

BULLETIN

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Use of Type NM-B Cable for Wiring of Residential Lighting Fixtures

It is common for residential recessed lighting fixtures to require supply wire insulation rated for at least 90°C. This is because recessed lighting fixtures are designed with a target temperature of 90°C in the junction box for the supply conductors. It should be noted that currently, lighting fixtures rated over 90°C are marked "not for use in dwellings".

Three common questions on the use of Type NM-B Cable for wiring lighting fixtures are commonly asked. The official NEMA position to each follows:

1) Can Type NM-B cable be used with recessed lighting requiring supply wire insulation rated 90°C?

Yes, NM-B cable can be used with these fixtures. The 1984 NEC required the temperature rating of Type NM Cable to be increased from 60°C to 90°C, to take into account the increased use of thermal insulation in dwellings. The 90°C cable is identified as Type NM-B. NM cable manufactured prior to the 1984 NEC is rated at 60°C and is identified as Type NM.

2) What if the dwelling is wired with 60°C rated Type NM cable?

When the dwelling's existing wiring is rated 60°C, install a junction box approximately 18 inches away from the newly installed lighting fixture and then run Type NM-B from the junction box to the fixture.

3) Can NM-B cable be used at the 90°C ampacity?

No, the 90°C ampacity can only be used for conductor derating due to bundling or elevated ambient temperatures provided the final derated ampacity does not exceed that for a 60°C rated conductor. To adjust the ampacity for bundling refer to NEC 310.15(C), and for ambient temperature correction refer to NEC 310.15(B). For the purpose of ampacity calculations, the 2020 National Electrical Code states that the "ampacity shall not exceed that of a 60°C (140°F) rated conductor."

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