



ENGINEERING DEPARTMENT

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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. For the purpose of ampacity calculations, the 2005 National Electrical Code states that the "ampacity applied shall be in accordance with the 60°C (140°F) conductor temperature rating."

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