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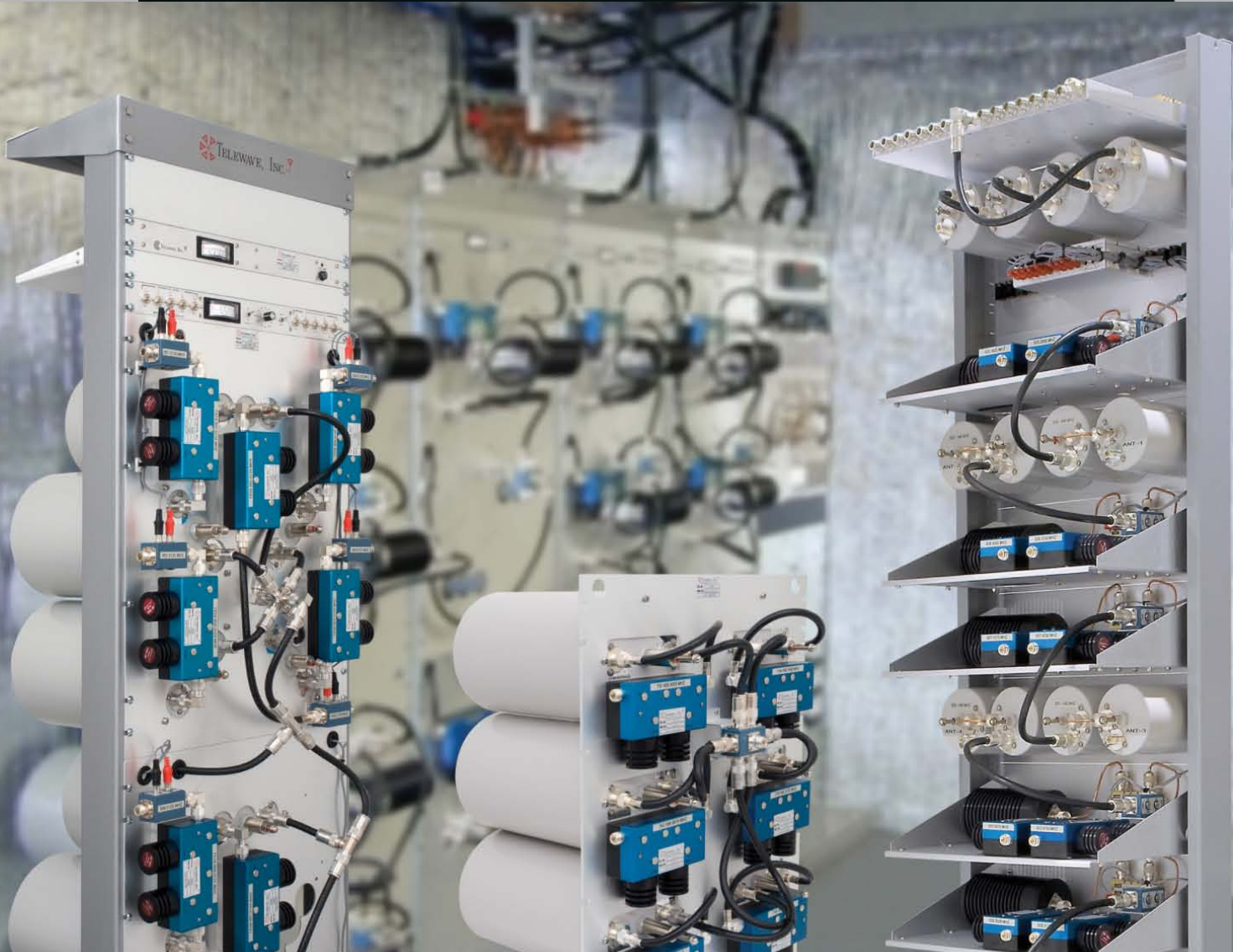
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Tower Technology Summit Preview

- +** Environmental Notification for Towers
- +** Distributed Antenna Systems
- +** Antenna Site Safety Audits
- +** Wireless Collocation by Right
- +** Quick-Guide to Tower Manufacturers

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6



14

Features

14 "DAS All, Folks!"

