

Find us at  
[www.ndseb.com](http://www.ndseb.com)

## A Message From the Executive Director:



**Hello, everyone!**

What a year thus far!! COVID19 shut us down from conducting exams but we're back at it again and we want to thank the applicants for their patience during this time. We started back by conducting exams at our office and later in July we continued conducting exams at a hotel conference room location where we could facilitate more individuals. See our website for details. During this time, we did issue several "journeyman permits" which all have expired August 31st, so if you're one that received this "temporary" journeyman license and haven't tested yet, you should do so.

I've been writing about the power limited electrician in the past few newsletters and I've been getting lots of calls on it. To update you on the progress of this, the board approved the proposed rules and were approved by the Attorney General's office. Next the proposed rules were submitted to the Legislative

Administrative Rules Committee for review and on June 9, 2020, we testified on our proposed rules to the committee. After over an hour of discussion, the committee decided to hold over the NDSEB proposed rules until their September 15th meeting. With further review and discussions, the NDSEB administrative rules were approved on September 15th so the rules go into effect October 1st. The effective date of 2020 NEC and the ND Wiring Standards will be January 1, 2021. There were some compromises agreed upon with the board and other interested parties so be sure to pay attention to those exemptions.

The new PLE license will be rolling out for the first time and while it may not be perfect, I was assured by the legislature that if there are problems with the licensure process, during their next legislative session they would be more than willing to work with us to address these problems.

We sent out a special newsletter early

summer with bullet points describing the PLE licensing and for the current electrical contractors on where they will need inspections etc. If you have questions about any of this give me a call.

Our CEU classes have been a challenge to conduct in certain locations. Some of the venues have either closed or are not hosting gatherings but Scott Halle is working diligently to still have our classes in the 8 cities we typically have them in so please be patient and check our website for updates on this. Keep in mind the actual location and date for that city may change.

Check out our website often for new information: [www.ndseb.com](http://www.ndseb.com).

Contact us by email: [electric@nd.gov](mailto:electric@nd.gov) or regular mail using the return address above.

Hope you enjoy our fall season and be safe out there!!

- James Schmidt

## Understanding Key Requirements of Electrical Service

The electrical service is the nerve center of the electrical system in any building or structure. It is the source of power and provides the point of control for the electrical system installed. In today's article, we will discuss some of the requirements for properly installing an electrical service, but be sure to refer to your copy of the National Electrical Code for all the details necessary for your particular installation, as we simply do not have space for all the details in this article. The information in this article is based on Article 230 of the 2020 edition of the National Electrical Code - this Article is broken down into eight parts, the first seven apply to all services, while Part VIII applies to services over 1000 volts and supplements or modifies the requirements from the first seven.

**Part I** of Article 230 contains the general requirements for electrical services. Here is where the basic rule of "only one service shall supply a building or structure" is found in 230.2, providing a single point to separate the building from the utility quickly and completely. However a single service may not always be practical or in the best interest of safety, so the NEC does offer some options where additional services may be permitted. 230.2(A) recognizes special conditions needed for safety or enhanced reliability such as fire pumps and backup power, (B) makes

allowances for special occupancies, (C) acknowledges that some services are sufficiently large so as to require more than one service to supply the location, and (D) recognizes that different characteristics may permit more than one service. It is important to remember that when a building is supplied by more than one service, 230.2(E) directs you to provide a permanent plaque or directory at each service disconnect location denoting all other service, feeder, or branch circuits feeding that building or structure and the area served by each. Other general requirements include prohibiting service conductors from passing through another building, how to determine if service conductors are considered outside a building, and clearance requirements for service conductors from windows, doors, balconies and similar locations.

**Parts II, III, and IV** are the requirements for service conductors from the service point to the service disconnecting means, each Part relating to a different type of service entrance conductors. Part II outlines the requirements for overhead service conductors - be sure to check 230.24 when installing the overhead service conductors so you provide the minimum clearances above the roof and above grade for safety. The requirements for attaching and supporting overhead service conductors are found in 230.26

through 230.29, and also remember that our ND Laws, Rules, and Wiring Standards requires a perpendicular service mast to be a minimum 2 inch rigid steel conduit or intermediate metal conduit fitted with a storm collar flashing. Part III outlines the requirements for underground service conductors, and Part IV is about service entrance conductors. I recommend everyone refer to Article 100 and take some time to review the definitions of different types of service conductors and other service related terms so that you are correctly applying the appropriate requirements.

**Part V** contains the general requirements for service equipment, and there are some new requirements added in the section. 230.62(C) moved the requirement for barriers from Article 408 which covers switchboards, switchgear, and panelboards, into Article 230, effectively requiring barriers to cover exposed service busbars or terminals in all service equipment.

