Standards Michigan

12 January 2022

RE: Comment on FPRF Project Report "Electric Circuit Data Collection: An Analysis of Health Care Facilities"

Dear Victoria:

Happy New Year and thank you for the deadline extension. I have discussed the three comments listed below with your colleague Jeff Sargeant today who respectfully received them. To wit:

The startling statement at the end of the Executive Summary …

> …*"The results of this study demonstrate that the hospital demand factors contained in the current (2021) edition of the National Electrical Code result in electrical systems that are between 100% and 700% larger than the actual loads"...*

This conclusion squares with my experience as an electrical engineer at the University of Michigan for 34 years. My colleagues copied here, have had the same experience and are of like-mind about continuing the seek a resolution to power chain oversizing in health care facilities and many other occupancy classes. The University of Michigan catalyzed the revision to Article 220 that reduced lighting power densities from 3.5 VA to 2.0 VA for schools, colleges and universities. To the best of my knowledge; no fire hazards have resulted from that reduction in lighting power density.

Over the past two years I have spoken with Walt Vernon about his experiences several times. We have the same lament about the structure of the technical committees populated by other stakeholders whose positions we respect but disagree with. I attended the remote 2023 NEC CMP-2 committee proceedings and am familiar with the pro's and con's of the arguments; very well administered by the Chairman if I may add.

I have three suggestions; which may not be well-received by others in the NFPA community.

1. Break out the "design" concepts of the NEC into a separate document; carrying the term "design" or "recommended practice" in a new title in an entirely new committee with the same balance of stakeholders. That title might list as *"NFPA 70D - Recommended Practice for the Design of Premise Wiring in Industrial and Commercial Facilities".* A fresh start, with a new committee, may increase the chances of resolving the problem described in the report. Local jurisdictions would be relieved from administering exceptions to NEC by incorporating the reference to the new NFPA 70D whole cloth.

2. I am in a position to approach the IEEE Industrial Applications Society with a standardization project proposal to produce a new title, derived from the legacy IEEE-602 White Book *"Recommended Practice for the Design of Premise Wiring in Health Care Facilities"*. This new title, eventually to be part of the 3000-series of IEEE Recommended Practices, would provide guidance to designers to resolve the problem of the oversized power chain described in the report. The IEEE has a funding facility that might support additional research for a new title in its catalog of recommended practices.

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3. Standards Michigan has long-standing relationships with respected voices in the energy conservation community in the United States. As the only pure user-interest in the education facility industry we are free to present proposals to include new possibilities for energy efficient design in *ASHRAE 90.1 Energy Standard for Buildings*; ASHRAE's flagship title incorporated by reference into energy conservation laws. We would propose that healthcare power system designers be permitted to reduce the size of electrical transformers, and the related power chain wiring, when loading patterns (such as the 700% overloading cited in the report) cause transformer room ventilation cooling systems to be oversized; thereby wasting energy and materials and labor. ASHRAE has a funding facility that might support additional research.

Of course, we would prefer that the oversized transformer problem be resolved in the present structure of NEC if for no other reason than it would be easier. In many of the proposals we submit to NEC committees we always reference the Canadian Electrical Code which permits electrical designers to use professional judgement in the sizing of their healthcare power system designs.

We hope that these "blue sky" concepts are as well received as they are submitted respectful of the expertise and integrity of the NFPA organization as a whole.

Kind regards

Mike

Michael A Anthony, P.E.

Cc: James R. Harvey, Jagdesh Janveja, Richard Robben (University of Michigan)
Glenn Keates (CTC Engineering)
Walt Vernon (Mazzetti Associates)