By Jonathan L. Kramer

18 FCC to Adopt New Environmental Notification Steps for Communications Towers

By Marvin Webster

22 AGL Tower of the Month

In October 2011, AGL invited you to participate in its first competition to place an photo in our April issue. The idea was to publish an April Fool's Day-themed tower of the month and we encouraged unexpected, unusual, and even crazy images. Here's the winner ...

24 Fall Hazards One of OSHA's "Big Three"

By Mark A. Lies II and Elizabeth Leifel Ash

26 How to Create and Preserve Legal Privileges for Environmental and Workplace Safety Audits

By Mark A. Lies II and Elizabeth Leifel Ash



on the cover

The 1,044-foot tower at a site owned and managed by Industrial Communications in North Miami, Fla., caught our attention while driving along Interstate 95 after attending the AGL Regional Conference in Hallendale last November. The tower not only has tenant rooms at its base, it has tenant rooms at elevation.

Photography by Don Bishop

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Departments

4 Editorial Comment — MCTRCA Section 6409

By Don Bishop

6 Publisher's Note

By Richard P. Biby, P.E.

10 Convention Preview — Tower Technology Summit Set for New Orleans

By the AGL Staff

13 Law and Regulation — Law Reduces Local Control of Wireless Collocation

By Michael Higgs

30 Buyers Guide — Quick-Guide to Tower Manufacturers

38 Product Showcase — Site Concealment and Camouflage

42 Advertisers Index

42 Professional Directory

editorial comment

MCTRJCA Section 6409

There's no catchy way to refer to it, yet: the Middle Class Tax Relief and Job Creation Act of 2012 and its Section 6409 provision that, as the wireless infrastructure industry would like to have it, requires state and local governments to approve collocation requests and site upgrades.



Jonathan Kramer, Lisa Murphy and Robert Jystad spoke about it to an audience at the AGL Regional Conference in Las Vegas, as did Russell Fox at AGL's conference in Philadelphia.

Fox pointed out that site developers would take advantage of the legislation and that state and local governments were likely to push back. He said the matter may wind up in court, with either the court or the FCC helping to settle any confusion by more carefully defining how to apply the legislation.

The FCC did just that — more carefully defining how to apply legislation — when it issued its shot clock declaratory ruling. Fox said a recent decision by the U.S. Fifth Circuit Court of Appeals upheld the FCC's role in interpreting legislation, something the City of San Antonio challenged.

Unless the FCC issues definitions early on, lawsuits and court decisions may be required to bring more specific clarity to the effect of Section 6409 on antenna collocation, but site developers have reason to be optimistic that antenna placements may become easier because of it.

Conference season

AGL's season of regional conferences got off to a wonderful start with the conference in Las Vegas on Febru-

By Don Bishop, Executive Editor
dbishop@agl-mag.com

ary 24. Thank you to IWCE for making room available for the AGL conference among the IWCE sessions. Our hope was that IWCE and the AGL conference each would attract attendees who would want to spend some time at the other event, and having them collocated might bring more attendance for both. It seemed to work out that way, and it appears that next year, a similar arrangement will be made.

Another AGL Regional Conference followed quickly in Philadelphia, where the weather was perfect, the attendance was good, and several speakers who were new to the conference series made presentations. Thank you to the Pennsylvania Wireless Association for collaborating with AGL for the Philadelphia conference.

Maybe we'll see you at the next AGL Regional Conference that is coming soon: April 13 in Bethesda, Md., conducted in collaboration with the Maryland/DC Wireless Association.

The month of May brings the Tower Technology Summit in New Orleans, organized by Light Reading with programming produced by AGL. On June 22, the AGL Regional Conference teams up with the MoKan Wireless Association and its trade show in Overland Park, Kan.

