Fire Pump Circuit Breaker Feeders

Fire Pump Circuits and Instantaneous Trip Circuit Breakers

The 2008 NEC establishes very specific requirements in order to ensure continuity of power for a fire pump. NEC 695.4(B) permits an overcurrent device between the remote power source and the fire pump controller or transfer switch. It even gets more specific about selecting and sizing the overcurrent device between the generator and the fire pump controller.

…Overcurrent protective devices between an on-site standby generator and a fire pump controller shall be selected and sized according to 430.62 to provide short-circuit protection only…

A common misunderstanding is that “short-circuit protection only” is equated to “instantaneous trip circuit breaker.” This drives an incorrect specification for equipment which establishes an NEC compliance issue. During the development of the 2002 NEC a proposal was made to permit instantaneous trip circuit breakers for this requirement in the NEC. After many comments explaining that instantaneous devices are Recognized Components (Not Listed) and do not have a marked short-circuit current rating by themselves, NEC Code Panel 15 rejected the idea of an instantaneous circuit breaker for this application. The entire discussion can be found in the Report on Comments for the 2002 NEC. NEC 430.52(C)(3) also reinforces this same restriction on the instantaneous trip circuit breaker where it is only permitted as part of a listed combination motor controller.

Sizing the Short Circuit Protective Device for a Fire Pump on a Generator

How do I size the circuit breaker for a generator to comply with NEC 695.4(B)? NEC 695.4(B) points back to NEC 430.62 for sizing the overcurrent device for the generator fed fire pump. Remember that if the fire pump is fed by a service, the circuit breaker is sized to carry locked rotor (approx 6 times FLC) indefinitely. Where a generator serves the fire pump, NEC 430.62 permits you to use the values in Table 430.52 instead of setting the circuit breaker at locked rotor (approx 6 times FLC). Table 430.52 sizes the circuit breaker at a maximum of 250 percent of the largest motor. Then the FLC of all the other motors (jockey pumps) that are being fed by the generator must be added.

NEC® Article 695 requires careful reading to ensure compliance of the fire pump installation is addressed.