

## Copper Twisted Pair for Below-Grade Conduit

Floor box outlets have become a popular method for distributing data, audio/video and power to multiple locations in large open floor plans. In-floor systems provide convenient access to these services with minimal obstruction.

When deploying floor box outlets on the bottom floor of a building, the outlets and connecting conduit are typically encased in concrete slab on or below grade. In these specific applications, it is imperative to treat the in-floor systems as “wet locations”. The United States National Electrical Code (NEC) and industry organizations, such as BICSI, define in slab and below slab cable paths as wet locations. The NEC 2011 Edition, Article 100, defines “Location, Wet” as follows:

“Installations underground or in concrete slabs or masonry in direct contact with the earth; in locations subject to saturation with water or other liquids, such as vehicle washing areas; and in unprotected locations exposed to weather.”

BICSI’s Telecommunications Distribution Methods Manual (TDMM), 12th Edition, Section 5, Horizontal Pathway Systems states:

“A building’s horizontal pathways must be installed in locations that protect cabling from moisture levels beyond the intended operation range of interior premises cabling. For example, slab-on-grade construction where pathways are installed underground or in concrete slabs in direct contact with soil (e.g., sand and gravel) is considered a wet location. When faced with such design environments, ITS designers should design pathway or cabling systems that are suitable for use in wet locations (e.g., cabling products are often described as industrial cabling products).”

Standard indoor CMR and CMP cables are not suitable for installation in wet locations. Even if the conduit systems are dried, experience has shown that they cannot be trusted to remain dry. In these applications, cables designed for wet locations must be employed. Superior Essex offers Broadband OSP cables in Categories 5, 5e, 6 and 6A that are suitable for wet locations.

Since Broadband OSP cables are not listed for riser or plenum use, it may be necessary to transition to a listed cable between the below grade pathway and the telecommunications room (TR) or telecommunications enclosure (TE). This can be accomplished by installing a consolidation point (CP) for the transition of cable type. Following are some important considerations when implementing a CP. For additional information, refer to ANSI/TIA-568-C.1, or contact Superior Essex Technical Support.

1. Cross-connections should not be used at a CP.
2. There should be no more than one CP within the same horizontal run.
3. CP should be located at least 49 ft (15 m) from the TR or TE. If there is less than 50 ft (15.2 m) of exposure between the below grade pathway and the TR or TE, transitioning to a listed cable may not be necessary. Consult the local Authority Having Jurisdiction (AHJ).