Correction

AGL made a mistake involving what it published in the data box with the Tower of the Month in the center spread of the March issue. The information said that the Night Song antenna site in Fort Worth, Texas, was constructed by tower riggers The Antenna Company and Field Tower Services. That information inadvertently was duplicated from the February issue's center spread data box where it was correctly published in connection with the Sutter Buttes – Upper site pictured there.

The construction of the Night Song tower was completed by Horizon Wireless. ■



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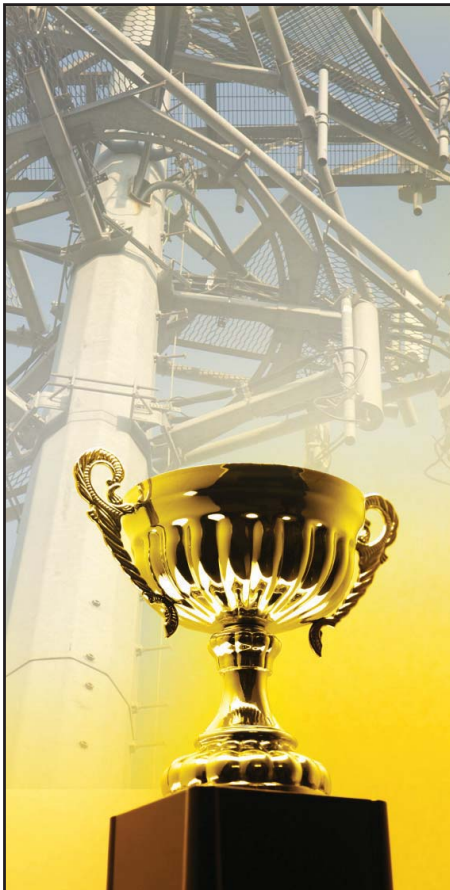
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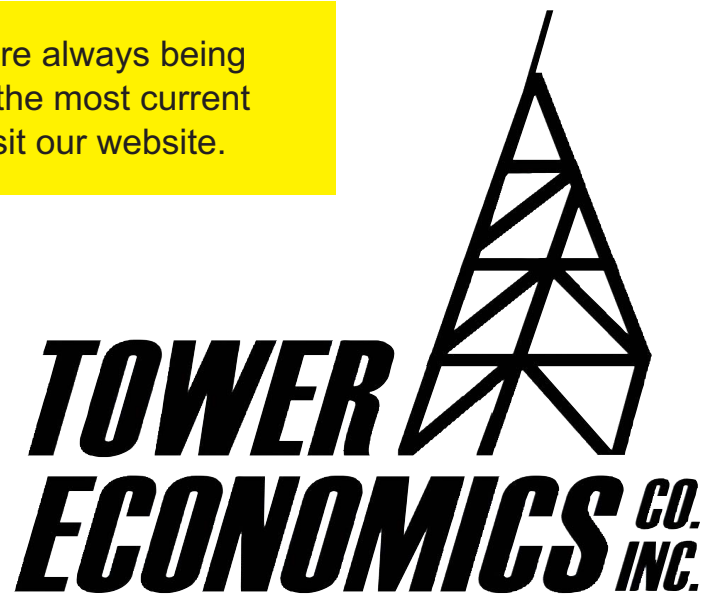
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publisher's note

Pawns in the Spectrum Wars

What a month! Looks like our Light-Squared has gone from being a rock star to being a sinking rock, and Dish Network may be using the ploy of building a network to obtain a better valuation. It is all a bummer.

On the more promising side, the allocation of 700-MHz D Block of radio-frequency spectrum for dedicated public safety communications use is now law. The public safety community received matched spectrum and a few billion dollars to start building a network. So, where are they going to get another \$10 billion or more to actually build a complete network?

We are just pawns in the spectrum wars. Oh, well, as long as the check clears.

