



Focus on MDUs: Watch the Workmanship

By Steven S. Ross ■ *Editor-in-Chief*

Corning's new fault-tolerant fiber – and the associated products due to be announced by Corning next month – bring us closer to the day when fiber networks for multiple dwelling units can be reliably installed without resorting to expensive engineering talent. That greatly reduces deployment time, and cuts the cost somewhat as well. In fact, the day is... now.

But we emphasize the word “reliably.”

One challenge is to train technicians not to cut corners. Only 20 years ago, the cable industry spent enormous amounts of money – on average, about \$1,000 per dwelling unit, the equivalent of about \$1,500 now – to install often-unreliable networks. The industry is paying the price. To add the bandwidth that will allow cable to compete with fiber, enormous amounts of money must be spent on upgrades. Some in the cable industry itself say fiber is their answer as well.

When it comes to inside plant, in fact, the telcos are known – and appreciated for – the reliability of their networks. The “cable guy” is the stuff of late-night TV jokes.

But make no mistake. The same technicians who are installing fiber now, in fact, are the people who used to install coax. In fact, most of those I've talked to in inside-plant skills-upgrade classes say they still do coax work.

After sitting in these classes with many of them, I can attest that they are learning more than simply installation skills. They are learning to install conservatively, and to test what they build.

With that said, many engineers who have reputations for designing and installing great fiber networks – engineers who have samples of the new Corning fiber – praised it highly but also warned that the industry will have to be vigilant to keep from repeating the cable business's mistakes.

MDU Complexity

One issue is that inside-plant installers

are often under enormous time pressures. In new construction, installers must complete their work in an area – and test – before walls are closed and time-consuming finish work can begin. MDU builders, more used to the slapdash standards so common in the cable industry, often do not allow enough time for careful fiber installation.

In older MDUs, especially mid-rise and high-rise buildings, installers are faced with a myriad of variables. Buildings can be framed in wood, steel or concrete – or a mixture of all three. There are almost as many configurations as there are buildings. Local climate and surface water conditions, as well as local building-design customs, affect fiber design choices.

Installers are taught that there are vastly more choices for types of fiber to use in installations than there are types of coax or types of Ethernet cable. They are also taught to defer to technical expertise because of this. The new ITU-T G.657 standard, for instance, defines allowable signal losses and other properties the glass fiber should have when the fiber is bent around a tight radius. But to satisfy all the vendors who participated in its development, the standard specifies two classes of fibers. Class A is very stringent, and specifies many of the other characteristics the fiber should have, aside from bend-insensitivity. Class B covers bend issues, and takes in almost all of the bend-tolerant fibers on the market when it was devised earlier this year.

But G.657.B mechanical standards are looser in many respects than the older G.652.D standard. That's not intuitive. Usually, newer standards (the ones with higher numbers, although that, too, is not always true) are backward-compatible with older ones. That is, they are “better” than the older ones. Adding to confusion, some vendors, for valid technical and commercial reasons or their own, do not work with the ITU (International Telecommunications Union) at all, but tend to label their products as compliant with one standard or another.

In classes, the messages to new technicians are clear: There's always something new coming along. Use preconnectorized fibers or work with a vendor – either a fiber-maker or an engineering design group or a reliable value-added reseller – to bring fiber to a job site that will all work together. But down the road, imagine the local cable-turned-fiber guy coming in “on call” to repair or extend the fiber networks being installed today. Imagine a fiber network installed with disregard to some of the details on bending or kinking fiber, or details of supporting it on vertical and horizontal runs.

Property owners and managers will have to be on their guard to avoid the manifest problems that exist today with coax installations – problems detailed by Henry Pye of JPI in our May issue, page 48. Here's how:

1. Be realistic. Today's well-taught new “fiber-upgraded” technicians will be tempted to train a new generation on the job. Insist on fully trained technicians. It only takes one rogue with the wrong kind of stapling gun to mess up long-term reliability.
2. Insist on qualified help to make sure all the fiber works together. Depend on engineers, VARs and manufacturers to guide you.
3. Insist on similar care for connectors, boxes, ducts, support trays and so forth.
4. Budget the time to do it right.
5. Inspect for long-term reliability – do not rely only on quick transmission tests. Your network may work today, but start breaking down in the future.

In short; don't make the same mistakes you made with cable!

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