Photo courtesy of Dewberry

Antenna Concealment: The Need for Creative Solutions

CONCEALMENT

Meeting the challenge of developing versatile concealment measures that mimic landscape elements should be explored with a partnership among design professionals, manufacturers and clients.

By Joanne Slaman, R.A.

As a telecommunications design professional, I've participated in many discussions about telecommunications infrastructure at planning and zoning board meetings. Community interest and concerns about the installation of this equipment present an interesting challenge: Members of the public clearly want strong, widespread coverage for cell phones and wireless devices, but they don't want to see it. Unlike equipment and wires for other utilities, which typically crisscross our neighborhoods, the equipment and antennas for wireless base stations continue to be the subject of much scrutiny and debate.

Basic Steps

While the public's pushback has resulted in a broader range of options for concealing this type of infrastructure, I believe there is much more the telecommunications industry can do to develop creative yet cost-effective solutions for concealment and to improve upon the options that have

More and more equipment is needed on-site to meet increasing user demands. At the same time, communities are becoming more discriminating as they seek aesthetically pleasing, sustainable solutions and a homogenous integration of technology into neighborhoods

become standard for many carriers. Thoughtful planning, design and detailing can make a critical difference for even the most basic options.

Towers

Monopines, or tree poles, are frequently used as a means of concealing antennas and equipment. These can be effective, but they are certainly more successful if the tree shape is full and formed, unlike the frequently seen bottle-brush structure, and when used in wooded areas. Too often, faux trees can stand out like sore thumbs and draw negative attention. Flagpoles and unipoles are also used to camouflage antennas, but they can limit the number of antennas to the detriment of service in the area. The standard monopole is another option, but careful consideration should be given to the color of these and similar structures. The poles can be dark in color or simply left in their galvanized silver shade. Consider the basic principles of color and light when making this determination. White reflects about 80 percent of light, and black reflects only about 5 percent. The greater the light reflection, the more the eye perceives. Darker colors reflect less, which makes edges harder to discern and less visible. Black or dark brown may be the better option in some situations.

Concealment Structures

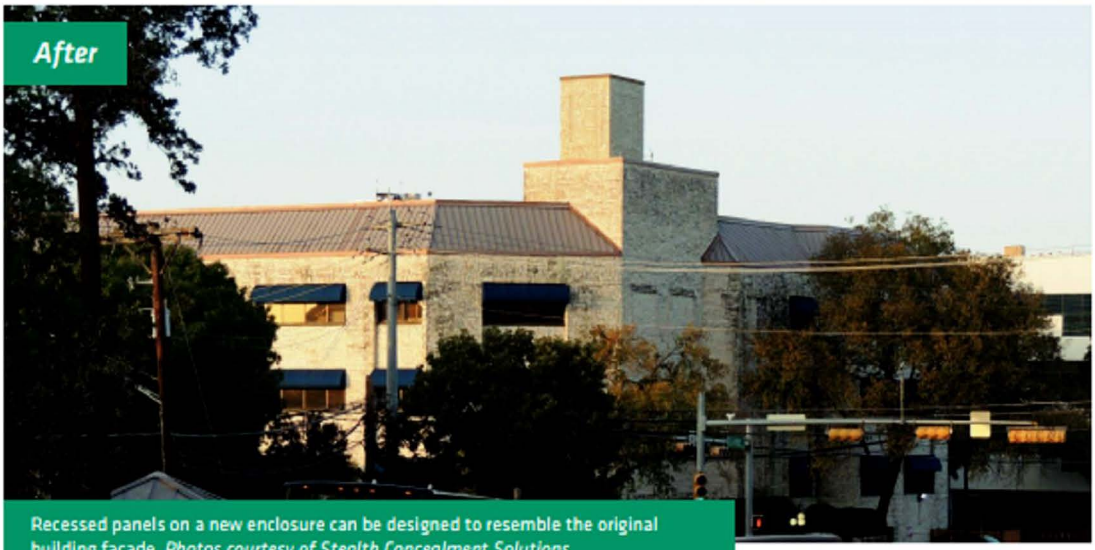
False chimneys have proven to be successful, depending on the quality and what the passerby can see. A false chimney that has a large gap between the enclosure and the building component or one that allows the superstructure to be clearly visible is not as appealing. False penthouses and bulkheads can also be effective. Care should be taken to ensure that adjacent surfaces are matched in pattern and texture. On a brick building, for example, consider painting the antennas in the same tone and color of the darkest brick in the pattern — again following basic principles of color and light.

Hidden in Plain Sight

Church steeples and other existing structures can allow for equipment installation with replacement materials that closely match facades. Although these solutions are often the most successful, they can also be the most challenging. Too often, these enclosures are poorly designed and are constructed with little consideration for long-term aesthetics.

Unfortunately, the fact that so many of these concealment efforts have been poorly carried out will continue to mean more scrutiny and public pessimism as we seek future

A standard option involves mounting antennas and equipment boxes on a light pole. *Photo courtesy of Dewberry*



Recessed panels on a new enclosure can be designed to resemble the original building façade. *Photos courtesy of Stealth Concealment Solutions*

permit application approvals. Our ability to raise not only the quality of concealment measures but also the creativity of approach may help to sway a public that seeks increased coverage. The demand for greater coverage and faster, reliable service, as well as the exponential increase in mobile devices, means fewer easy solutions for network base stations.

More and more equipment is needed on-site to meet increasing user demands. At the same time, communities are becoming more discriminating as they seek aesthetically pleasing, sustainable solutions and a homogenous integration of technology into neighborhoods.

Creative, New Alternatives

I recently visited a rooftop garden at an urban hospital. It was a wonderful little haven in the middle of a busy city. Benches, plants, walking paths and even a small community garden were visible and accessible for patients and visitors, providing a natural setting to view and experience. I noticed adjacent

A church steeple contains antennas while the equipment is screened at the ground level by tall shrubs. *Photo courtesy of Dewberry*

buildings with green roofs — tended garden spaces high above the city. This particular hospital is now considering the installation of a wireless base station. Integrating the technological components within this appealing garden setting will be an important challenge and an opportunity to consider landscape-type concealment measures in the form of small trees and shrubs that can house antennas. These artificial trees are a good alternative to standard paneled boxes while providing durability and accessibility. With green roofs now becoming a common building feature, in part due to LEED standards, the development and specification of versatile concealment measures that mimic landscape elements should be explored. Meeting this challenge requires a strong partnership among design professionals, manufacturers and industry clients. We must work together to develop more options and thoughtful solutions. New perspectives on the old design standards should be considered, along with better ways to provide a reliable yet appealing product.

New perspectives on the old design standards should be considered, along with better ways to provide a reliable yet appealing product.

About the Author:

Joanne Slaman, R.A., is a project manager focused on the telecommunications market. She is based in Dewberry's Parsippany, N.J., office. Visit www.dewberry.com.