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## A Message From the Executive Director:



**Hello, everyone!**

Happy holiday season!

License renewal is approaching so make sure you have your continuing education hours to renew. Our office only has a couple classes left to hold but there are several other CEU classes listed on our website from other providers.

Because of legislative law changes, the NDSEB went through another administrative rule change, which the legislative administrative rules hearing was just held December 5th and accepted the following three changes:

**24.1-03-01-05:** Clarifies the intent of apprentice electrician training as defined by NDCC 43-09-11(2)(b)(1) and is not the result of a statutory change.

**24.1-05-01-01(2):** Modifies minimum job cost amount to conform to NDCC 43-09-05, which took effect August 1, 2017, which is a result of a statutory change by the ND Legislative Assembly.

**24.1-05-01-02(4):** Updates fee schedule to conform to NDCC 43-09-05, which took effect August 1, 2017, which is a result of a statutory change by the ND Legislative Assembly.

It appears this is the time of year that we are seeing more and more contracting Master electricians coming and going from the contracting business. Please keep in mind that it is required that you contact us immediately and agreed to as stated in N.D. Laws, Rules & Wiring Standards §24.1-03-01-06(5): "As a contracting electrician, I shall notify the North Dakota State Electrical Board immediately upon either changing from

*contracting status to non-contracting status or prior to leaving a firm to which I filed an Application for the firm I represent."*

I just had another contractor asking if their apprentices could complete a related training education requirement only in a couple months. The answer is no as the apprentice needs to complete their 576 hours of related training over their 4 years while working their 8,000 of work experience. The intent is for the two to coincide with each other while the apprentice is working in the field. Please remind these apprentices to keep a current registration with the NDSEB office and make sure their education requirement is in place.

As always, please call if you have questions or comments!

Be safe out there,  
James Schmidt

## Working Space Requirements Important to Safety

**The** requirements for working space around electrical equipment 1000 volts nominal or less are found in Part II of Article 110. They are meant to provide us with enough room to easily and safely access, operate and maintain electrical equipment. The requirements apply to equipment that is likely to require us to examine, adjust, service, or maintain the equipment while it is energized, such as switchgear and switchboards, panelboards, transformers, circuit breakers, disconnects, control panels and similar equipment.

**110.26(A)(1):** describes the minimum clear distance required in front of electrical equipment, and is broken down into three categories according to the nominal voltage to ground in Table 110.26(A)(1) and the conditions encountered on each side of the working space.

For example: if we have a 208 volt panel on one side and a bare concrete wall on the other side, the installation requires three feet of working space as a condition 2 in the 0-150 volts to ground row.

Another example: a 480 volt motor starter mounted directly across from

another motor starter will require four feet of working space between them as a condition 3 in the 151-600 volts to ground row.

One more thing to note here is that the Table now includes a third row for 601-1000 volts to ground as part of the effort to expand the NEC from 600 volts to 1000 volts. There is more information in (a), (b), and (c) to clarify how to apply these distances and also to provide some relief in specific situations under the conditions specified.

**110.26(A)(2):** this describes the requirements for the width of the working space, which is essentially the width of the equipment or 30 inches, whichever is greater. The equipment does not have to be centered in the space, but can be measured from either edge as long as the minimum width is provided, and doors must be openable at least 90 degrees.

**110.26(A)(3):** describes the height of the working space required for electrical equipment, requiring the area to be clear and extend from the floor or platform to a height of 6.5 feet or the height of the equipment, whichever is greater. Equipment not

associated with the electrical installation cannot be installed in this area, and equipment associated with the electrical installation (such as wire ways) can't extend more than six inches beyond the front of the equipment.

**110.26(A)(4):** this is new in the 2017 NEC and addresses the requirements for equipment installed in limited access spaces, such as a transformer installed above a suspended ceiling. There must be a 22 in. x 22 in. opening in a suspended ceiling or a 22 in. x 30 in. opening to a crawl space to access the equipment, and the width of the working space must be 30 inches or the width of the equipment, whichever is greater.



