John Plourde opening statements to the NH CODE REVIEW BOARD about the 2020 amendments.

I am the Electrical Inspector in the City of Portsmouth, former State Electrical Inspector, Master Electrician, owner of Performance Electrical Training, JP Electrical Enterprises, and electrical contractor for 25 years.

After reviewing the 18 amendments that are before the board on this day, I came to realize that most if not all of the amendments provided are about cost saving, and not public safety.

The 1968 thru 2023 National Electrical Code (NEC) 90.1 refers to purpose of the code.

> 90.1 **PRACTICAL SAFEGARDING**.
> **The purpose of this code is the practical safeguarding of person and property from hazards arising from the use of electricity.**
> 90.1 of the NEC does not say anything about **cost of electrical installation.** Cost should not be a factor when it comes to electrical and building safety

In the public input stage of adopting new codes into the 2020 NEC I introduced some of these amendment due to electrical safety that are before the board today. These new section are in the 2020 NEC and some are close to the same as the amendments that the city council of the City of Portsmouth has adopted in 2017.

The following amendment are in order of the NEC articles that I will comment on.

210.5 Identification for branch circuits

I agree with this amendment.

<u>210.8(A) Dwelling units GFCI protection on all 125 volt thru 250 volt receptacles</u>

A plumber in Portsmouth came in contact with an electrical range while installing a water line to a dishwasher. That range was wired by an unqualified person from a large box store. This event cause the loss of a life. If this range had been on a GFCI protection devise it would have tripped as soon as it was plugged into the receptacle. This is now an amendment in Portsmouth for ranges and dryers any place in a dwelling. I have inspected over 2500 ranges and dryer with GFCI protection. Eleven issues have been noticed, ten were incorrectly wired from the box store truck driver, and one was a faulty range. Last week we just had 60 units trip in a 150 unit building still under construction. After investigating the problem we found out that moving the GFCI breaker down one spot took care of all problems with the Eaton 2 pole 50 amp breaker. The RF radio waves from the smart electrical meters from EVERSOURCE was the problem. This is a life safety issue and the code making panel of the NEC agreed, and now it's in the 2020 NEC. If you saw a person deceased by electrocution for 3 days still energized, you would understand why this was adopted in the NEC, and Portsmouth.

This could have been your child's life, to save $80.00

This amendment should not be adopted.

210.8(B) Other than dwelling units

This is another cost saving idea until someone loses their life. Wet location is not the only reason that GFCI protect is required. In restaurant kitchens with all the stainless steel tables and electrical equipment, circuits rated at 125 thru 250 volts GFCI for personal protection is required. An electrical fault from a 250 or 125 volt appliance in the kitchen will travel to the outside of the equipment and thru the steel table, and any person that has a ground fault path back to the source will feel current through their body. A chef could be working on the other side of the kitchen and thru the steel tables, and other grounded electrical equipment could get electrocuted if the equipment is not GFCI protected and there is a fault in the equipment. Not all ground faults will trip a regular breaker like the range in Portsmouth which had power on the outside steel case for three days causing the electrocution. I have seen these issues in Portsmouth in the past before our amendment were approved. 125 volt receptacles are required to have GFCI protection in these areas. A two pole breaker is like 2- single pole GFCI breakers. There is more danger from electrocution with 2- 125 volt circuits (2pole) **This should not be amended.**

210.8(E) Equipment requiring servicing.

GFCI requirements for wet locations are already required in 210.8 (a)(b) and 210.63 requires a receptacle within 25 feet of HVAC equipment. This is a good idea due to lighting and testing equipment. An exception to this requirements is in 210.63 for one and two family dwelling that a GFCI receptacle is not required**. This should not be amended.**

210.8(F) Outdoor Outlets.

I agree to amend the mini splits and the air condenser units. The manufacture states that it will not work on a GFCI breaker and per the NEC 110.3 B manufacture requirements, **I feel this should be amended.** Other states have amended this and it is being work on in the 2023 NEC public inputs.

210.12 (c) Guest rooms, guest suites, and patient sleeping room in nursing homes.

Guest rooms, and nursing homes do have children visiting in these room and for a few cents more these areas can be protected. This is adopted into the 2020 NEC **and should not be amended.**

210.52 C Counter Tops and Work Surfaces

I agree with this amendment.

210.63(B)(2) Indoor Equipment Requiring Dedicated equipment Space

In this case why would you not have a required receptacle in these areas for lighting and tools that are required to service the equipment? The receptacle should be in the same room as the equipment per the 2020 NEC**. This should not be an amendment.**

230.67 Surge Protection.

Removing surge protection from dwelling units will leave equipment that is life safety without protection and in danger of burning the circuit boards out of the smokes and carbon dioxide detectors. If this happens the home owner will not have any idea if the smoke will work, unless they test the device monthly. Surge protection will help prevent secondary fires for equipment that overheats or catches fire due to a surge on the incoming utility lines. This will also protect the GFCI and ARC-FAULT devices in the electrical panel. **This should not be amended.**

230.71(B) Two to six disconnecting Means.

