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Electrical Violations Outside the Permitted Scope of Work

Notice: This document replaces the document dated April 16, 2019 with the title of “Electrical Violations Outside the Permitted Scope of Work”.

This document is intended to provide local inspection departments and installers of electrical systems with the State Electrical Division’s position concerning violations or hazards discovered that have no association with the scope of work permitted and performed on the same property.

An electrical code violation or hazard that does not affect and is not affected by the work permitted and performed cannot attribute to the withholding of compliance and approval for performed electrical work solely on the bases to abate a non-associated violation or hazard. See N.C. Gen. Stat. § 160A-423; § 153A-363.

The permit holder is required to follow all codes and laws that effect or are affected by the permitted scope of work.

An electrical inspector shall issue notification to the property owner to take corrective actions to abate any electrical code violations or hazards discovered including requiring the property owner take immediate corrective actions to abate any electrical code violations or hazards that the electrical inspector believes places the public in imminent danger. See N.C. Gen. Stat. §§ 160A-425, 426; § 153A-365, 366. Where the electrical inspector identifies a case of emergency or where necessary to eliminate an imminent hazard to life or property, the inspector shall have the authority to order the removal of electrical power to the structure or portions that supply power to the hazard until such abatement has been performed and approved by the electrical inspector. See N.C. State Electrical Code section 10.7.2.

However, the burden to abate the violation or hazard cannot be placed on the permit holder whose scope of work has no association with the violation or hazard except sharing the same property address.

The provisions of this document are not optional. No inspections department shall knowingly disregard the provisions within this document. Local inspection departments are required to implement the provisions within this document upon receiving knowledge of its existence. See N.C. Gen. Stat. § 143-151.8(c)(5). It is the responsibility of an inspections department to obtain knowledge of all laws, regulations, and memorandums issued by the Department of Insurance, Office of State Fire Marshal within a reasonable amount of time. Therefore, the State Electrical Division does not anticipate any inspections department to be operating outside the provisions of this document after sixty (60) days from its creation (August 17, 2019).

Question 1:

An electrical contractor has been issued a local electrical permit for remodeling a kitchen in an existing dwelling; thus, the permit's scope of work encompasses the electrical circuits being altered within that kitchen. During the electrical inspection, the electrical inspector determines that there are no Code violations associated with the scope of work but notices electrical code violations within the living room. Can the electrical inspector withhold the approval for the electrical work associated with the kitchen remodel until the violations in the living room are corrected?

Answer 1:

No. The electrical inspector must handle the electrical system within the scope of work (the kitchen's electrical circuits) separately from the other parts of the electrical system not encompassed by the permit's scope of work. As detailed in the above memo, the electrical inspector has a duty to notify the owner that corrective actions shall be taken to abate the Code violation(s) in the living room that were noticed during the inspection of the kitchen.

Question 2:

An electrical contractor has been issued a local electrical permit for replacing and altering the electrical service equipment for a dwelling. The existing configuration has a meter enclosure on the exterior and a panelboard with a main breaker used as the service disconnect (main panel) on the interior. The existing main panel is supplied by a 3-wire cable assembly as its service-entrance cable, approximately 30 feet through the walls of a dwelling. The new configuration is that the meter will be replaced with a meter/panel combination with a main breaker that will altogether serve as the new service equipment on the exterior of the dwelling. Must an electrical inspector inspect and approve the existing interior panelboard?

Answer 2:

Yes. The alteration effects the existing approval of the circuitry on the load side of the new service disconnecting means. The new configuration causes the existing interior panelboard to lose its original approval as a main panel that is part of the service equipment and now requires a new approval as a subpanel. Likewise, the 3-wire cable assembly loses its original approval as service-entrance cable and now must obtain a new approval as a feeder. Additionally, if any existing 3-wire dryers or ranges are present within the existing interior panel that was a main panel prior to the alteration, they too must obtain a new approval because the approval of their original circuitry has been voided by the alteration. See 2017 State Electrical Code sections 250.140 and 250.142(B). Installing an automatic transfer switch (ATS) in an existing system described by Question 2 is also a common scenario where Answer 2 would be applicable.

Question 3:

An electrical contractor has been issued a local electrical permit for replacement of the electrical service equipment for a dwelling. The existing configuration has a meter enclosure and a panelboard with a main breaker used as the service disconnect (main panel); both located on the exterior of the dwelling. The main panel also has an existing circuit breaker protecting a 3-wire cable assembly; the labeling suggests that the 3-wire cable assembly is a feeder for an interior subpanel. The new configuration is that the meter enclosure and main panelboard will be replaced with a new meter enclosure and panelboard with a main breaker used as the service disconnect keeping the circuitry the same as the existing system. Must an electrical inspector inspect and approve the existing interior panelboard?

