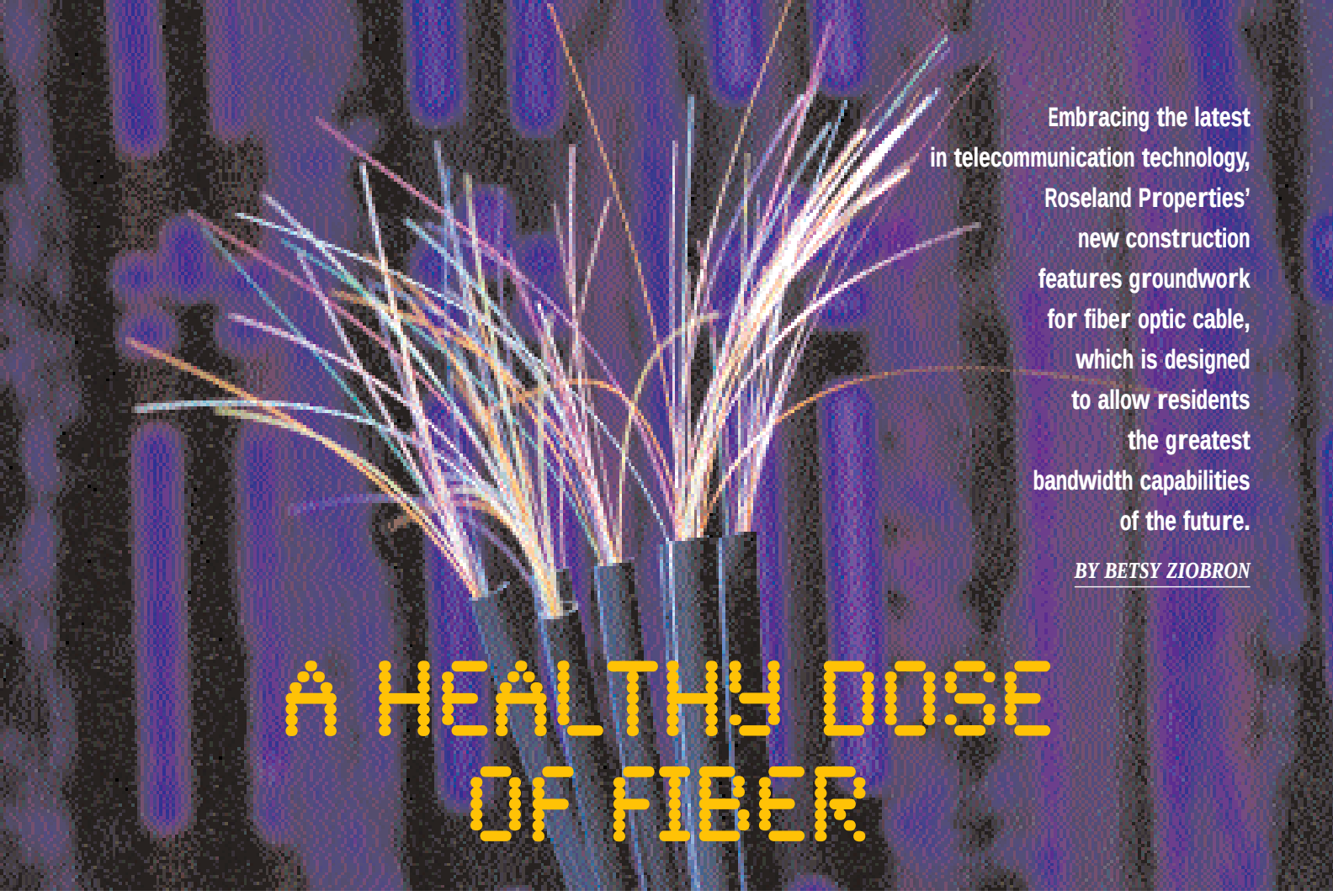
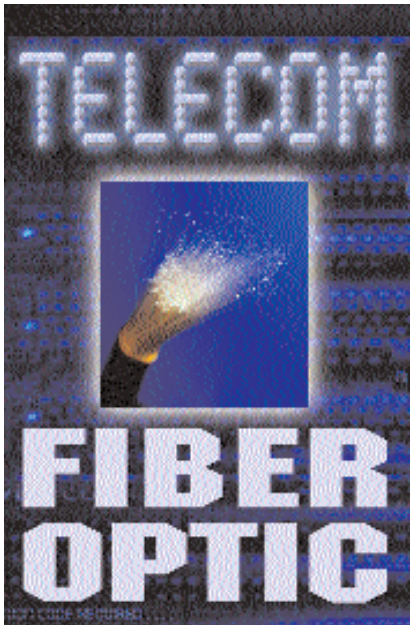


