

ND State Electrical Board
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Find us at
www.ndseb.com

A Message From the Executive Director:



Hello, everyone!

I've been writing about the power limited technician (PLT) license for a few of the past newsletters and there is more information in this newsletter. If you have the urge, please come out and testify in support of the bill as it's drafted and going before the legislature this session. By administrative rule, the Board would incorporate a proposed chart showing locations and PLT system types that would require licensure/inspections.

Also, a very important Board housekeeping legislative bill is to reword 43-09-11(2)(b)1). Our office has been told to return applications for the journeyman exam that do not have a certificate of completion from the Department of Labor (DOL). Some of the obstacles by apprentices in receiving this certificate from the DOL were from

attending a related training class that was not federally registered or from those apprentices that were federally registered but couldn't write the exam because their specific program required more hours than the Board's requirement of 576 hours. I think we all understand these two problems.

We know there is a journeyman shortage in ND and we have a law that prevents these apprentices from becoming journeyman. I've visited with the Governor's office and they've determined it's the law and will require a legislative change, so please come out to the legislature to testify in favor of this important bill as I stated some of these individuals are being held up from taking their journeyman exam.

Let's do the right thing and come together to support this bill to remove these obstacles!

We will be posting times of the committee meetings on each of these

bills so stay tuned at www.ndseb.com.

The Board is still seeking written comments and suggestions from the public, so if you have thoughts or comments please send them to us:

Email at: electric@nd.gov -or-

Mail to: ND State Electrical Board
PO Box 7335
Bismarck, ND 58507-7335

If you know of anyone interested in being an electrician, there are lots of providers/educators/colleges for an individual to become an electrician available so check them all out!

We encourage your input on electrical happenings in ND so if you have questions or comments please send an email or give me a call as I'd like to visit with you!

Happy Holidays and safe travels!!

- James Schmidt



Ensuring Public Safety Since 1917

Connections

Issue 259
Dec. 2018

BOARD SUPPORTS TWO LEGISLATIVE BILLS FOR 2019 LEGISLATIVE SESSION

* Education Bill - NDCC 43-09-11:

In NDCC 43-09-11(2)(b)1), the proposed bill suggests the verbiage "federal bureau of apprenticeship and training" be struck and changed to "the board" as a house-keeping issue.

In 2007 when the education requirement bill was introduced, the intent was simply to ensure all apprentices were educated and trained before becoming journeyman electricians. The bill had two pathways for an apprentice to become educated - either by related training, which included federally registering apprentices with the United States department of labor (DOL), or a two-year college electrical degree.

For the apprentice to receive a completion certificate for the first pathway (DOL), the company they worked for was required to set up a federally approved apprenticeship program with the DOL.

For some contractors, this additional requirement of federally registering an apprentice was over and above their business intentions so they did not go through the steps to have a federally-approved apprenticeship program or because a federal apprenticeship

program may require more than the Board's minimum requirements of 576 hours of education. In either of these situations, when an apprentice is ready to write the Journeyman exam, he/she will not be able to receive the completion certificate from the DOL and consequently will not be able to write the Journeyman exam under current North Dakota law.

Company spokespersons have indicated this should be the employer's decision and North Dakota law should not impose the requirements of the DOL apprenticeship registration on their business.

If the bill passes into law, the intent of the Board would be to follow-up afterwards in its administrative rules and create an education committee that would establish minimum education guidelines/curriculum for earning an electrical college degree, electrical apprenticeship education and also review online/classroom continuing education plus explore other electrical educational opportunities.

This bill will have an emergency clause attached to it to hopefully move

it through the legislature with a 2/3 majority of approval in the House and Senate. As soon as the Governor signs, it becomes law and the Board can then accept letters from local education providers for the apprentices versus waiting for a certificate of completion from DOL.

Also in this bill, the Board is seeking authority to "expend funds to educate and encourage potential electricians or power limited technicians into the trade". This will allow the Board to promote the trade. Potential actions include visiting with students, supporting high school industrial arts (shop) programs, and possibly offering an electrical scholarship to an area college or an apprenticeship program. These options are all tentative at this point and the Board is open to other input.

* Power Limited Technician License (PLT License):

As you know, the Board has been discussing creating a power limited technician license or another class of electricians. The board would appreciate interested parties to appear before the legislature to testify in favor of the new license. The Board feels this is a necessary license, similar to the electrical license, to ensure trained individuals are installing power limited systems and understand the requirements of the National Electrical Code and the ND Wiring Standards.

We will be posting the legislative committee meeting dates on our website so if you are interested you would have an opportunity to testify.