**Part VI** applies to the service disconnecting means - one requirement is that it be readily accessible and located either outside or inside nearest point of entrance to the building to minimize the length of unfused conductors. We also find the rules for permitting up to six disconnecting means to be considered one service, **this has been changed in the 2020 code** so it is no longer permitted to have up to six circuit breakers in a single

*Continued on page 2*

## Inside This Issue . . .

- Understanding Key Requirements of Electrical Service
- News & Notes from NDSEB
- A Word from the Director of Inspections
- Making a Connection: Inspector Mark Moderow
- A Message from the Executive Director
- Insert: More News & Notes

### NDSEB 2020 ADMINISTRATIVE RULES

### COMPLIMENTARY 2020 LAWS, RULES & WIRING STANDARDS MAILING SOON

The purpose of the new rules and amendments is to adopt the NFPA 70 2020 edition National Electrical Code and NFPA 101 2018 edition Life Safety Code.

Continued from Page 1

enclosure, as these enclosures are very difficult to make electrically safe without having power completely disconnected.

**Part VI** also includes the rules for grouping service disconnects, determining the rating of the disconnect, and what equipment is permitted to be installed ahead of the service disconnect. Another new requirement in the 2020 NEC is 230.85 that mandates a readily accessible outdoor emergency disconnect at all one and two family dwellings, intended to facilitate emergency personnel such as firefighters being able to disconnect power quickly so they can commence lifesaving operations with less risk.

**Part VII** is about service overcurrent protection. 230.90(A) requires that each ungrounded service conductor be protected from overload by a device installed in series with the conductor having a rating or setting not higher than the ampacity of the conductor unless otherwise permitted. This overcurrent protection must be an integral part of the service disconnecting means, or be located immediately adjacent to it, and if fuses are used they must be installed after the service disconnect to facilitate removal and replacement. When installing a 277/480 volt service remember - if it is a solidly grounded wye system of more than 150 volts to ground and the service disconnect is rated 1000 amps or more, ground fault protection of equipment (GFPE) shall be installed. GFPE is for the protection of electrical equipment from damage that can result from a fault to ground that could have current levels lower than what will open the service overcurrent device quickly. It is not intended to provide protection of personnel.

The final piece of Article 230, **Part VIII**, is for services over 1000 volts and informs us to follow all the applicable preceding sections unless Part VIII modifies those requirements, and makes it clear that the included provisions are not to be applied to equipment on the supply side of the service point.

Most electrical equipment ultimately has an electrical service as its source of supply, so regardless of the type of work typically you are involved with it is likely to involve working with or installing a service. Be sure to review Article 230 and brush up on all the requirements needed to safely install or repair the service to ensure complete understanding of the requirements for a safe and long lasting installation as we could not include all details here. ☺

## News & Notes from NDSEB

**CONTINUING EDUCATION CLASSES.** NDSEB CEU classes have resumed and are filling up fast so register early on our website at [www.ndseb.com](http://www.ndseb.com). Masks are preferred. BYOM! ☺

**SCHOLARSHIP OPPORTUNITIES** The board approved two scholarship opportunities for apprentices.

One opportunity is with the North Dakota College of Science - their financial aid office has the forms and information. The student can receive up to \$500 per semester for books and tuition.

The second is for NDSEB-approved related training apprenticeship programs in North Dakota. That too is not to exceed \$500 per student per semester for NDSEB approved apprenticeship programs so talk to your approved provider for details.

**2020 NEC EFFECTIVE JAN. 1, 2021** The Wiring Standards of North Dakota and the 2020 National Electrical Code (NEC) will be effective January 1, 2021. There was one 2020 NEC exemption added to the ND Wiring Standards which is 230.67 Surge Suppression will be optional and not required.

Once published, be sure to read through the new 2020 Laws, Rules and Wiring Standards of North Dakota to collect all the changes to the 2017 codes.

**APPRENTICE REGISTRATION ONLINE RENEWALS COMING SOON** Apprentice electricians must renew their registration every year. Your apprentice registration will expire on January 31, 2021 (unless you originally registered after November 1, 2020).

A postcard reminder will be mailed out to all registered apprentices the first week of December, 2020. Renew your registration at [www.ndseb.com](http://www.ndseb.com). Remember, apprentices must remain registered for your work experience to count towards a Journeyman license.

**ELECTRICAL EXAMS** If you're in need of taking an electrical exam for licensure, a few things to note. Due to COVID19 the testing sites are requiring social distancing and requesting you wear a mask. The exams now will be held Mondays and Tuesdays until further notice which will accommodate up to 20 persons each exam day. If

you're feeling the least bit ill, stay home. We're trying to keep a safe environment for all the test takers.

Beginning January 2021, exams will be on the 2020 NEC & ND Wiring Standards.

Exam dates are on our website. Once your application is approved, please call our office to sign up for a day that fits your schedule.

**GREG ROCKSTAD RETIRES** District 5 Inspector Gregory James Rockstad retires after seven years of continued employment at the North Dakota State Electrical Board. Greg came to work as an inspector for the Board on November 18, 2013 and retired as of July 31, 2020.

