeds to buildings 100 and 104. Building 124 is supplied by a separate underground feed and is metered by the master meter. At building 123 the new underground loop is fed from fused lines on two separate poles.

All buildings or combinations of buildings on the loop have a step down transformer that converts the 22,860 volts phase-to-phase or 13,200 volts phase-to-ground to the power required by the buildings.

During the upgrade of the electrical power to 1,600 amps in building 113 an automatic loop disconnect was installed in the transformer for building 113. This disconnect isolates one half of the loop so that the other half may remain active (hot).

During climate control renovations in 1993, a new transformer was added on the chiller pad behind building 103.

Listed below are the buildings and the service to each

BUILDING	**SERVICE IN AMPS**	**BUILDING**	**SERVICE IN AMPS**
100	600	116	1400
101	600	117	1400
102	600	118	1400
103	1200	119	2000
103 CHILLER PAD	800	121	2000
104	400	122	2500
107	600	123	800
109	100	124	1000
112	1200	125	1200
113	1600	126	1200
114	600	127	1000
115	600		

ELECTRICAL PRIMARY DISTRIBUTION SYSTEM

Construction

CONSTRUCTION YEAR	BUILDING NUMBER	METER
1950	100	Electrical Meter Installed
1952	Temporary Power Plant	Master Meter
1953	101/102/103	Master Meter
1953	104	Electrical Meter Installed
1955	107	Master Meter
1959	112/113	Master Meter
1960	114/115/116/117	Master Meter
1963	118	Master Meter
1964	119	Master Meter
1967	121	Master Meter
1969	122	Master Meter
1972	123	Master Meter
1973	124/125	Master Meter
1975	127	Master Meter
1980	109	On Meter with 104
1983	126	Master Meter

ELECTRICAL PRIMARY DISTRIBUTION SYSTEM

HISTORY

In 1952, a master meter was installed in the driveway near the parking lot where building 123 is now located. Virginia Power supplied electricity to WSH through wires suspended between Route 250 and building 123. From that point, the electricity is carried throughout the institution by underground wires. The electricity consists of 22,860 volts of phase-to-phase and 13,200 volts from phase-to-ground. Upon reaching the transformer, the electricity is reduced to a 120/208-volt system.

During calendar year 1978, emergency generators were placed at the following buildings:

- 101
- 102
- 103
- 104
- 107
- 115

The fire alarm, emergency lights and equipment were connected to the generators.

Emergency generators were installed at buildings 114, 122 and 127 when they were constructed. The fire alarms, emergency lights and equipment were connected to the generators.

In 1983, building 112 was completely renovated and an emergency generator was installed. The fire alarm system, emergency lights and equipment were connected to the generator.

In 1992, building 118 was renovated to meet LSC and an emergency generator was installed. The fire alarm system, emergency lights and equipment were connected to the generator.

Construction of building 126 was complete in 1983. Electrical service to the building is a 227/480-volt system. Through the use of a step-down transformer, 119-volts is obtained.

During FY 1981-1982 due to the number of underground wire failures, the entire underground electrical system was replaced. Virginia Power installed a new loop around the hospital buildings and an electrical meter in each building, with the exception of buildings, 101 and 115, which use the same meter. Buildings 102 and 107 also share an electrical meter. During this construction, new transformers were installed, replacing old transformers removed from transformer vaults.

With the new primary loop around the buildings, electrical service in various areas of the hospital can be isolated and repaired without interrupting electrical service to the entire building. With the installation of the primary loop and the new building meter, use of the master meter located on the driveway near the parking lot of building 123 was discontinued and the meter was removed.

After construction of the underground service, Dominion Power owns all underground cables and transformers on which they do all repair work.

ELECTRICAL PRIMARY DISTRIBUTION SYSTEM

In 1984, 400-amp electrical service to building 116 and 117 was upgraded to a 1,400-amp service. In 1984, we purchased new x-ray equipment for the Medical Center; thus we had to install a separate transformer (included in the loop). In 1985, electrical service to building 118 was upgraded from 400-amp service to 1,400-amp service. Electrical service to these three buildings was upgraded because window air conditioners were installed for the comfort of the residents.

In 1990, we upgraded the electrical service from 400-amps to 1,600-amps in building 113 and an automatic loop isolating disconnect was installed in the transformer for that unit. The isolating disconnect will be used to split and isolate faults in the loop. In 1990, buildings 122 and 127 were removed from the aerial underground feed behind building 127 and were added to the loop.

A PM program for the electrical panels is now in effect, and the electricians check the panels on an annual basis for loose connections and discolored wires caused by overloaded circuits and loose connections.

Upgrading electrical service to the H-shaped buildings is planned as the heating and ventilating systems are upgraded. The upgrade will also accommodate the overloaded services.

The emergency power generator in building 114 was replaced in 1992.

ELECTRICAL PRIMARY DISTRIBUTION SYSTEM