A few key points pertaining to a PLT license:

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1. Power Limited Technician Apprentice (PLT Apprentice) means an individual registered with the Board has at least 6,000 hours in not less than 3 years under direct supervision of a PLT.
2. Power Limited Technician (PLT) means a licensed individual working under a PLT Contractor or Master electrician in contracting status.
3. Power Limited Technician Contractor (PLT Contractor) must have worked for 1 year as a PLT.
4. Assurance that individuals installing PLT systems have proper training.
5. PLT installer awareness of hazardous locations and special occupancy NEC requirements.
6. "Power Limited Systems": means systems covered by the National

Electrical Code, articles 640, 720, 725, 727, 770, 800, 810, 820, 830, 840 and other NEC and ND Wiring Standards pertaining to installation requirements.

7. Individuals associated with companies currently working on power limited circuits will have the opportunity to be grandfathered in by showing their current work experience/credentials and by filing an application before the deadline.
8. Current ND licensed electricians/contractors already meet the requirements of a PLT.
9. All PLT's in our state will need to work for a licensed PLT Contractor.
10. When required, wiring certificates will need to be taken out for inspection purposes.

11. PLT apprentice ratio requirements: 3 PLT apprentices to 1 PLT.
12. PLT exam to include NEC code articles pertaining to installation/workmanship practices along with grounding/bonding, etc.
13. All licensed PLTs and PLT apprentices will need 8 hours of continuing education annually.
14. Future journeyman and master electrician exams will also include questions from the PLT code articles.
15. Expand the current relationship with NERA member states to include PLT licensing reciprocity similar to that of ND licensed electricians. ☺

SAFETY CORNER: OVERCURRENT PROTECTION - FEEDER TAPS

In our last newsletter, we discussed the basic requirements for overcurrent protection of electrical circuits operating at 1000 volts or less. We will review some of the provisions for feeder taps and how to apply them. Refer to Article 240.2 as it defines a Tap Conductor.

The conductor will have overcurrent protection ahead of it that is larger than it is normally rated to carry. For instance, a 2/0 copper conductor that has an ampacity rating of 175 amps installed where the overcurrent ahead of it has a rating of 400 amps. Normally this is prohibited by 240.4, which requires overcurrent protection in accordance with the conductors ampacity, but 240.4 (E) permits six scenarios where tap conductors can be installed. See 240.4 (E)(3), which directs us to 240.21.

240.21 requires that overcurrent protection must be provided for each ungrounded conductor and it must be located at the source of supply, unless allowed in the provisions of 240.21(A) through (H). When conductors are supplied under those provisions, they cannot supply another conductor unless through an overcurrent device that meets 240.4, essentially you are not permitted to "tap a tap". 240.21(B) permits the installation of feeder taps and gives us the requirements in (B)(1) through (B)(5). Also it is important to understand that the provisions of 240.4 (B) are not permitted for tap conductors.

You cannot round up a tap conductor to the next standard size overcurrent device. The conductor must have sufficient ampacity for the installation. Be sure to refer to your copy of the NEC for the complete requirements.

When the tap conductors are not more than 10 feet long, they must have an ampacity not less than the loads to be served, not less than the rating of the equipment with an overcurrent device supplied or at the termination of the tap conductors. The conductors cannot extend beyond the enclosure they supply, must be installed in a raceway from the tap to the supplied enclosure, and if field installed they must have an ampacity of 1/10 of the rating of the feeder overcurrent device when they leave the enclosure where the tap is made.

For taps where the conductors are not more than 25 feet long, the ampacity of the tap conductors is not permitted to be less than 1/3 the rating of the overcurrent device protecting the feeder, they must terminate in a single overcurrent device that limits the load to the conductors ampacity, and the conductors must be protected from physical damage by an approved method.

A tap that supplies a transformer and the length of the primary plus secondary conductors does not exceed

25 feet is permitted when the primary conductors have an ampacity of 1/3 the rating of the feeder overcurrent device and the secondary conductors have an ampacity of 1/3 the rating of the feeder overcurrent device multiplied by the primary to secondary voltage ratio. The primary and secondary conductors must be protected from physical damage by an approved means and must terminate in an overcurrent device rated not more than the conductor ampacity.

Taps can be permitted to be over 25 feet long when installed in a high bay manufacturing building where the walls are over 35 feet tall and the installation complies with all of the conditions found in 240.21(B)(4).

Outside taps are permitted to be unlimited in length when they are located completely outside of the building or structure except at the point of load termination, are protected from physical damage, and terminate in a disconnecting means with overcurrent protection limited to the conductor ampacity installed in a readily accessible location complying with 240.21(B)(5)(4).

