



MEMO

Subject: Insulation around electrical panels and conductors in residential applications (MN cable and SER) based on the 2017 NEC.

The calculations for de-rating conductors encased in insulation are available in the NEC. Below is a general overview of NEC requirements that pertain to residential installations typical in Teton County. Most electricians working in Teton County are aware of the requirements.

Feeders:

The 2017 NEC allows SER cable to be encased in insulation without reduction in ampacity. SER cable is the grey cable that is often used to feed panels. However, if ran through a hole in a top plate or studs that are insulated, the SER cable must be ran without other cables in the same hole or the ampacity will need to be de-rated.

Feeder conductors ran in MC cable or conduit do not need to be de-rated for encasement in insulation.

NM cable:

NM Cable (Romex) is allowed to be encased in insulation without reduction in ampacity. For MN cable sized AWG 14, 12 or 10, if ran through a hole in a top plate or studs that are insulated, or are ran without maintaining spacing, no more than 9 current carrying conductors may be ran in the hole or without maintaining spacing or the ampacity will need to be de-rated to less than the standard size breaker used on these conductors. Four (4) 14/2, 12/2, or 10/2's is 8 current carrying conductors and no de-rating is required. NM conductor larger than #10 if ran through a hole in a top plate or studs that are insulated, should be ran without other cables in the same hole or the ampacity may need to be de-rated to less than the standard size breaker used on these conductors. Without maintaining spacing is defined by JH Fire/EMS as touching for a length exceeding 24".

There are no requirements for insulation around electrical panel boards or load centers.

Please contact Mike Bressler with any questions.

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