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## A Message From the Executive Director:



**Hello, everyone!**

Governor Burgum has appointed Christina Roemmich to the ND State Electrical Board to represent the Consumer

Member of a Rural Electric Cooperative as of July 1st. Ms. Roemmich replaces Ben Koppelman who has served the board for the past 10 years. We want to welcome Ms. Roemmich to the board and thank Mr. Koppelman for his dedicated years of service to the board.

For the past two years the board has been discussing the possibility of a power limited technician (PLT) license. On May 22nd, the board had an open forum meeting where the public could voice their opinion on the subject. Several good comments were made including how this may affect current electricians and individuals presently doing power limited installation work.

The comments were turned over to the

PLT committee. This group is working to define and sort out what is considered PLT and electrical work. The comments were discussed at the PLT committee meeting comprised of engineers, master electrician, public board member representative, persons involved and currently licensed PLTs from a neighboring state and a long time electrical educator/electrician from the state. The committee made great progress with reviewing NEC articles that would be included in the PLT license along with determining what education, apprenticeship requirements, on the job license requirements and other areas relating to PLT.

The next day the NDSEB met and after reviewing the progress made by the PLT committee decided to keep moving forward towards PLT licensing. So with that, the board is still seeking written comments and suggestions from the public. If you have thoughts or comments please send them to the

board office via email at [electric@nd.gov](mailto:electric@nd.gov) or mail to our address at the top of this page.

Also, if you know of a high school student interested in being an electrician, there are lots of providers/educators/colleges available so check them all out! ☺

In recent weeks we've experienced individuals that have let their ND electrical license expire for more than three (3) years. NDCC 43-09-15 states "if a licensee fails to renew the license for a period of three consecutive years or more, the licensee is required to appear for reexamination". Please keep this in mind if you are not renewing your ND license.

Finally, just a reminder that NDSEB started holding its CEU classes in June and will continue through January 2019. Sign up on our website before classes fill up!

Be safe out there - James Schmidt

## Board Moves Forward with PLT License

For the past two years the board has been discussing the possibilities of creating a power limited technician (PLT) license. The board distributed a survey seeking comments and held a public open forum meeting to get public input on the subject. The license would be similar to what other neighboring states may have.

Here are a few key points that the committee discussed at the last meeting by creating a "revised rough draft of the ND Laws, Rules and Wiring Standards":

1. Power Limited Technician Apprentice (PLT Apprentice) means an individual registered with NDSEB working under the direct supervision of a PLT or PLT Contractor.
2. Power Limited Technician (PLT) means a licensed individual working under a PLT Contractor or Master Electrician in contracting status. To become a Power Limited Technician (PLT) a minimum of 6,000 hours, obtained in not less than three years, registered and working under the direct supervision of a PLT Contractor, is required.
3. Power Limited Technician

Contractors (PLT Contractor) must have worked for one year as a PLT.

4. Gives assurance that individuals installing PLT systems have proper training.
5. To make PLT installers aware of hazardous locations and special occupancy requirements according to the NEC.
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 Laws, Rules and Wiring Standards pertaining to installation requirements.
7. Individuals associated with companies currently working on power limited circuits will have the opportunity to be grandfathered by showing their current work experience/credentials and completing 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, certificates will need to be taken out for inspection purposes.

11. PLT apprentice ratio requirements moving forward, example 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 PLT's and PLT apprentices will need 8 hours of continuing education annually.
14. Future journeyman and master electrician exams will include questions from the PLT code articles along with their continuing education.
15. Expand the current relationship with NERA member states to include PLT licensing reciprocity similar to that of ND licensed electricians.

The power limited committee met the last week in July at the NDSEB office to further discuss how we should proceed in our state with Laws and Rules for power limited circuits. We have had a great deal of discussion on exactly what our current laws on the subject are and what changes we felt we needed to make to keep the general public safer in North Dakota.

This area of our industry has expanded exponentially. One major concern was how critical it was in classified, hazardous and special occupancy locations to have low voltage wiring done properly by qualified individuals knowing the NEC. We have studied numerous other states requirements for power limited systems. The committee was very careful in its recommendations to consider how the rules we made would reciprocate with other states we

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currently have relationships with. It is a very complex subject to wrap your arms around but everyone on the committee agrees on these basic ideas.

Here's a few of the PLT Committee members comments:

*"North Dakota has always taken pride in its concerns for quality and safety. Our state has always been cautious not to over regulate. In every discussion by this committee those two principals were of utmost concern. How can we put rules in place that protect the end users but yet not over regulate driving up job costs and slowing down production?"*

*"Over the past few months, the NDSEB staff has made significant progress in the development of Power Limited*

*Technologies Licensure. They have developed proposed amendments to the governing laws and administrative rules that appear to be fair and just. They are to be commended for their effort to create avenues for those persons and businesses already working in PLT trades to conform with these laws. The creation of a PLT apprenticeship/licensure organization that is similar to what is currently in place for electricians will provide a clear path for future generations that are interested in working only in the PLT trades".*

*"I feel that we have the right mix of individuals serving on the advisory board to look at all perspectives and help provide the best advice for the board. I think that what we have accomplished so far has the board off to*

*a good start with what is needed to get the PLT License in place. I personally am in favor of the PLT because it ensures that only qualified individuals are performing work with life safety being our primary concern".*

*"I thought the meeting went well. It looks like the PLT license requirements will be a lot like Minnesota. One argument that shows a positive side to making a new law requiring it might go something like this:*

*1. The current ND law requires that anyone installing a Class 2 circuit that controls a power load must have a JW license.*

*2. This means that technically, HVAC people must hire an electrical contractor to install their low voltage circuits. ☺*

## Safety Corner: Overcurrent Protection

In this article we will cover some of the basic rules for overcurrent protection and overcurrent protective devices for electrical circuits operating at 1000 volts or less. Article 240 is the NEC Article that provides us with the rules that are meant to assist us in properly selecting the rating of the overcurrent devices to protect the conductors and equipment of the circuit while allowing safe operation and long life.

There are three different types of overcurrent we must protect against: overloads, short circuits, and ground faults. We may end up using different methods to provide protection from them in the same circuit.

An overload is any current in excess of the rated current of a circuit, which then creates excess heat that can cause damage to insulation and equipment over time. The lower the excess current, the longer it takes to do damage and cause the overcurrent device to function.

Short circuits and ground faults appear to be very similar but involve different components of a circuit. A short circuit is a connection between normally current carrying parts of a circuit that are at different voltages with little resistance between them, such as between a black and a red wire of a 240 volt circuit.

A ground fault is the connection between a conductor and the normally non-current carrying components of an

electrical circuit, such as a black wire touching the metal box in a conduit installation. When a short circuit or a ground fault occurs, if everything is installed properly, there should be a large amount of current flowing in the circuit that will cause the overcurrent protection device to operate very quickly and open the circuit.

NEC 240.3 directs us to protect equipment as required by the correct article as specified in Table 240.3, for example to protect an air conditioner we would refer to the requirements in Article 440. For conductors other than flexible cords, flexible cables, and fixture wires we are directed by NEC 240.4 to protect against overcurrent according to NEC 310.15 unless otherwise permitted or required by NEC 240.4(A) through (G). It's important to remember that for flexible cords and cables you must use the ampacity rules found in Article 400, they are different than the values for the same size wire found in Article 310, and for fixture wire that you refer to Article 402.

NEC 240.4(A) allows conductor overload protection not to be required when interrupting the circuit could introduce a hazard, for example a fire pump circuit would be better to run overloaded than to shut down during an emergency. 240.4(B) is the rule that permits a conductor to be

installed on a circuit where the conductor ampacity is less than the overcurrent protection if it falls between the standard sizes given in Table 240.6(A) on circuits rated 800 amps or less. 240.4(C) requires for overcurrent devices rated in excess of 800 amps, the installed conductor must have an ampacity equal to or greater than the ampacity of the overcurrent device. For example, as long as the load calculation for the circuit resulted with less than 180 amps of connected load, a 4/0 aluminum conductor with a rated ampacity of 180 amps at 75 degrees C is permitted to be connected to a 200 amp overcurrent device since there is not standard size between 180 and 200. 240.4(D) are the small conductor rules, which specify the maximum overcurrent protection for conductors between 18 AWG and 10 AWG. These rules restrict the listed conductors to the overcurrent rating given, such as #12 copper to 20 amps, unless they are allowed a different rating for a specific installation in 240.4(E) or (G).

Please review these rules in your NEC to re-familiarize yourself with the complete requirements and be sure you are applying them correctly on the job. This is also a good time to remind everyone when selecting overcurrent protection, other requirements may apply such as Ground Fault Protection of Equipment (215.10, 230.95), Arc Energy Reduction (240.67, 240.87), and Electrical System Coordination (240.12). ☺

## Grain Dryer and Bin Installations

**Harvest** season is here which means grain dryers and bin installations. Here are few details that may make your wiring installation and our inspections go smoothly.

Remember any control panels you are installing need to be UL listed or evaluated by a NRTL or a ND Licensed Engineer, and don't forget your SCCR labels. Some new bin sites can be pretty large and elaborate and may also have large motor loads. Please go thru NEC 430 to make sure you have everything covered. If you are questioning 430.24, call your local inspector to make sure you are both looking at each motor installation the same way. It only takes one bad correction of a service not sized properly or wire sizes too small to make it worth the extra time to go thru the code book.

If you choose to wire a grain bin, dryer, fertilizer plant or any other project in PVC, take a look at NEC 352.

ND State Standards 24.1-06-03-01 #4 tells you that North Dakota has a 140 degree minimum temperature change, so use that temperature when looking at Table NEC 352.44. It could save you a lot of re-work if you get this correct the first time around.

Grounding and bonding is always a question and one of the most important aspects of our industry; therefore, go thru NEC 250 before you start pulling wire and take a look at NEC 250.122, as it could save you from having to re-pull wire or re-trench just to install the proper equipment grounding conductor.

If you ever have any questions or concerns about an electrical installation you are doing, feel free to call your inspector anytime. If you leave a message, they will get back to you and will help you with any code questions you may have. ☺

## E-Certs!

In our adoption of the 2017 Laws, Rules & Wiring Standards of North Dakota, a rule was implemented as such under 24.1-05-01-01. Electrical certificates:

*"E-certs are available upon request and submission of an application from any master or class B electrician holding a proper current license from the board. **Electrical (paper) wiring certificates are available until August 31, 2020 or the effective date of the 2020 Laws, Rules & Wiring Standards.** The master or class B electrician shall be responsible for all certificates issued to and by that person. A charge of twenty-five dollars to cover board costs shall be assessed on each lost electrical paper wiring certificate issued to any master or class B electrician, unless returned to the board."*

In order to continue to promote the e-Cert system that has been in existence since 2003 (15 years) and being proactive with this administrative rule, audit letters were mailed to users of the e-Cert system to return any unused paper wiring certificates currently in their possession. Also, if there has been no activity from a contracting Master, we are also encouraging return of any unused paper wiring certificates.

The e-Cert system is designed to allow contractors to create and monitor electrical wiring certificates through our website at [www.ndseb.com](http://www.ndseb.com). Contractors can enter certificates, view existing certificates, pay for certificates, view correction reports and submit correction reports through this system.

Paying for certificates is accomplished through either a Deposit Account or ACH (Automatic Clearing House) automatic withdrawal. The Deposit Account is a non-interest bearing account set up with the North Dakota State Electrical Board. Money must be available in this account in order to submit payment on electrical wiring certificates.

To apply, please complete the Application on our website. Once we have processed the Application, you will receive a login ID and password. You can also find e-Cert instructions that will give an overview of the e-Cert system.

For further information, please contact our office and we will be happy to assist you. ☺

## Making A Connection:

### Board Member Rodney Mayer

Rod Mayer has been a Master Electrician for Mayer Electric for more than 33 years and has served on the ND State Electrical Board for nine years, three of those as President.

Originally from Minot, ND, Mayer has been married to his wife Denise for over 38 years. They have two children (David and Mandi), two grandchildren, and a puppy named Emi.

**Why did you want to serve on the Board?** *Gov. Hoeven's office contacted me to participate in workforce safety or the NDSEB.*

**What is your favorite part of serving on the Board?** *Watching the progressive changes within the NDSEB over the years.*

**What's the biggest challenge you see facing the Board currently?** *The continuing changes in rules and regulations to determine if the changes are sincere or the agendas of manufacturers or vendors. Also, whether or not to license the low voltage sector and implement state standards in regard to power limited/low voltage installations.*

**Did you have a mentor or person that inspired you?** *Clayton Mayer. I have never heard anyone say anything negative towards him. He is the smartest electrician and mechanic I have ever witnessed.*



**What are your hobbies?** *Golf as much as time allows, I enjoy going to car auctions, and for 30+ years I was a sponsored racquetball player for Head/Penn Sports. And I like hanging out with my wife Denise.*

**What's the best advice you've ever received?** *1.) Always be positive. 2.) 90% of the situations you worry about never come into play. 3.) He or she who angers you, controls you. 4.) The only person you have control over is yourself.*

**Do you have any advice for new electricians in the state?** *1.) Make sure this is the right choice that you want to do. 2.) Surround yourself with smart people. ☺*