

The use of Type TC cable for the interconnection of ductless mini-split air conditioning units

Article 336 of the National Electrical Code covers Power and Control Cable: Type TC, an assembly of two or more insulated conductors with an overall non-metallic jacket. It is listed to UL Standard 1277, Electrical Power and Control Tray Cables with Optional Optical-Fiber Members. Type TC is rated 600-volts, at a temperature of 90°C in dry locations and 75°C in wet locations.

Per Section 336.10 Type TC cable is permitted for use on power, lighting, control, and signal circuits; in cable trays; in raceways; for direct burial, when approved; exposed to sunlight, when approved; in outdoor locations where supported by a messenger; and in cable trays within in Class I Division 2 hazardous (classified) locations in industrial establishments when the conditions of maintenance and supervision assure that only qualified persons will service the installation.

Type TC cable shall not be used where exposed to physical damage. When installed outside of a tray or raceway it requires mechanical protection. When installed outdoors it must be supported by a messenger.

The use of Type TC cable as the interconnecting power and control wiring between the condenser and fan units of a mini-split air conditioner is permitted when the installation meets the minimum Code requirements. If installed exposed, the cable must be approved for wet locations and be sunlight resistant. It must be supported by a messenger and cannot be subject to damage.

Verify the manufacturer's installation instructions on cable protection requirements, as covered by the product listing mark. UL Standard 484 states that "a room air conditioner intended for permanent connection to a wiring system other than metal-clad cable or metal conduit shall be marked to indicate the system or systems for which it is designed. The marking shall be located so that it will be visible when making or inspecting the connections."

Type TC is permitted where the interconnecting cable enters the structure through an exterior wall and immediately terminates at the integral junction box of the indoor unit. Where Type TC cable is to be installed within a building, it must be installed in a cable tray or raceway.

NOTE: A raceway is a complete system of metal or non-metallic enclosed channels designed expressly for holding building wire and cables.