With the Middle Class Tax Relief and Job Creation Act of 2012 (what a name for a law that includes a very major spectrum decision), the government not only assigned the 700-MHz D Block to public safety but also included a late holiday gift for carriers. By including the so-called "collocation by right" in the bill, nonmajor modifications to tower structures will no longer be subject to what many believed were unnecessary regulatory procedures. It will be fun to watch the industry and the courts decide what some of the subtle wording really means. Because the legislation lacks much in the way of specific wording, you know someone will push the limits of someone else's idea. We'll be in court sooner or later. Probably sooner if I know how this industry works. Whatever it is, you know we'll be on it.

Get small

Everything is becoming smaller. I've never been to Spain for the Mobile World Congress; however, everything I hear coming out of that Feb. 27–March 1 convention is the buzz about small sites, microsites, etc. There is no doubt that the number of devices out there radiating

energy is going to increase exponentially. Just looking at the numbers is staggering. This is the growth area. Are you ready?

Crown Castle International buying NextG Networks is an interesting move. SBA Communications buying more than 2,300 towers from Mobilitie is another interesting move. It is interesting how companies with technologies or ideas that start out being perceived as a threat to the tower industry become part of the industry in the end. Remember how distributed antenna system (DAS) networks at first appeared to be the enemy that would replace towers? Not a chance, when you do the economics.

Over time, it became clear that DAS would complement traditional towers, it would not replace them.

Lease optimizers were viewed as threats in the same way.

I'm predicting the emergence of a new segment of the industry. We've had tovertop, rooftop and pole-top sites. I'm branding the building-side sites as "peel-'n'-stick" cell sites.

Conference fun

We've been having a great time at the AGL Regional Conferences. So far this year, we've already conducted conferences in Las Vegas and in Philly. Our next is scheduled for April 13 in Bethesda,

Picture of the Month



Turkey vultures taking a sunbath

Photography courtesy of Eric Proulx, Dessau

By Rich Biby, Publisher
rbiby@agl-mag.com

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publisher's note

Md. After that, June 22 in Overland Park, Kan. Check out www.agl-mag.com/events for a full schedule. Come and meet not only the AGL team, but also your local and many national colleagues. Do you help run or are you involved with a state wireless association? Give us a call. We're already looking at the 2013 schedule with an eye toward collaborating with state wireless associations.

Get out of town

Everyone knows of my fascination with rural telecommunications systems. I'm going to be heading down to Orlando, Fla., for the annual Rural Cellular Association meeting next week. It looks like a good organization. For many years, I've wanted to attend its convention. It looks like the time is right.

Our friends at Cricket and T-Mobile are now RCA members. Cricket looking at rural cellular? T-Mobile a member? What is going on here? Do they see roaming partner potential? Whatever

the reason, I'm in favor of anything that stimulates rural communities through telecommunications and the capabilities for jobs and education that come with it. Anything that creates an efficient use of RF spectrum and that helps the companies that rent space from tower owners also causes more space to be rented. You see where I'm going with this?

Most urban towers are about maxed out. A few more lease-up opportunities remain out there, but where is the growth going to really come from? Every tenant that can be added to an existing tower is preferable to having to build a new tower with a single tenant or possibly two tenants, as is often the case in the more rural areas.

Conversely, head right into the belly of the beast — DAS, micro sites, etc.

Other notes

The financial community apparently is becoming interested in the difference represented in the old debate about the

merits of the telecommunications tower standard ANSI/EIA/TIA-222 Revision F versus Revision G. For the most part, the tower owner side of the house is about over it; however, I'm receiving more and more calls from the financial community looking for explanations and discussions of the differences between the two versions of the standard. Consider this fair warning.

UTC's UtiliSite Council: I had the honor of speaking at UtiliSite's Joint Use and Wireless Collocation Summit again this year. I love these folks. Our own Connie Durcsak, formerly of PCIA, is now president and CEO of the Utilities Telecommunications Council, and she attended the UtiliSite event.