An excellent example of completely inadequate working space around equipment.

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For the depth of the working space we will again refer to Table 110.26(A)(1) and base it on the voltage to ground and the conditions specified to determine the distance required, and all enclosure doors or hinged panels must be able to open at least 90 degrees. The last sentence tells us that a horizontal ceiling structural member or access panel will be permitted in this space, allowing the ceiling framework or lift out tiles to be located in the working space.

**110.26(A)(5):** another new addition in the 2017 NEC, gives guidance for installations where there is equipment with exposed live parts or exposed

wiring operating over 1000 volts in the same vault, room, or enclosure with equipment operating at 1000 volts or less. Where these types of installations are encountered there has to be an effective separation of the high voltage equipment from the low voltage equipment.

**110.26(B):** makes it clear that the working space required in 110.26(A) is not permitted to be used for storage, that these spaces must remain clear for ready access to the equipment. It also tells us that if the equipment is in an area that is accessible to the general public and has been opened up for

service, that the working space shall be suitably guarded while the equipment is exposed.

When thinking of working space, visualize a box around you of open space that will permit you to safely work on the equipment without being squeezed or cramped in the space, which is the intent of these rules. In the next newsletter we will discuss the requirements for entrance and egress to the equipment, and for providing clear space around the equipment for future expansion. ☺

## Electrical Inspectors Discuss Common Code Issues

**North Dakota** state electrical inspectors and city inspectors representing Grand Forks, Fargo, Minot and Bismarck recently met for their quarterly meeting in Bismarck Nov 29 – Dec 1, 2017. The group discussed code issues that have come up over the past two months, either from inspections they have been on, or questions that have been brought up by electrical contractors. These meetings are important to ensure that we are all looking at these new and difficult situations the same way, based on the 2017 NEC and our ND State Standards.

Some of our newly introduced codes have proven to be difficult to comprehend, and we do not like to write these corrections any more than a contractor likes to receive them. If we can make sure we all have an open line of communication, maybe we can rectify some of these situations before they arise.

Here are just a few of the code violations and questions that we discussed at our meeting:

**SHORT CIRCUIT CURRENT RATINGS LABELS** not only have to be installed by manufacturers for certain equipment, but 2017 brought new requirements for field marking and/or documentation for many installations. When doing your SCCR calculations for service equipment (NEC 110.24); industrial control panels (NEC

409.22); motor control centers (NEC 430.99); AC and refrigeration equipment (NEC 430.99); elevator control panels (NEC 650.51(D)(2)); and industrial machinery (NEC 670.5), make sure the equipment you are connecting is rated for the available SCCR at the equipment before you connect the power or you could end up with a very unsafe installation, and a correction that is not always easy to fix, after the project is complete.

**SERVICE CHANGES AND UPGRADES** occur on a daily base, so please do your research before you do these installations, so you can avoid any costly code corrections you do not want to receive. NEC 230.95 requires GFP for services over 150 volts to ground, and rated at 1000 amps or more, and – NEC 239.95(C) requires performance testing when first installed on site. NEC 240.87 requires arc energy reduction for services 1200 amp or higher. Make sure you read this entire article so you are not trying to do performance tests, and add clearing methods after your service is energized.

**GFCI REQUIREMENTS IN 210.8(A) & (B)** still seems to bring up questions, so after you read the article, and if you still have questions, please give your local inspector a call to make sure your interpretation is the same as ours.

Lastly, if you are going to be involved in wiring of an RV park, please read Part VI of NEC 551. The new receptacle requirements and calculated load requirement increase could be cause for corrections that are not fun to write, and definitely not fun to correct.

### LICENSE RENEWAL TIME APPROACHING

REMINDER that registrations and licenses are due:

- **Apprentice registrations:** **January 31, 2018**
- **Journeyman licenses:** **March 31, 2018**
- **Master / Class B licenses:** **April 30, 2018**

For those that need continuing education, a list is provided on our website at [www.ndseb.com](http://www.ndseb.com), under **Continuing Education**. This Excel spreadsheet provides you with a list of 2017 NEC North Dakota approved courses from classroom, to online to homework study. If you typically use a CEU provider that is not on this list, we would encourage you to contact that provider and have them contact us in order to complete the application process. If a provider is not on this list, those courses may not be accepted for CEU credits towards renewal of your license.

