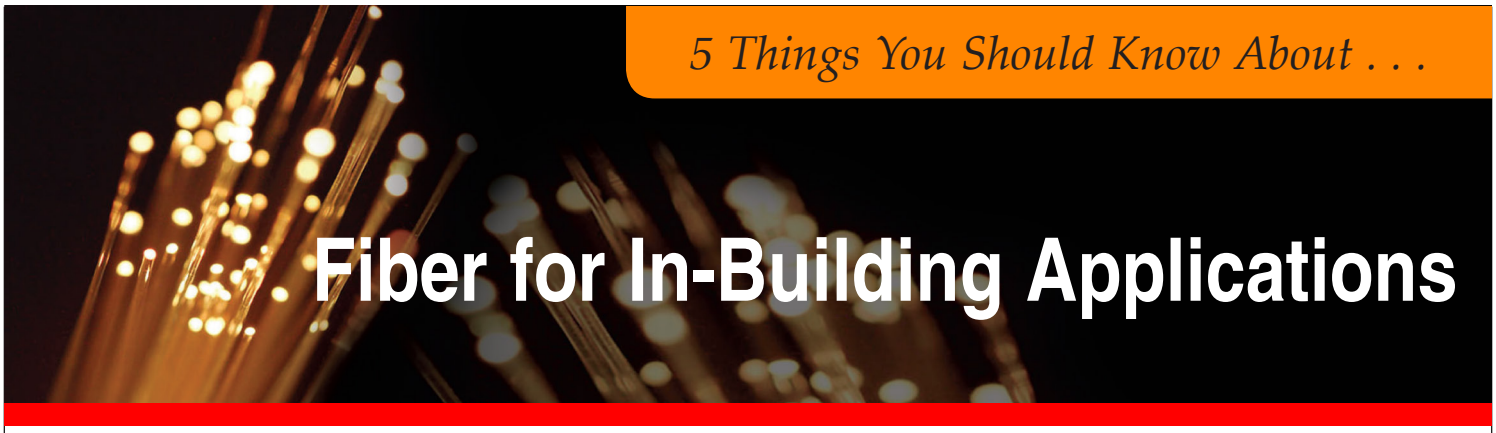

5 Things You Should Know About . . .

Fiber for In-Building Applications

Many network owners are converting their data center and enterprise telecommunication/data communication systems from copper cabling to optical fiber. These applications differ from what is seen in long haul, metropolitan and access deployments since they have shorter overall spans and often use connectors instead of splices. In addition, because of limited deployment space, high-density cables that can accommodate tight bends should also be part of the plan for in-building applications.

Five important considerations for these installations are:

1 Short Application Lengths
Data center and enterprise networks feature a large number of short links. In fact, the average data center link length is less than 30 meters, and more than 90% of the links are typically less than 100 meters long. We recommend bend-insensitive multimode fibers for these links because they provide the lowest-cost solution for the installed links. For longer data center links (over 500 meters for 10 Gb/s and 150 meters for 100 Gb/s), single-mode fibers provide a more cost-effective choice for the passive infrastructure.

2 Macrobend Performance
Optical fiber deployed inside buildings is often routed through pathways that are actually less forgiving than many of those encountered in the outside plant (OSP). Whether it's a passive optical LAN that uses wavelengths from 1270 to 1625 nm or one of the many jumpers and cables containing only a few fibers, tight bends present a challenge that must be met. Fibers with macrobend performance down to 7.5 mm radius, such as OFS' AllWave® *FLEX*+ Fiber, are designed to meet this demand. AllWave *FLEX*+ Fiber meets the stringent ITU-T requirements found in both ITU-T G.652.D and ITU-T G.657.A2.

3 Microbend Performance
Data center cables are often constructed with reduced cable diameters, high-fiber density and other challenging design elements such as tight buffers. One big advantage to using bend-insensitive single-mode fibers in these applications is that improvements in the waveguide that result in better macrobend performance also improve microbend performance. We have tested OFS' AllWave *FLEX*+ Fiber with the various methods described in IEC TR 62221, and our results show a 4X improvement in microbend performance when compared to standard single-mode fibers.

4 Splicing and Connectorization
As already mentioned, data centers contain lots of short links. This fact means that the density of splices and connectors is much higher than what may be found in an OSP network. Excellent fiber geometry attributes such as low-core eccentricity, tight diameter control and other parameters result in lower splice and connector loss. With the very tight power budgets found in these systems (typically 1.5 dB or less maximum connection loss for the link), the excellent geometry of OFS fiber provides installers with a better chance of meeting these stringent power budgets.

5 Full-Spectrum Performance
The bottom line is that the end user wants a reliable connection between the transmitter and receiver. Wavelengths may change over time, so full-spectrum performance is essential to help support the needs of transmission systems for both today and tomorrow. It is important to preserve full-spectrum performance for all links, including those with the smallest bends. The industry developed bend-insensitive G.657.A2-type fibers to meet these stringent needs.

While meeting the requirements for data center and enterprise applications is a tall order for a single-mode optical fiber, OFS designed AllWave *FLEX*+ Fiber with these special challenges in mind. When it comes to choosing the right single-mode fiber for enterprise and data center applications, go with the fiber developed to meet the needs of the application. Go with AllWave *FLEX*+ Fiber.

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