Things have really matured in this industry. I've recently had the opportunity to become deeply involved in utility-pole collocation issues. Wow! What "fun." So many issues and topics. I'll share more as I learn about 'em.

Until next month ... ■

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convention preview

Tower Technology Summit Set for New Orleans

By the AGL Staff

Telecommunications site owners and managers are set to hear representatives of venture capital companies, tower operators, merger-and-acquisition specialists and wireless carriers, among others, at the Tower Technology Summit set for Tuesday, May 8, to Thursday, May 10, at the Morial Convention Center in New Orleans.

Because the Summit is collocated with the International CTIA Wireless 2012, convention-goers will have the opportunity to attend CTIA's keynote speeches with no additional admission fee and to visit all exhibits in the exhibition hall, in addition to seeing exhibits in the Tower Technology Summit pavilion. Registration information is available at www.towersummit.com.

The Summit conducts conference sessions on Tuesday and Wednesday, with the Summit pavilion and other exhibits open for visitors on Tuesday through Thursday. AGL produced the conference programming, led by J. Sharpe Smith, the magazine's contributing editor and the editor of the *AGL Bulletin* and *DAS Bulletin* email newsletters.

Tower Owner Roundtable — The conference kicks off at 12:15 p.m. on Tuesday with the "Tower Owner Roundtable" hosted by Don Bishop, AGL's executive editor and associate publisher. Panelists include Ed Farscht, CEO of Diamond Communications; Scott Richards, CEO of RG Towers; Dick Huddleston, managing partner at Keypoint Communications; and David Weisman, president and CEO of InSite Towers. The panelists will explain how they view opportunities in the wireless infrastructure industry and various as-

pects of tower ownership such as site leasing and zoning.