Answer 3:

No. The alteration does not affect the existing approval of the circuitry on the load side of the new service disconnecting means. The existing electrical system is afforded the assumption that it was previously approved by an electrical inspector unless there exist violations that are obvious. Because electrical inspections in North Carolina have been required since the 1920's and many electrical inspectors have accepted 3-wire feeders supplying subpanels during service equipment alterations as described in Question 2 of this memo, the observation of 3-wire feeders during a service equipment replacement shall also be afforded the assumption that the 3-wire feeder was previously approved by an electrical inspector.

The electrical inspector cannot withhold a certificate of compliance of this new exterior installation based on inspecting and approving the interior circuitry and equipment. Additionally, the electrical inspector cannot utilize this specific electrical inspection as an opportunity to enter the interior of the dwelling or to search the exterior of the property to survey for other Code violations.

In the event the electrical inspector is invited into the interior of the dwelling and notices Code violations, the electrical inspector must handle the electrical system within the scope of work (the service equipment being replaced) separately from the other parts of the electrical system not encompassed by the scope of work. As detailed in the above memo, the electrical inspector has a duty to notify the owner that corrective actions shall be taken to abate the Code violation(s) noticed during the inspection.

Question 4:

An electrical contractor has been issued a local electrical permit for replacement of the electrical service equipment on a structure. Must the existing grounding electrode system also obtain a new approval as a condition for approving the new service equipment?

Answer 4:

Either the existing grounding electrode system must be verified as Code compliant or must be supplemented by a new grounding electrode system that can be verified and approved.

Newly installed electrical service equipment itself must be installed in accordance with the Code regardless of whether any alterations of the existing circuitry are also taking place. For the newly installed service equipment to comply with the Code, “a grounded ac service shall have a grounding electrode conductor connected to the grounded service conductor.” 2017 NEC section 250.24(A). A grounding electrode conductor must connect the grounded conductor to a grounding electrode or to the grounding electrode system in order to qualify by definition as a “grounding electrode conductor”. See 2017 NEC Article 100, definition of Grounding Electrode Conductor. For a “grounding electrode” to comply with its definition, the electrode must maintain itself as “[a] conducting object through which a direct connection to earth is established.” See 2017 NEC Article 100, definition of Grounding Electrode.

Over time, the environment in North Carolina has a negative effect on non-current-carrying conductors and electrodes. Unlike current-carrying conductors of an electrical system, the grounding electrode conductor and grounding electrodes give no apparent notice that the grounding portion of the system has failed. Because a Code compliant grounding electrode system directly effects the Code compliance of the newly installed service equipment, the electrical inspector must verify that the grounding electrode conductor and grounding electrode(s) used to ground the service grounded conductor to the earth maintain their integrity and are not affected by deterioration when replacement of the electrical service occurs. See 2017 NEC sections 110.11; 110.12.

Verification of existing concrete encased electrodes can be accomplished by examination of the integrity of the grounding electrode conductor from the connection to the terminal within the new service equipment to where the conductor penetrates the concrete. The electrical conductivity and integrity within the concrete itself is assumed maintained in accordance with the Code.

Verification of existing structural building steel or metal water piping used as a grounding electrode can be accomplished by examination of the integrity of the grounding electrode conductor from the connection to the terminal within the new service equipment to where the conductor attaches to the electrode, and the electrode is completely metallic from the point of connection to the grounding electrode conductor to where the electrode penetrates the earth or foundation. The electrical conductivity and integrity of the structural building steel or metal water piping within the earth or foundation itself is assumed maintained in accordance with the Code.

Where existing ground rod(s) are used within the soil, the existing rods are not allowed to maintain their integrity within the soil and must be replaced. The exception to this requirement is

when there exist special circumstances that the electrical inspector deems as economic waste; such as replacement of service equipment after two years of its original installation that also consisted of newly installed ground rods at that time. This is a long-standing Statewide practice due to the deterioration of rods within the soil of North Carolina.

Where access to the existing grounding electrode conductor or existing grounding electrodes is concealed and cannot be verified due to lack of access, the installation of a new grounding electrode system that can be verified along with the reconnection of the existing unverified grounding electrode system shall be acceptable for grounding the grounded service conductor in the newly installed service equipment. For clarity, “concealed” and “lack of access” means permanently enclosed by the structure, encapsulated by a building’s finishing, requiring the removal of equipment, locked behind closed doors, or similar.

Example: On an existing dwelling’s exterior main panel changeout, an electrical inspector observes an existing grounding electrode conductor protruding from the interior of the structure. The existing grounding electrode conductor is properly bonded to the neutral (service grounded conductor) within the main panel and is supplemented with a new additional grounding electrode conductor attached to two new ground rods installed in accordance with the Code. The interior of the home is either locked or the owner has denied access to the inspector. Approval of the main panel changeout on the exterior cannot be withheld by the inspector due to lack of verification of the existing interior grounding electrode system because the neutral is properly grounded by a Code compliant grounding electrode system that can be verified outside the home.



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