COPPER TWISTED PAIR FOR BELOW-GRADE CONDUIT

Performance and warrantability of premises copper structured cabling systems can be compromised if the cables are exposed to water. One area of potential exposure to water is a below-grade conduit system (floor boxes, in-floor duct systems, conduit bodies and fittings) if not installed properly or not rated for use in wet environments.

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 duct systems provide convenient access to these services with minimal obstruction. When deploying in-floor systems on the bottom floor of a building, the boxes, conduit bodies and fittings are typically encased in concrete slab on or below grade, a location that may be subjected to intermittent or constant water exposure. BICSI's Telecommunications Distribution Methods Manual (TDMM), 14th Edition, Section 5, Horizontal Pathway Systems states:

> *"A building's horizontal pathways must be installed in locations that protect cabling from the 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, ICT distribution 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)."*

When installing such systems in wet environments, Superior Essex highly recommends the use of cables that are also designed for use in wet environments. Although the pathway systems may be listed for wet locations, communication cables are not required per the NEC to have a wet location listing. However, in such installations they face a higher risk of exposure to moisture due to accidents, improper installation, improper cable selection, or other causes. Cables that are not designed to perform long term in wet environments and fail due to water exposure are not covered under standard or extended warranties. In these applications, cables designed for wet environments provide the greatest level of protection for the cabling network. To address this need, Superior Essex has non-filled fluoropolymer jacketed products (CMP/CMX & CMP/Indoor Outdoor*) as well as gel-filled products (EnduraGain®).

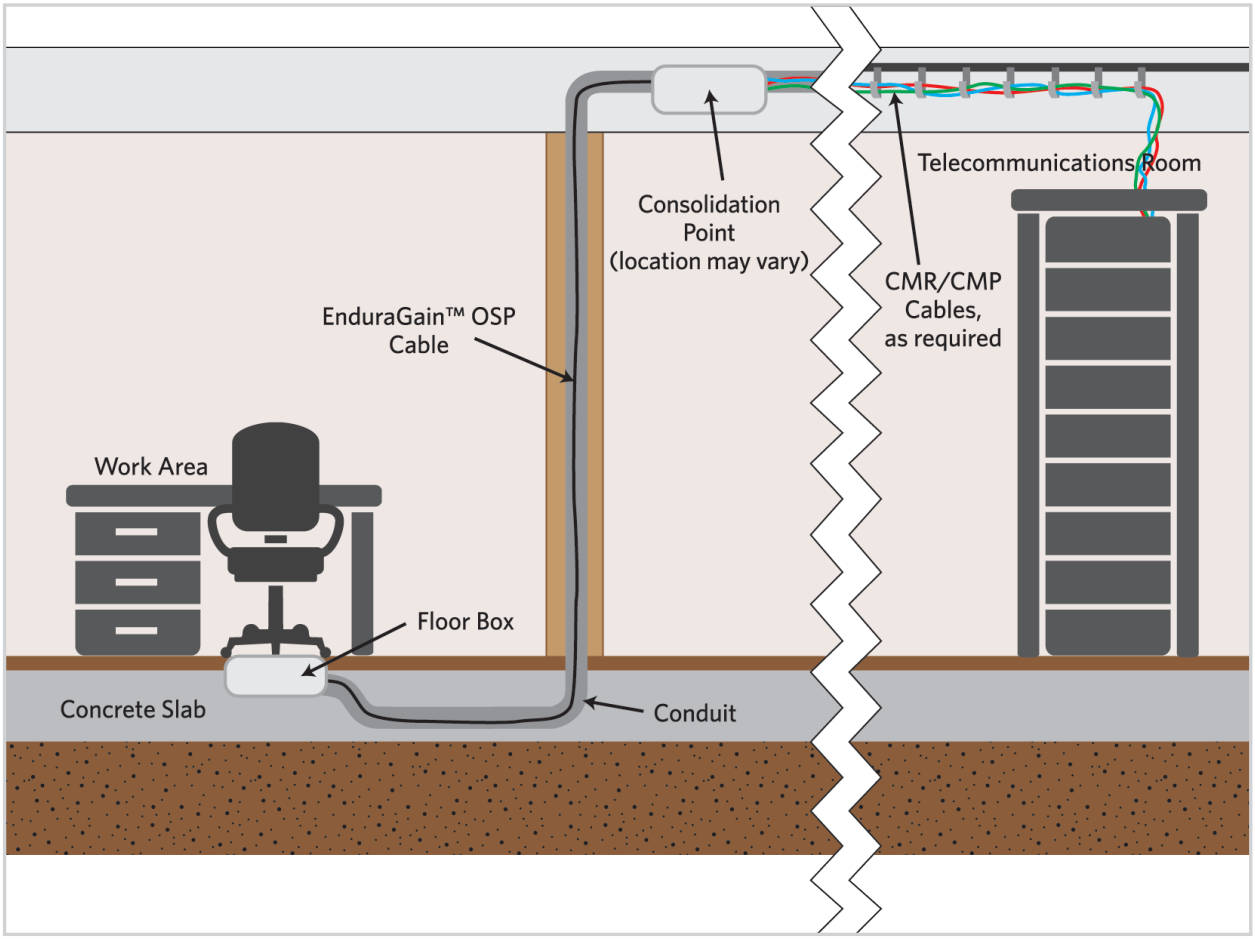
CMP/CMX and CMP/Indoor Outdoor* rated copper cables are not gel-filled but block water through their virtually water impervious fluoropolymer jackets so long as they are installed per the guidance found in TG114 Installation of CMP/CMX & CMP/Indoor Outdoor* Rated Cables in Conduit. *These premises cables are not built with rugged protection for all OSP environments, so their application is limited to those as listed in TG114.

EnduraGain® OSP cables in Categories 5, 5e, 6 and 6A are gel-filled and specifically designed for wet environments. Several of these cables, including EnduraGain® OSP Armored and Shielded versions of our CAT 6 and 6A cables, are offered with a CM/CMX rating and can be installed indoors in non-riser and non-plenum environments. EnduraGain® OSP cables without a CM/CMX rating are not listed for indoor use, and 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-.1-E, 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.



NOTE: Always consult the local Authority Having Jurisdiction (AHJ) before making final cable selection.