6390000 ELECTRICAL POWER SERVICE ASSEMBLIES
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comments: (7-11-12, Internal)
In 639-3.3 … "Ensure that wires are sized as required by NEC for acceptable voltage drops."

Why is this being added to our constructions specs? Isn't this a design function? Surely we are not asking the contractor to size our electrical service wires, are we?

Response: (Jeff Morgan – TERL)
This spec is for Electrical Power Service (utility supplied power down to the meter), not power supply wire to the traffic control device. I think this has caused some confusion. I think the spec is OK as is because it states install "as shown in the plans." If not everyone agrees, then it will take some time to work it out. There are issues regarding the power supply wire, but that is not covered in this spec.

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Chris Sweitzer
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Comments: (8-8-12)
I believe a requirement showing the maximum allowed voltage drop would be appropriate if one suitable for all applications using these power services can be determined.

Response:

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Jeff Kipfinger
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Comments: (8-17-12)
1. 639-3.1 Weatherhead: This section calls for weatherheads with three electrical service wire entrance holes. A three phase service will require 4 holes and a 120 Volt service will require only 2 holes. Suggest eliminating this requirement since the NEC requires materials that are properly suited for the application.

Response:

2. 639-3.3 Electric Service Wire: This section calls for conductors with XHHW insulation that shall be high heat resistant and water resistant. Is this requirement only for overhead triplex service conductors? The neutral conductor for overhead service conductors is bare with no insulation.

XHHW is not very common these days and no longer manufactured by many companies. When used for high temperatures, XHHW is rated for use in damp locations but not wet locations. XHHW-2 is much more common and is rated for use in dry or wet locations. The reviewer suggests allowing XHHW-2 insulated wire when extra heavy duty insulation is required but not making it mandatory for all installations.
XHHW and XHHW-2 insulated conductors are normally specified for areas where chemicals such as chlorine and ammonia are constantly present and these chemicals will damaged the PVC based insulation of normal THHN or THWN wiring. Are these chemicals constantly present along roads and bridges? Would THHN and THWN be suitable for traffic signal underground services or an underground lighting service?
In most cases the utility company provides and installs the overhead and underground service entrance conductors and they are not flexible on the types they install.

Response:

3. 639-3.4 Meter Base: Suggest requiring meter bases that are constructed of aluminum and painted. Standard painted galvanized steel meter bases do not last many years in the damp Florida environment. Also recommend a requirement to install a permanent aluminum label showing the street address on the meter base since the utility company will not turn on power until the address label is in place.

Response:

4. 639-3.5.1 Enclosure: This section does not allow the use of external handles or switches. Is this supposed to prevent using safety switches as a service disconnect? Safety switches are presently used in many places along Florida roadways as a Service Disconnecting Means.

Response:

5. 639-3.5.2 Circuit Breaker:. This section seems to make an attempt at specifying the size of the main circuit breaker. This may have unintended consequences, especially when the utility company requires a service disconnect ahead of the meter as well as after the meter. Normally these breakers are the same size. Suggest leaving the circuit breaker size to the electrician or the engineer of record. Or, suggest requiring the electrical distribution system to be designed as "Fully rated, and selectively coordinated". This will require the main breaker protective device to be larger than the branch breaker protective devices in order to achieve selective coordination of the protective devices.

Response:

6. 639-3.6 Surge protective Device: A surge protective device (SPD) is not the same as a lightning arrester. Surge protection devices are described and classified in accordance with NEC 285 however lightning arresters are not covered by the NEC. Suggest removing the requirement for a maximum permissible line to ground voltage of 175 VAC. Such design parameters should be specified by the electrician or engineer of record. What if the system voltage is 480 Volts. Then the 175 VAC unit would not work very long. "Florida Statutes 61G15-33.003 Design of Power Systems" requires the engineer of record to specify the location and electrical characteristics of surge protection devices. One size or type does not fit all occasions.

Response:

7. 639-4.2 Weatherhead: Requiring a weather head to be installed at 22 ft above grade is very unusual. Is the height of the service drop conductors above the right of way that is of concern? Recommend using the NEC requirements for overhead service conductors or specify the minimum height above grade for the lowest point of the service drop conductors.

Response:

8. 639-4.6 Service Disconnect: This section mentions a "traffic control device cabinet" however service disconnects are used at all utility meters and not just at traffic control device cabinets. Recommend requiring the service disconnect to be placed in accordance with the NEC and the utility company standards.

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