Hurricane Helene Flooded Structures and Compromised Electrical Systems
October 15th, 2024

The purpose of this memo is to inform Inspections Departments and Electrical Contractors of the Office of State Fire Marshal's expectations when encountering flooded structures and compromised electrical systems as a result from Hurricane Helene. Under any circumstance, if an inspections department cites a structure as potentially having a compromised electrical system, then only the electrical inspector of that inspections department can make the final determination that the system is not in, or has been restored to, a non-hazardous state.

When a structure is flooded to where the electrical system is jeopardized, the electrical system must be evaluated to ensure the integrity of the electrical equipment is not damaged or contaminated by deteriorating agents. Electrical equipment that has been damaged or contaminated by deteriorate agents is in violation of sections 110.11 and 110.12(B) of the NEC.

If an inspector encounters a structure where the electrical service (metering equipment, main disconnect, etc.) is or has been submerged in storm water, the first step is to call the power company to ensure the power is removed in accordance with section 10.7.2 of the State Electrical Code. If parts of the electrical system are, or have been, submerged in water, those circuits in question should be de-energized until the circuits can be evaluated and deemed safe by the electrical inspector. When an inspector encounters a structure where any part the electrical system can be legitimately assumed as recently submerged in storm water that will create the concern that the electrical system will quickly corrode and become hazardous, the electrical system must be evaluated for damage.

Under normal circumstances, an electrical inspector's evaluation of an electrical system can only be made by physical examination. However, during a State of Emergency where such a vast amount of electrical systems are compromised, the ratio of flooded structures to electrical inspectors after a hurricane is overwhelming. Therefore, the Office of State Marshal permits the electrical inspector to take an administrative role by permitting electricians who possess, or are employed by agencies that possess, an appropriate license from the North Carolina Board of Electrical Contractors to perform duties as an electrician and the evaluation duties of an electrical inspector so long as a report of such evaluation is provided to the electrical inspector for a final administrative determination of the electrical system. In other words, the electrical inspector can approve creditable documentation from a licensed electrical contractor in lieu of physical examining the electrical system.

Thus, property owners of structures that have been deemed by any government agency or utility as flooded from Hurricane Helene have two options:
1.Obtain a licensed electrical contractor to perform the evaluation, make any repairs (with a permit), and provide the inspector with a report of findings and resolution prior to authorizing the permanent re-energization of those portions of the electrical system.
2.Have the system readily accessible for the local electrical inspector to evaluate.

After a natural disaster, Option 1 is the most common option sought because waiting for the local electrical inspector to evaluate an electrical system can be weeks or months depending on the jurisdiction's workload. Also, the local electrical inspector can only identify the apparent defects in

the electrical system to be corrected and not obtain a permit or correct any damage as can an electrical contractor. Thus, choosing Option 2 typically delays ultimately proceeding with Option 1.

Question 1:
After a licensed electrical contractor has evaluated an electrical system, what should the report submitted declare?

Answer 1:
The electrical contractor should state that he/she has evaluated the electrical system of such structure and in his/her opinion, the electrical system shows no signs of damage or deterioration at that time due to flooding. The electrical contractor should also provide a general synopsis of any repairs or alterations made during the evaluation. Example: "Removed all electrical receptacles and switches from first floor, allowed wiring the dry, removed any corrosion from conductors where possible and replaced circuits where not possible, and replaced electrical service equipment. After evaluation of the electrical system, such system appears to show no signs of damage or deterioration at this time due to flooding."

Question 2:
Does the electrical contractor's report of findings and resolution denote that a structure's electrical system is completely without flaw?

Answer 2:
No. Both the electrical contractor and inspector cannot be expected to know every detail of an existing electrical system. Short of demolishing and rebuilding the structure, the electrical system is only being evaluated from what is apparent to the electrical professional as being compromised from flooding. Page 3 of 3

Question 3:
If NM Cable (Romex) has been submerged in storm water, must the NM Cable be completely removed?

Answer 3:
It depends. The older cloth or paper jacketed NM Cable (Romex) is not suitable to withstand intense amounts of water before the jacket becomes compromised and should be removed. However, NM Cable that possess a PVC type jacket can withstand being submerged in water if there are no penetrations in the jacket that will allow water to encapsulate its conductors. Where water has submerged the conductors of NM Cable with a PVC jacket at points of terminations, splicing, or joints, it may be possible for the conductors to be dried and cleaned by an electrical contractor or cut back to the first known non-submerged area of the cable. The severity of the damage to the NM Cable should be determined by the electrical professional.

Question 4:
Can an electrical contractor that holds a license from a State other than North Carolina evaluate a system in North Carolina?

Answer 4:
No. Any electrical contractor that holds a license from a State other than North Carolina must obtain an appropriate license from the North Carolina Board of Electrical Contractors through

reciprocity or the normal procedure prior to performing any work as an electrical contractor in North Carolina.

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