

Question

Can nonmetallic cables such as Type NM and SE be used in commercial buildings of mixed construction types? For example, the above ground portion of the building may be Type V and the below grade parking garage may be Type IA construction.

Answer:

The use of nonmetallic cables is tied into the type of construction. Ultimately the use of both types of cables is tied into SPS 316.334-(1) Uses Permitted. The general permission is to allow such cables to be used in commercial buildings of Types III, IV or V construction, except as prohibited in NEC 334.12.

Construction types are defined in Chapter 6 of the 2009 International Building Code. Differentiating between construction types is not the objective of this answer. The construction type is chosen by the building designer and validated during the plan review and approval process. Once this process is complete, the NEC requirements can then be applied.

The architect or building designer has several choices. One is to utilize different types of construction for different parts of the building, but lacking a firewall or other recognized separation, be approved for the “worst” type of construction under the building code scheme of construction types. In the case of our example, the entire building would be approved as Type V construction. For buildings undergoing plan review, the type of construction is indicated in the header section of the state plan approval letter. The use of Nonmetallic Cables would be then approved throughout the entire building, subject to the limitations in SPS 334.12.

The building designer has other options. They can provide a firewall, which creates separate “buildings” for building code purposes that may have differing types of construction. In the example above, this would not be an option since a firewall is always a vertical element. However, they can design the building in accordance with the conditions and restrictions in ss. IBC 509.2, 509.3, 509.4 or 509.8 that allow stacked, differing types of construction. This allows them to treat each part of the overall structure as a “separate building”. For buildings that undergo state plan approval, check the plan approval letter. A typical statement in the letter would state:

“IBC 509.2 - The designer has elected to use the design option of this section, which creates separate and distinct buildings for the purposes of area limitations, continuity of fire walls, number of stories, and type of construction when all of the conditions of this section are complied with, including a 3-hour separation between the upper and lower portions.” is evidence of this choice. Or else consult with the building designer, local plan reviewer or local building official.

Buildings designed under IBC 509.2, 509.3, 509.4 or 509.8 must be treated differently with respect to applying the electrical code.

Going back to the example:

The parking garage is Type IA construction and the above ground portion is Type V. The building is designed with a horizontal separation between the two parts of the building in accordance with 509.2. Types NM and SER cables could be utilized throughout the Type V portion of the structure. Such cables are prohibited from being used in the Type II parking garage per SPS 316.334-(1).

Another option may be available to the electrical designer. The 2011 NEC does offer some relief. 2011 NEC Section 334.10(A) (5) is intended to permit the use of nonmetallic cables in buildings of "Type I and II construction where installed within raceways". Since the 2011 NEC has not been adopted in Wisconsin, permission to utilize this national standard would have to be sought under the petition for variance process.

Please see our website for additional information on the petition for variance process or contact the electrical program staff directly.

Website address: <http://dsps.wi.gov/sb/SB-HomePage.html>

Email address: DspsSbElectricTech@wi.gov