Embracing the latest in telecommunication technology, Roseland Properties' new construction features groundwork for fiber optic cable, which is designed to allow residents the greatest bandwidth capabilities of the future.

BY BETSY ZIOBRON

A HEALTHY DOSE OF FIBER

Sharing large files such as music, video, software and images has become a reality for savvy Internet users. Many of today's apartments include more than one computer, a security system and entertainment devices all connected simultaneously, requiring huge amounts of bandwidth. Bandwidth determines the rate at which information can be sent through a channel, and residents with access to greater bandwidth can send and receive more information in less time.



With essentially infinite bandwidth capacity, optical fiber lines have the ability to transfer large amounts of information over great distances using light pulses. Although construction budgets often can limit spending on information technology, optical fiber has become a highly sought connection option for apartment community owners. Progressive owners are choosing solutions and strategies that will enable them to take advantage of fiber when it becomes prevalent nationwide over the next five to 10 years, thus supporting bandwidth requirements for many decades.

Roseland Property Co., an urban redeveloper of luxury apartments and homes in the Northeast, is one of the first apartment owners to choose a blown optical fiber solution. An advanced infrastructure that accommodates increasing bandwidth demand, a blown optical fiber solution is a way for property owners to easily upgrade to fiber and remain technologically competitive.

"The No. 1 demand today among residents is extremely fast Internet access," said Josh Katz, Manager of Consumer Technology for Roseland. "In response, we have implemented a fairly robust network infrastructure for today while preparing our [communities] for fiber tomorrow." In 2004, Roseland adopted the use of blown fiber as part of their technology standard, and the company plans to implement it at all new properties moving forward.

The concept of blown fiber involves installing a network of empty tubes called Microducts to create pathways to each apartment. Microduct tubes can be used for intra- or inter-building networks, and sections of Microduct are joined together with connectors for simple configuration and installation. Once a local service provider brings fiber to the curb or to the building, optical

fiber can be blown through the tubes to reach all apartments or only those residents requesting it. A two-person crew uses specialized equipment (see photo at right) that delivers compressed air to propel up to 12 optical fibers through each tube.

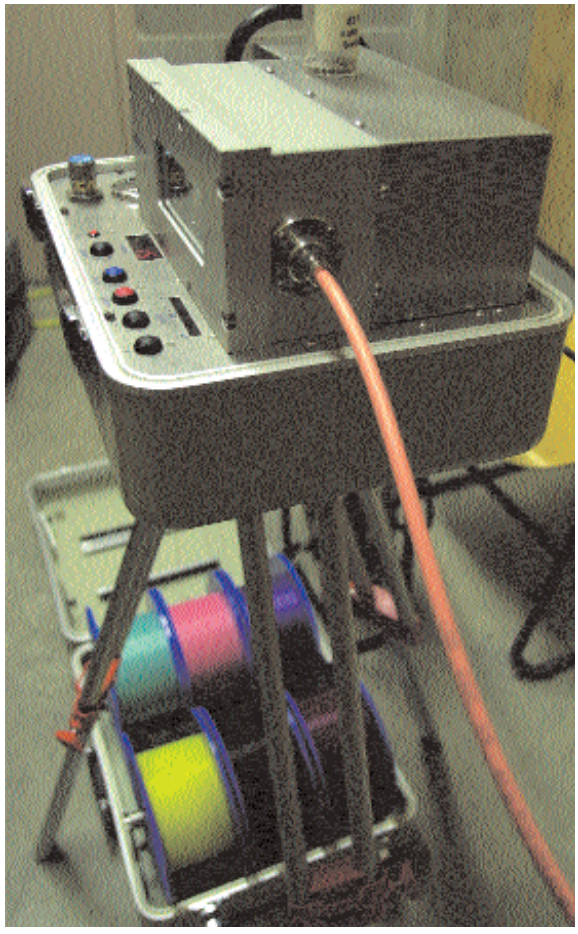
Once the fiber is blown into the apartment, it can be used for the deployment of current and advanced technologies, including voice over Internet protocol, high-definition TV, energy management and Internet-monitored security systems.