I agree with this amendment.

314.27C Boxes at Ceiling-Suspended Paddle Fan Outlets

I agree with the 2020 NEC language on installing paddle fan boxes in habitable rooms is a great idea. Homeowners installing paddle fans do not understand that when removing the light fixture to install the paddle fan that the plastic boxes is not rated for the weight and will fall from the ceiling in time. This is a safety concern if the paddle fan falls when turning. Round plastic boxes are not rated for the weight of any paddle fan unless mark for the use (110.3B). Most plastic boxes are rated for 7-10 LB. **This should not be amended.**

334.10 Uses Permitted

This amendment to the 2017 NEC for the State of NH is the reason I did the amendments for NM cable (ROMEX) in Portsmouth for one and two

family only. Type one and two construction is steel, concrete and fire resistant construction. Now in these structures this amendment would allow flammable NM cable in these buildings. Everything inside the wall and ceiling is a fire resistant type material except for the NM cable. Toxic fumes when NM cable starts to melt due to overload or oversized overcurrent devices on the branch circuits and physical damage is a major issue. Hallways on exit corridors with drop ceiling with this amendment would also be an issue due to the toxic fumes and physical damage on the steel beams. Securing cables on bar joists that are 5 feet or more apart is not code compliant. Securing of NM cable must be 4.5 feet per 334.30. Installing NM cable over steel bar joists can cause damage to the cable. Physical damage to the cable by other construction trades during construction is also a concern. The NEC has had this in the code for many years and is not change. States have amended it but why has NFPA not removed it over the years? Fire resistant buildings should not be able to have NM cable installed.

A 10 story apartment building type one or two construction can be wired with NM cable per the amendment as long as it does not leave the floor, that is crazy. Fumes from the NM cable will travel down hallways and in the stair tower from the lower floors to the top floors when people are escaping down the stairs. Once the power is turned off the stair towers fans do not provide positive pressure in the staircase. Toxic fumes will rise during the evacuation of the building in the stair towers.

This is a cost saving idea for the electrical contractors and builders. The electrical contractor will make more money with the labor factor of MC and material markup cost, and the builder will have a safer building for the owners. Portsmouth, New York City and Chicago have the safest NM codes in the country because we understand the danger of toxic fumes to the public. **THIS AMENTMENT SHOULD NOT BE APPROVED.**

406.12 Tamper Resistant Receptacles.

For a few cents per receptacle to install in the areas in 406.12 and 518.2 places of assemblies makes sense. Children playing with electrical receptacles started this 406 section of the code and it is included in dwelling units and why should it not be in places of assembly were children gather also. **This amendment should not be approved.**

442.5 General GFCI

Removing the language from 60 amp to 20 amp and removing 3 phase in this section does not make any sense. With 3 phase breakers up to 60 amps available this should not be an issue, only with cost. It still has all the same electrical dangers as 210.8 section of the code. 210.8 refers to receptacle and 422.5 could be receptacles or hard wired equipment. This is a life safety requirement in the code and **should not be amended**

422.16(B)(2) Built in Dishwasher and Trash Compactors.

I AGREE WITH THIS AMENDMENT

440.14 Location

The location of the disconnecting means at the head unit does not have to be a switch. It could be a pull apart device inside an outlet box next to the head units with thumb screws for compliance with ready assessable requirements. We do this in Portsmouth and it meets all the

NEC requirements. Disconnecting means is required in section 440 and in 430. The electrical board in June of 2014 has a technical Bulletin that is on the OPLC web site that was developed by 2 retired NH state electrical inspectors. PLEASE SEE WEB SITE.

This amendment should not be approved.

450.9 Ventilation

Installing a sign on a transformer for unqualified personnel should be a no brainer. The manufacture is not responsible for signage by the NEC. Installing a sign is not a $50-$100 per transformer per this amendment. The cost of a $5 dollar sign will work for this code section. **This amendment should not be approved.**

680.4 Inspection after Installation

This should not be an amendment, it should be up to the AHJ per 680.4 to inspect pools at locations with large amounts of people like water parks, public pools, health clubs and apartment \condo buildings with pools to inspect for life safety and GFCI protection annually if required by the city. This is not for inspecting one and two family dwelling with pools

This amendment should not be approved.

Thank you for reading this letter to the board.

John Plourde

Any question please email me at jpelectricalenterprise@oulook.com

Or phone 944-0756