



The Barn Raiser



Issue #62

Working Together

Second Quarter, 2018

CODE MATTERS

Codes **do** matter in the building & industrial plant world.....**A lot.**

- Karen Griffin, Staff Architect, MSECO, Hot Springs, AR

Question:

How do I classify an electrical room located inside a larger building, and is it required to be fire-rated or sprinklered?

Referenced Codes:

The International Building Code (IBC),
The National Electrical Code (NFPA 70 NEC),
NFPA Life Safety Code, NFPA 13, OSHA and
The International Fire Code (IFC)

Since there is not a specific classification listed for electrical rooms in the International Building Code (IBC), it could be placed in the Utility and Miscellaneous "U" group. Structures housing accessory equipment for utility systems are often classified in this category when there is no intent to be occupied except for servicing and maintaining the equipment. However, a building code official may prefer to categorize it as an accessory space to the main occupancy that the room / structure supports. In the case of a wood products mill, it would most likely be classified as accessory to the Factory "F" group. The room could be considered hazardous due to the possibility of an arc flash event, but that would not necessarily put it in the Hazardous Use "H" groups, according to the IBC.



Photo courtesy of Electro-Tech Industries, Houston, TX.

The IBC Allowable Building Heights and Areas table 503 would typically be the starting point for determining fire rating and if sprinklers are required for fire rating purposes. The project / building use group, occupancy classification, construction type, and distance to adjacent buildings and lot lines are some of the criteria used to determine fire-rating of buildings and if an automatic sprinkler system is required. But with an electrical room, the stricter, controlling codes are mainly the NFPA and the IFC. A large industrial building will probably be required to be equipped throughout with an automatic sprinkler system; therefore, an accessory electrical room would also be required to have sprinklers. Factory "F1" occupancies usually will require sprinklers throughout. Woodworking operations (including sawmills) with fire areas exceeding 12,000 square feet will require sprinklers (fire doors and separating space into fire areas is not feasible in most large factories.) If an automatic sprinkler system is installed in an electrical room, the installation must comply with NEC article 110.



Photo courtesy of Electro-Tech Industries, Houston, TX.



CODE MATTERS ... Cont'd

I think we all agree that an automatic sprinkler system in an electrical room is generally not desirable so we refer to NFPA 13, Sec. 8.15.10.3 and the IFC 903.2 & 903.3.1.1.1 to determine if the omission of sprinklers is allowed. All the following conditions must be met:

1. The room is dedicated to electrical equipment only.
2. Only dry-type electrical equipment is used.
3. Equipment is installed in a 2-hour fire-rated enclosure including protection for penetrations.
4. No combustible storage is permitted to be stored in the room.
5. Portable extinguishers readily available (Class C min.)
6. Equipped with approved automatic smoke / fire detection.

In addition, the Owner's Risk Management / Insurance may also stipulate additional requirements.

To summarize, the most common electrical room/structure will be categorized as accessory to the main occupancy, will omit sprinklers, will be two-hour fire rated construction, and will be equipped with fire extinguishers and automatic fire detection. This will typically satisfy the building / fire codes and the insurance underwriters, but could vary depending on specifics to the project. It is always recommended to consult with a design professional, Building Official or someone well versed in building and fire codes to evaluate the electrical room requirements.

The next **Code Matters** article will address door signage & egress for the electrical room / structure.

Inspiration for Success in the Workplace

- OUR ATTITUDE

A predisposition or a tendency to respond positively or negatively towards a certain idea, object, person, or situation. Attitude influences an individual's choice of action, and responses to challenges, incentives, and rewards (together called stimuli).

Four major components of attitude are:

- (1) Affective: emotions or feelings.
- (2) Cognitive: belief or opinions held consciously.
- (3) Conative: inclination for action.
- (4) Evaluative: positive or negative response to stimuli.

- businessdictionary.com definition of Attitude



"The longer I live, the more I realize the impact of attitude on life. Attitude, to me, is more important than facts. It is more important than the past, than education, than money, than circumstances, than failures, than successes, than what other people think, say or do. It is more important than appearance, giftedness or skill. It will make or break a company... a church... a home. The remarkable thing is we have a choice every day regarding the attitude we embrace for that day. We cannot change our past... we cannot change the fact that people will act in a certain way. We cannot change the inevitable. The only thing we can do is play the one string we have, and that is our attitude... I am convinced that life is 10% what happens to me and 90% how I react to it.

And so it is with you ... *we are in charge of our Attitudes*"

- Charles Swindoll

"In the tradition of a community coming together to raise a barn, Mid-South Engineering is committed to working with our friends and neighbors as partners, knowing we can accomplish more by working together, with the common goals of lifting each other's burdens and side-by-side framing our future for the better."

North Carolina Office

200 MacKenan Dr., Cary, NC 27511
919-481-1084

Arkansas Office

1658 Malvern Ave., Hot Springs, AR 71901
501-321-2276 - Fax: 501-624-4214

Maine Office

303 Main St., Orono, ME 04473
207-889-5200



www.mseco.com

Experience and Innovation Working for You