Support the Band

Delivered via digital subscriber lines (DSL), coaxial cable, satellite, wireless or fiber, broadband is a transmission medium with enough bandwidth to carry multiple voice, video or data channels simultaneously. A recent study by high-tech market researcher In-Stat/MDR estimated that apartment resident broadband subscribers will reach 90 million by 2008, nearly 10 times the current number.

However, solutions such a DSL and cable might be insufficient to support broadband applications and bandwidth demand in the future. A fiber optic solution currently is the only solution capable of providing the most potential bandwidth needed for advanced applications and increasing bandwidth demand. Fiber is gaining traction, and a study by the Fiber-to-the-Home Council predicts that fiber will reach an estimated 1.4 million subscribers by 2007, up from about 50,000 subscribers in March 2003. Bell phone companies, such as SBC and Verizon, are currently pursuing a fiber strategy, and in October 2004, Verizon announced its goal to connect at least 1 million of its subscribers by year-end and another 2 million in 2005.

"Several national providers are pursuing a fiber strategy, and once they implement it, we will be positioned to respond quickly and economically with a non-disruptive installation that blows fiber to apartments through the previously installed tubes," Katz said. "And if it takes service providers longer than expected to deliver fiber to the building, it just means that we prepared for fiber by putting in a very small, very inexpensive pathway with minimal risk investment."



Specialized blowing equipment (above) delivers compressed air to propel the fibers through each Microduct tube.

A blown fiber system mitigates uncertainty by allowing apartment owners to install empty tubes at the time of construction and add fiber at a later date on demand.

Katz is confident that fiber in the multifamily residence will be commonplace in the next two to four years. "I'm hopeful that with our eye on technology, we can confidently say that there isn't another building a resident can walk into where they will get a faster Internet connection," Katz said.

Avoiding Guesswork

Some developers risk cost, time and guesswork with dark fiber, which is an optical fiber infrastructure put in place for future use. However, there are many types of fiber, ongoing advances in fiber technology and no universal standard for determining what type or how much dark fiber to install. Consequently, dark fiber installed today may not be suitable for some future applications. A blown fiber system mitigates this uncertainty by allowing apartment owners to install empty tubes at the time of construction and add fiber at a later date on demand. It also offers property owners a way to "pay as they grow" by spreading the cost of a fiber infrastructure over time.

"We know we need a way to someday bring fiber to residents, and because implementing dark fiber is all guesswork, there's really no cost-effective equivalent to a blown optical fiber solution," said Orrin Charm, Systems Architect at InfiniSys Inc., a designer of network infrastructures for the apartment industry.

As new apartments or equipment is added to a community, if fiber types and counts change or if accidental damage occurs to the network infrastructure, a blown fiber system can be reconfigured to adapt. Obsolete fiber can be easily blown out of populated tubes and new fiber blown back into empty tubes. The overall small diameter of the tubes allows for easy installation in reduced spaces with equal or greater capacity, which is ideal for both new construction and retrofits. However, with tubes installed at the time of construction, there is no disruption to residents when the fiber is blown into the tubes at a later date.

"The time to plan the communications wiring of properties is not when residents move out to other properties that offer higher-speed Internet," Charm said. "It is far easier and less disruptive to build the necessary pathways and spaces into the design rather than trying to fit them in later." ■

Betsy Ziobron is a freelance technical writer based in Westbrook, Conn. She has written about technology for 10 years, and is a regular contributor to various telecommunications publications. She can be reached at bziobron@comcast.net.