Greg will be sorely missed at the inspector's meetings where his no nonsense wit and humor was something all truly enjoyed. We know Greg always got a "bang" out of the state fleet trucks he drove and his knowledge and expertise in the electrical field was a true asset for the Board. We will all miss Greg, but we wish him well with his retirement and will always have a cold Diet Pepsi for him when he stops by to visit! Best wishes Greg and take care!

**ELECTRICAL WIRING CERTIFICATE AUDIT** The N.D. State Electrical Board will be conducting an audit of electrical wiring certificates in start-up status and issued over a year ago (prior to 9/30/19). If applicable, a letter will be mailed to you in October 2020, along with a report of those certificates.

In order to keep our files current, we are asking that you provide a status of each certificate. If you can please review your wiring certificates in advance, and if the jobs are completed, please submit your final paperwork and proper inspection fee.



## A Word from the Director of Inspections . . .

**Welcome** to Fall 2020:

I was recently reading some articles in a couple of 2020 NFPA Journals and there is a section called FIREWATCH, where they talk about different states and the fires they have had, the causes and the cost of the damages. There were a couple of articles that caught my eye and made me think about the NEC in general and some of the upcoming changes in the 2020 NEC and ND State Wiring Standards so I thought I would share just a few examples of what I read:

In Massachusetts an electrical fault caused by an electric reclining chair caused a house fire resulting in \$140,000 damage and one loss of life. In Georgia an electric space heater caught fire causing \$70,000 damage, loss of one life and injury to a second person. In Florida a rechargeable lithium battery from a

vape device caused loss of life and \$20,000 damage. Lastly, in Alabama, a non-grounded freezer cord plugged into a kitchen receptacle in an apartment caused \$175,000 damage and three people lost their lives. Could some or all of these fires and deaths been prevented? Properly installed AFCI breakers, GFCI breakers, fire alarm systems and all the other requirements in the NEC are designed to help provide practical protection for persons and property and to help prevent fires and bodily injury.

One of the 2020 code changes that came to mind while reading these NFPA articles is NEC 230.85 for emergency disconnects. This code really makes sense to me for North Dakota when most rural fire departments and first responders are volunteers and their only options to

shut off power to a structure during a fire and to make it safe for them to enter is to either pull the electrical meter (bad idea!) or wait 2 hours for the power company to be notified and respond but by then it may be too late. The installation of emergency disconnects will allow these volunteers to shut off power, enter a structure and hopefully save a life without risking their own life before a power company could even be notified. In larger cities there are fire departments to respond in a timely manner and city workers to disconnect power to prevent harm to fire fighters and first responders, but in rural North Dakota, we do not have that luxury.

We have all seen some major changes and additions in the NEC in our careers and 2020 NEC is no different, but hopefully we can all agree that these changes, whether you agree with them or not, are there to help protect our property, our families, our children and grandchildren, our friends and our co-workers and do make our homes and businesses a safer place for us to work and live.

Hope you all have a safe and warm Fall season.

- Doug Grinde

## Making A Connection: District 3 Inspector Mark Moderow

Originally from Sheldon, ND, Mark Moderow started work at the NDSEB in January of 2015 and is currently the inspector for District 3, covering Ransom, Richland, Sargent, Steele, & Traill Counties. He attended the ND State School of Science (now NDSCS) in Wahpeton and previously did electrical contracting work in the Fargo/Moorhead area.

Mark's wife of 31 years, Teresa, runs her own business in Fargo. They have a son, Lucas, who is an accountant in Fargo and a recently married daughter, Erika (Karl) who is an occupational therapist in Bismarck.

**What is your favorite part of your job?** *Meeting new people every day.*

**Do you have a favorite memory or experience while working for the NDSEB?** *I was doing an inspection west of Williston and found out the house I was at was actually 1/2 mile into Montana!*

**Did you or do you have a mentor or person that inspired you?** *Bill Beckett (RIP). He managed by letting you run projects your way but was always there for advice and help when I needed it.*

**What are your hobbies?** *Fishing, hunting, and home improvement projects (not sure this is a hobby, but it sure occupies a lot of my time.)*

**What would be your dream vacation?** *Any place in the Caribbean in January and February.*

**What's your favorite TV show?** *College football.*

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

**If you could meet anyone in the world, who would it be and why?** *Thomas Jefferson. A lot of his ideas and inventions are still in place today.*

**Who's your favorite superhero?** *Tom Crawford*

**Anything else you want to share?** *Treat others the way you want to be treated. ☺*



## IN MEMORY OF DON RETTIG

Don Rettig, 72, Mesa, AZ, passed May 11, 2020.

Don was a North Dakota Journeyman Electrician for several years and a past board member for the North Dakota State Electrical Board. Don was appointed by Governor Ed Schafer to the State Electrical Board as the journeyman electrician representative from July 1, 1997 to June 30, 2002.

Our condolences to his wife, Renee, family and friends.