## News & Notes from NDSEB

- **POWER LIMITED TECHNICIAN LICENSE (PLT LICENSE):** The NDSEB distributed a survey seeking comments on your opinion of a power limited technician license, similar to what other states may have. We have received surveys back and these were discussed at the last Board meeting held in November. The surveys returned show 85% in favor, 12% not in favor and 3% were unsure. The Board discussion also included a few correction items inspectors had noticed on job sites that would normally go unaddressed. There are lots of pros and cons associated with the Board having oversight on PLT work. The Board will continue these discussions at its upcoming regularly scheduled meetings and would still ask for individuals to complete the survey if you have not

already done so. Please email to [electric@nd.gov](mailto:electric@nd.gov).

- **APPRENTICE REGISTRATION / EDUCATION:** We are still noticing apprentice registration being an issue. Since 2008, apprentices have been required to not only have the 8,000 hours of experience but also need the education requirement of either a 2-year degree from an electrical program of an approved college curriculum or to have completed 576 hours of related training through a recognized apprenticeship program. Also, an apprentice needs to be registered with the NDSEB office for their experience time to count. Inspectors have been finding apprentices working alone, and if this situation arises, the unsupervised work

experience will not count towards the apprentice's 8,000 hours. The Board then issues a major violation to the contracting master, and is contemplating issuing a cease and desist notice to the apprentice.

- **VOIDING A CERTIFICATE:** We are all humans and mistakes happen, so if you end up duplicating a wiring certificate, or the customer cancelled the job, or someone else took over the project, please DO NOT enter remarks in either the comments section or the job description area of your wiring certificate. We are requesting that you either call us or send us an e-mail to rectify the situation. Our inspectors don't always see the comments until they are at the job site only to find out that they didn't need to be there due to one of the reasons stated above.

Please be as specific as possible on why you are voiding a certificate. Also, please make sure you did not do any work. For example, if you set the temporary, but didn't wire the house because another contractor is doing it, we CANNOT void the wiring certificate. We take voiding certificates very seriously and may conduct some research in case the inspector and/or power company also question it.

- **AGAIN THIS CONTRACTOR REMINDER!**

1. When calculating job costs, make sure you include any allowances for electrical work that may be provided by the general contractor such as a lighting allowance.
2. A start-up copy of the wiring certificate shall be submitted to the state electrical board and a copy to the power company before work commences.
3. Within fifteen days of completion, use, or occupancy, whichever is foremost, the final paperwork shall be submitted to the office of the state electrical board, along with the proper fee. ☺

## Making A Connection:

### District 12 Inspector Dave Jaeger

Originally from Garrison, ND, Dave Jaeger has worked at the NDSEB for 5 years and is currently the District 12 electrical inspector covering Williams and Divide counties. He went to the North Dakota State School of Science for their Electrical Tech program and went through the IBEW apprenticeship training through Local 113 in Colorado Springs, CO. He is a member of the IAEI and an ICC registered electrical inspector.

Dave and his wife Carla have three children - Lindsey, Madison, and Emily.

**Where have you worked previously?** *Berwick Electric Company, Faith Enterprises, Falcon District #19, and the Pike Peak Regional Building Department.*

**What is your favorite part of your job?** *Meeting new people and helping them solve some of their problems.*

**Do you have a mentor or person that inspired you?** *All of the electricians that I have worked with in the past and*

*that I continue to work with.*

**The best thing about North Dakota is . . . ?** *All of the friendly people.*

**What would be your dream vacation?** *Go to Germany.*

**What are your hobbies?** *Hunting, fishing, and camping.*

**What's your favorite TV show?** *ESPN*

**Who's your favorite superhero?** *Hellboy*

**What do you like on your pizza?** *All meat*

**The best movie of all time is . .**