When installing a feeder tap you must comply with all of the requirements for the type you are installing to be compliant with the code, so be sure to review them prior to beginning the job. ☺

Importance of GFCI Protection in Winter

Winter is here, and so are the Christmas lights, extension cords for block heaters (and ICE FISHING), late night service calls because a furnace went out, or a breaker tripped.

The problem with some of these issues is the chance for electrocution to the homeowner or the electrician due to lack of GFCI protection, and although we may look at GFCI's as a pain in the neck sometimes, the results of NOT having GFCI protection can be deadly.

Since the introduction of GFCI protection in dwellings, there has been an 83% drop in electrocutions, and a 95% drop in electrocutions from consumer products. Approximately 47% of all electrocutions could have been prevented by the proper installation of GFCI protection.

Let's say the average cost to build a new home in North Dakota is \$225,000. It would cost approximately \$400 to install

GFCI/AFCI combo breakers for the entire house. That is about 0.18% (.00177) of the job cost for the entire house. Sounds like a pretty inexpensive insurance policy.

The question to ask yourself when you are debating on installing a GFCI or an AFCI breaker is "if my child could potentially be saved by a \$45 breaker, would I spend the money, and have it installed?" What is the average deductible for homeowner's insurance or an electrical insurance claim? Possibly \$500 / \$800 / \$1000??? The deductible alone will cover the cost of GFCI/AFCI breaker installations. After reviewing some of the proposed changes for the 2020 NEC, we have it pretty easy right now!!

Speaking of GFCI/AFCI protection, it seems the housing industry is going to the non-finished / finished basements lately, which to us means all walls are up, ceiling is probably sheet rocked for

fire protection, fully wired and electrically trimmed out, but no wall sheet rock or wall covering installed.

We are requiring AFCI & GFCI breakers for these installations due to the fact that it is a finished electrical installation, but there are exposed NM cables that warrant GFCI protection for the homeowner. If you are wiring a house like this and have a question, please contact your State or City inspector so there are no surprises for anyone at the final inspection.

Besides GFCI/AFCI protection, now is a great time to talk to your customers about their fire alarm systems. With Christmas trees, lights, extra cooking and family visits, now would be a great time to make sure all the batteries have been changed, test all the devices and replace old, non-working devices.

NFPA suggests replacing fire alarm devices every 10 years, but you will need to also go by manufacturers instructions. NFPA claims that 3 of every 5 deaths that occurred in home fires had either no fire alarms installed, or non-working fire alarm devices. For fire alarm installation requirements, please take a look at North Dakota Wiring Standards 24.1-06-01-40.☺

Making A Connection:

District 4 Inspector Leo Floer

Leo Floer has been the District 4 electrical inspector for a little over 5.5 years. District 4 is in the very southwest corner of the state and includes the counties of Bowman, Slope, Golden Valley, Billings, and Dunn. Prior to his employment at the NDSEB, Leo worked as a private electrical contractor.

Originally from Prior Lake, MN, Leo enlisted in the US Navy after high school. He re-enlisted in the MN National Guard after his six years with the Navy (thanks for your service, Leo!) He attended the Minnesota Electrical Program and Colorado Technical University in Colorado.

What is your favorite part of your job? *Conducting electrical inspections in the Badlands and oilfield inspections.*

Did you have a mentor or person that inspired you? *Fellow inspector Zach Paetz. Even though he is younger than I am, he always challenges me to do my best and not*

look back.

What are your hobbies? *I'm a rodeo fan, and enjoy fishing and hunting, horseback riding, mountain bike riding and motorcycle riding.*



If you couldn't do your current job, what would you want to do instead? *Ranching, raising cattle and horses.*

The best thing about North Dakota is . . . ? *Rodeos and the Badlands.*

What's your favorite TV show? *The Cowboy channel.*

The best movie of all time is . . . ? *John Wayne's The Cowboys*

If you could meet anyone in the world, who would it be and why? *Former President Jimmy Carter. He always says "Do the very best you possibly can, or don't bother starting."*

IN MEMORY OF EUGENE CROSS, FORMER BOARD MEMBER FOR THE N.D. STATE ELECTRICAL BOARD

Eugene Cross, 74, Mapleton, ND, died July 31, 2018. Eugene was a Board Member for the North Dakota State Electrical Board from 1999 to 2009.

He represented a master electrician who was a contractor. We appreciated the time he spent as a board member and will be missed. We wish to express our deepest sympathy to his wife, family and friends.☺

