

motor(s), the full-load current of the associated fire pump accessory equipment, and 100 percent of the remaining loads supplied by the transformer. The requirement to carry the locked-rotor currents indefinitely shall not apply to conductors or devices other than overcurrent devices in the fire pump motor circuit(s).

695.6 Power Wiring. Power circuits and wiring methods shall comply with the requirements in 695.6(A) through (J), and as permitted in 230.90(A), Exception No. 4; 230.94, Exception No. 4; 240.13; 230.208; 240.4(A); and 430.31.

(A) Supply Conductors.

(1) Services and On-Site Power Production Facilities. Service conductors and conductors supplied by on-site power production facilities shall be physically routed outside a building(s) and shall be installed as service-entrance conductors in accordance with 230.6, 230.9, and Parts III and IV of Article 230. Where supply conductors cannot be physically routed outside of buildings, the conductors shall be permitted to be routed through the building(s) where installed in accordance with 230.6(1) or (2).

Exception: The supply conductors within the fire pump room shall not be required to meet 230.6(1) or (2).

Informational Note: See 250.24(C) for routing the grounded conductor to the service equipment.

Δ (2) Feeders. Fire pump supply conductors on the load side of the final disconnecting means and overcurrent device(s) permitted by 695.4(B) or conductors that connect directly to an on-site standby generator shall comply with all of the following:

- (1) *Independent Routing.* The conductors shall be kept entirely independent of all other wiring.
- (2) *Associated Fire Pump Loads.* The conductors shall supply only loads that are directly associated with the fire pump system.
- (3) *Protection from Potential Damage.* The conductors shall be protected from potential damage by fire, structural failure, or operational accident.
- (4) *Inside of a Building.* Where routed through a building, the conductors shall be protected from fire for 2 hours using one of the following methods:
 - a. The cable or raceway is encased in a minimum 50 mm (2 in.) of concrete.
 - b. The cable or raceway is **part of** a listed fire-resistive cable system.

Informational Note No. 1: See UL 2196, *Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables*, for one method of defining a fire-resistive cable system.

Informational Note No. 2: See UL *Guide Information for Electrical Circuit Integrity Systems (FHIT)* for identifying the system and its installation limitations to maintain a minimum 2-hour fire-resistive rating.

Informational Note No. 3: The listing organization provides information for fire-resistive cable systems on proper installation requirements to maintain the fire rating.

- c. The cable or raceway is **protected by** a listed electrical circuit protective system.

Informational Note No. 4: See UL 1724, *Fire Tests for Electrical Circuit Protective Systems*, for one method of defining an electrical circuit protective system.

Informational Note No. 5: See UL *Guide Information for Electrical Circuit Integrity Systems (FHIT)* for identifying the system and its installation limitations to maintain a minimum 2-hour fire-resistive rating.

Informational Note No. 6: The listing organization provides information for electrical circuit protective systems on proper installation requirements to maintain the fire rating.

Exception to 695.6(A)(2)(4): The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 2-hour fire separation or fire-resistance rating unless otherwise required by 700.10(D) of this Code.

Feeder conductors are those that are installed from the load side of the supervised disconnecting means permitted by 695.4(B)(1) (a), (b), or (c). In addition, conductors directly connected to the output of an on-site standby generator are also covered by 695.6(A)(2). Unlike service conductors, feeder conductors are not required to be installed on the outside of a building or structure. However, if the feeder conductors are run through a building, they are required to be protected from damage by fire to ensure that power to the fire pump is not interrupted.

The difference between a 2-hour fire rating of an electrical circuit, such as a conduit with wires, and a 2-hour fire resistance rating of a structural member, such as a wall, is that at the end of a 2-hour fire test on an electrical conduit with wires, the circuit must function electrically (no short circuits, grounds, or opens are permitted) and its insulation must be intact. A wall subjected to a 2-hour fire resistance test must only prevent a fire from passing through or past the wall, without regard to damage to the wall. All fire ratings and fire resistance ratings are based on the assumption that the structural supports for the assembly are not impaired by the effects of the fire.

The UL *Fire Resistance Directory* describes three categories of products that can be used in the fire protection of electrical circuits for fire pumps: electrical circuit integrity systems (FHIT), electrical circuit protective materials (FHIY), and fire-resistive cables (FHJR). (The four-letter codes in parentheses are the UL product category guide designations.) For information on electrical circuit protective systems, see UL 1724, *Outline of Investigation for Fire Tests for Electrical Circuit Protective Systems*.

(B) Conductor Size.

Δ (1) Fire Pump Motors and Other Equipment. Conductors supplying a fire pump motor(s), pressure maintenance pumps, and associated fire pump accessory equipment shall have an ampacity of not less than the sum of the following: