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A Message From the Executive Director:



Hello, everyone! I hope everyone enjoyed the summer as we move into a wet fall!

I've been writing about the power limited electrician in the past few newsletters and I've been getting lots of calls on it. Here's an update on its progress: At the board's special meeting in August, they reviewed and moved the proposed rules onto the next step, which is a public hearing.

The public hearing will be held at the NDSEB office in Bismarck before the board's next regular meeting, which is on November 20, 2019. The board will take comments from the public for 10 days after that hearing.

On December 11, 2019, the board will give final approval of the proposals and then they will be sent to the attorney general's office and legislative council for their reviews. We're anticipating by April 1, 2020, the administrative rules will be approved by all and will be in force.

The plan is to have the NEC 2020 effective July 1, 2020, and starting July 1, 2020, exams will be based on the NEC 2020 and the updated ND Wiring Standards.

Also April 1, 2020, the Power Limited Electrician license will be available which will cover power limited work in NEC Special Occupancies from articles 500 – 517. Applications for this license will be available April 1, 2020.

For persons currently doing power limited work, the board's office is working on a vetting process where credit will be given for applicants proving past experience. Keep in mind this is a new license so rolling it out for the first time may not be perfect, but I was assured by the legislature that if there are problems with the licensure process, they would be more than willing to work with us to address these problems during their next legislative session.

We'll be sending out a special newsletter with bullet points of the PLE licensing

and for the current electrical contractors on where they will need inspections, etc.

Again I would like to thank all of you that helped with the past legislative session realizing it took up your time to participate.

The board is also pursuing "promoting" the electrical industry by working with different entities and getting in front of school age students to demonstrate to them what an electrician does. Hopefully this will encourage some of them to eventually get into the trade as we all know the average age of an electrician keeps climbing ever year.

If you have more ideas on areas we can improve and we encourage your input on electrical happenings in ND, please send an email or give me a call as I'd like to visit with you!

Hope you are having a great fall and safe travels!!

- James Schmidt



Ensuring Public Safety Since 1917

Connections

Issue 261
Oct. 2019

Reminder About Water-Damaged Electrical Equipment

In light of the extremely wet weather we had all summer, the North Dakota State Electrical Board (NDSEB) wants all electricians to be aware of the NDSEB Laws, Rules and Wiring Standards of North Dakota articles regarding water damaged electrical equipment.

24.1-06-01-20. Water damaged electrical equipment.

Water-damaged electrical equipment wiring and equipment exposed to water damage shall comply with the following:

1. All breaker panel boards, breakers,

fuses, disconnect switches, controllers, receptacles, switches, light fixtures, and electric heaters that have been submerged or exposed to water damage shall be replaced or all electrical equipment, switchgear, motor control centers, boilers and boiler controls, electric motors, transformers, and other similar equipment such as appliances, water heaters, dishwashers, ovens, and ranges that have been submerged shall be reconditioned by the original manufacturer or by its approved representative or replaced.

2. Electrical wiring may require replacement depending on the type of

wire or cable and what application it was listed for.

3. Splices and terminations shall be checked to make sure they comply with article 110.14, 2017 edition, National Electrical Code.

4. Energized electrical panels that have been submerged need to be de-energized to prevent loss of life and property.

Other recommendations can be found in "Guidelines for Handling Water Damaged Electrical Equipment" published by the National Electrical Manufacturers Association (NEMA). ☺

News & Notes from NDSEB

Job Cost and Inspection Fee Incorrectly Submitted.

Please keep in mind that per North Dakota Standards 24.1-05-01-02, the electrical inspection fee shall be based on the total amount of the electrical contract or total cost to the owner including extras (material and labor). Also, it must include owner supplied materials as per 24.1-05-01-02(2). The electrical inspector will issue a correction report if it is determined that the job cost and inspection fee may be incorrect.

The NDSEB does not get involved with billing practices or whether you collect from the customer, so before you submit your job cost and calculated inspection fee on a wiring certificate, please keep in mind that the job cost must be on your total amount of the electrical contract, not what you collected.

Tampering with Utility Meters.

Reminder - Tampering with utility meters is against the law. Several power companies have reported either

consumers or electricians have cut seals without the consent of the power utility. Remember when it's necessary to cut a meter seal or pull a power meter, you must contact the power utility first.

NDSEB CEU Classes Still Available for Registration.

Register Online at:

<https://www.ndseb.com/continuing-education/ndseb-ceu-classes-registration/>

November, 2019

November 14, 2019 – Williston, ND
November 15, 2019 – Dickinson, ND

December, 2019

December 12, 2019 – Bismarck, ND
December 13, 2019 – Minot, ND

January, 2020

January 9, 2020 – Fargo, ND
January 10, 2020 – Grand Forks, ND

Inside This Issue . . .

- ☺ Reminder About Water-Damaged Equipment
- ☺ News & Notes from NDSEB
- ☺ Safety Corner: Cable Trays
- ☺ A Word from the Director of Inspections
- ☺ Making a Connection: District 5 Inspector Greg Rockstad
- ☺ A Message from the Executive Director

Continued on page 2

Continued from page 1

Apprentice Registration Renewals Coming Soon!

Apprentice electricians must renew their registration every year and the time is approaching for the next renewal. Your apprentice registration will expire on January 31, 2020 (unless you originally registered after November 1, 2019).

Renewal reminder postcards will be mailed out to all registered apprentices the first week of December, 2019. Although the mail-in form will be available at www.ndseb.com, we are encouraging everyone to renew online. It is currently being proposed through our administrative rule process that this

will be a requirement starting with the 2021 renewal, so for those not yet doing it, now is the time to start.

NDSEB Employees' Years of Service.

We want to acknowledge three of our employees who met milestones in continued years of service:

- Janel Redinger - 10 years
- Richard Wolfe - 20 years
- Paula Glass - 20 years

Thank you for your dedication and hard work during your time here and we hope you'll stick around for another milestone!

Active Registration / License Renewal Fees Being Waived.

The NDSEB will be waiving registration and license "renewal" fees for the 2020 renewal period. For those that have kept their registration or license active, and is intending to renew in the upcoming 2020 period, your renewal fee as follows will be waived:

- Apprentice Registration Renewal: \$10.00
- Journeyman License Renewal: \$25.00
- Master License Renewal: \$50.00
- Class B License Renewal: \$40.00 ☺

SAFETY CORNER: Cable Trays

Cable trays are a mechanical support system recognized by the National Electrical Code, with the requirements for installation and use found in Article 392. It is defined as a "unit or assembly of units or sections and associated fittings forming a structural system used to securely fasten or support cables and raceways". Cable trays are a flexible and adaptable system to use for the installation of conductors and cables that allows for future changes and layouts in many different types of facilities, such as when equipment is moved, added, or upgraded by simplifying removal, installation, or relocation of conductors.

Part II of Article 392 provides us with the requirements for installing a cable tray, and contains the majority of the information that makes up the Article. In 392.10 we find the uses permitted, which informs us that a cable tray can be used to support many different types of conductors – from service conductors to communications circuits in a wide range of establishments, not just industrial establishments. When the conductors to be installed in a cable tray are exposed to direct sunlight, the conductors or raceways must be identified as being sunlight resistant, and cable trays and their fittings must be suitable for their intended use.

392.10(A) directs us to Table 392.10(A) as to what wiring methods are allowed to be installed, but be sure to follow the requirements of the specific article related to the method you choose.

For example, although NM cable is permitted to be installed in a cable tray, it cannot be installed in outdoor cable trays as this is a wet location, and Article 334 only allows NM cable to be installed in a dry location. 392.10(B) addresses industrial establishments and states that the wiring methods permitted in 392.10(A) shall be permitted, and also allows for single conductor cables to be used if 1/0 and larger and marked on the surface for use in a cable tray. Also welding cable is permitted under the provisions of Article 630 Part IV, and single conductors used as equipment grounding conductors with a minimum size of 4 AWG and larger.

392.22 has the requirements for calculating the number of conductors that are permitted to be installed in cable trays, and there is quite a bit of information in this section, so it pays to take your time and be sure you are applying the requirements correctly. There are several different types of cable trays available. Be sure to find out which one you will be installing, and also the type of circuits that will be used to make sure you are applying the correct requirements.

392.22(A) breaks down the requirements for the number of multi-conductor cables 2000v or less permitted in cable trays.

(A)(1) covers ladder or ventilated trough trays with any mixture of cables.

(A)(2) covers ladder or ventilated trough cable trays containing multi-conductor control and/or signal cables only.

(A)(3) covers solid bottom cable trays containing any mixture of cables.

(A)(4) covers solid bottom cable trays containing multi-conductor control and/or signal cables only.

(A)(5) covers ventilated channel cable trays containing multi-conductor cables of any type.

(A)(6) covers solid channel cable trays containing multi-conductor cables of any type.

392.22(B) applies to the number of single conductor cables 2000v or less permitted in cable trays.

392.22(C) is applied to type MV and MC cables 2001v and over in cable trays.

Of the violations inspectors find on jobs with cable trays, conductor fill is probably the most common one, and that can be a costly and time-consuming correction to make. Please be sure to review the requirements found in the NEC as they can seem intimidating when you first start looking, but by knowing the type of tray and the type of circuits being installed, you can narrow it down pretty quickly. Just remember, the available area in cable trays get used up pretty quickly, especially when power conductors are installed in the tray. ☺

A Word from the Director of Inspections . . .

NDSEB recently hired a new inspector to help keep up with your inspection needs - Justin Lill from Langdon, ND has joined our team. Lill is covering six counties in the NE part of the state. Please take a look at the District Map on our website for important information. Feel free to call your inspector whenever you have a question or concern and they will be happy to help. NDSEB has 13 full-time inspectors and Grand Forks, Fargo, Minot and Bismarck have their own city inspectors.

In August, State and City Inspectors had their meeting where we discuss concerns and questions received from contractors and consumers. Two big issues that have come up in our discussions, and during our inspections are: **1) NEC 240.87, ARC Energy Reduction** and **2) NEC 230.95 GFPE**. These are both costly and time-

consuming corrections so please read through these articles BEFORE you order your service equipment.

We also discussed a few of the upcoming changes in the 2020 NEC, so I thought I would summarize some of them. There are a few that I am sure we will be having plenty of questions on once we have officially adopted the 2020 NEC:

- 1. Section 110.26(C)(2) Large Equipment.** Revised to require entrance and egress at each end of workspace where the combined ampere ratings of service disconnecting means installed in accordance with 230.71 is 1200 amperes or more.
- 2. Section 210.8 GFCI Protection.** Section 210.8 was revised to clarify the distance requirements for GFCI protection. The word "supply" has

been included to align with 680.22(A). The words "door" and "doorway" have been removed to clarify that a cabinet or other door does not eliminate GFCI protection requirement.

- 3. 210.8(A) GFCI.** All 125-volt through 250-volt receptacles installed in the locations specified in 210.8(A)(1) through (11).
- 4. 210.8(A)(5) GFCI - Dwelling Units Basements.** Finished and unfinished areas of basements.
- 5. Section 210.12(C) AFCI Protection:** Guest rooms, guest suites, and patient sleeping rooms in nursing homes and limited care facilities.
- 6. Section 230.67(A) (in part) Surge Protective Device.** All services in dwelling units shall be provided with a surge protective device (SPD)...(see also NEC 285.7).
- 7. Section 230.71(B) (in part) Two to Six Service Disconnecting Means.** Two to six service disconnects shall be permitted for each service permitted by 230.2. Revision will require the two to six service disconnecting mean to be comprised of separate enclosures with a main disconnect, panelboard(s) with a main disconnect, switchboard with one service disconnect or a service disconnect in switchgear.
- 8. Section 230.85 Emergency Disconnect(s).** New requirement for an emergency disconnect at a readily accessible location outdoors at dwelling units. Markings required to identify this disconnect as EMERGENCY. Markings to comply with 110.21.
- 9. Section 406.9(C) Bathtub and Shower Space.** Receptacles shall not be installed within a zone measured 900mm (3ft) horizontally and 2.5m (8ft) vertically from the top of the bathtub rim or directly over a bathtub or shower stall threshold.

These are just a few of the changes that we can look forward to with the 2020 NEC. Hope you all stay safe and have a great end to 2019 and an even better 2020!

- Doug Grinde

Making A Connection:

District 5 Inspector Greg Rockstad

Greg Rockstad has been an Electrical Inspector for the NDSEB for six years. He previously worked for the City of Minot as an Electrical Inspector and was an electrician at American Crystal Sugar before that.

Originally from East Grand Forks, Minnesota, Rockstad graduated from Fisher Public School in Minnesota and attended Moorhead Area Vocational Technical Institute. He has been married to his "soulmate" Loretta for over four decades and they have one son, Adam, who is married to Paula. Adam and Paula have two children: Crystal and Ryan.

Do you have a favorite memory or experience while working for the NDSEB? *That would be my first encounter with the oil fields. Coming from the east end of the state, I dealt with agriculture so this was impressive.*

Did you have a mentor or person that inspired you? *My fellow inspectors - there is a lot of talent and knowledge in this group of people.*

If you couldn't do your current job, what would you want to do instead? *Retire*

What are your hobbies? *Fishing and golf.*

The best thing about North Dakota is . . . ? *The people and the western section has such beautiful scenery.*

What's your favorite TV show? *Gunsmoke.*

The best movie of all time is . . . ? *A Bronx Tale.*

Who's your favorite superhero? *That would be any veteran. Anybody that would sacrifice time away from family and also life to keep my freedom is my unsung hero and has all my respect and admiration.*

Anything else you want to share? *I have worked for quite a few organizations and this was my most pleasant experience - we have a great working relationship with my fellow inspectors and office staff. ☺*