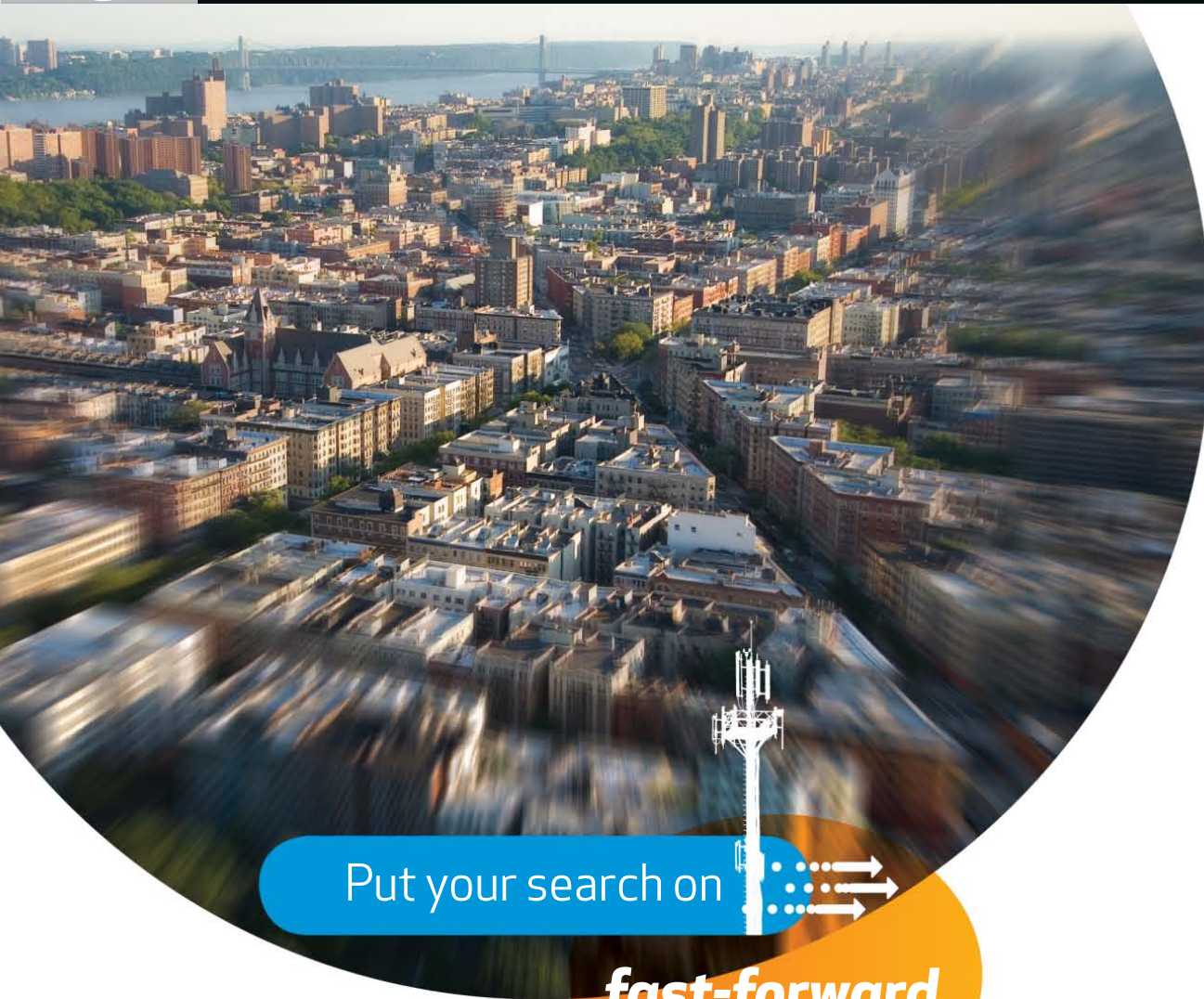
Trends in Mobile Backhaul — Maintaining consistent network performance can be difficult with expenditure constraints, copper T1 capacity limits and limited spectrum. The panelists will explain how new backhaul technology is facilitating the use of small cells. The 1:15 p.m. to 2:15 p.m. session moderator is Jennifer Pigg, president and founder of Battle Green Research, and the panelists are Mark Davis, senior director of product marketing at Exalt Communications, and Steve Loeblich, director of IP networking solutions at Aviat Networks.

Metrocells & Outdoor DAS: The Surge in High-Capacity Solutions in Small Packages — One of the biggest trends in wireless today is the development and deployment of small cell and DAS technology. Demand is growing for shared-infrastructure or neutral host solutions to help expand a wireless network's capacity into critical areas. Additionally, enterprises are seeking to own and manage their own DAS networks. The 2:15 p.m. to 3:15 p.m. session will explain what these opportunities may mean for you. The panel moderator is Stephane Teral, principal analyst of mobile infrastructure and carrier economics at Infonetics. The panelists are Alan Solheim, vice president of corporate development at DragonWave; Ronny A. Haraldsvik, senior vice president of BelAir Networks; Peter Cappiello III, chief operating officer of Future Technologies Venture; Melissa Ashurst, a regional manager for DAS business

development with the Antenna Solutions Group at AT&T Services; and Tana Frazier, a technical sales manager for DAS business development in the Antenna Solutions Group at AT&T Services.

Reducing the Capex & Opex of Your Radio Access Network — Carriers are faced with the competing challenges of adding significant network capacity while reducing costs. This panel details emerging opportunities for capex and opex reductions from multimode technologies, alternate backhaul providers, green power sources and virtual site ownership. The panel will also discuss the impact of equipment consolidation, small cells, and RAN sharing on the tower industry. The 3:30 p.m. to 4:30 p.m. session moderator is Thomas Dolislager, principal of SellTower. The panelists are Gary Croke, senior product marketing manager at Aviat Networks; Robert Schwartz, managing director at Unison Site Management; Peter Bocek, president of PB Telecom; and Rick Pfeifer, business development director at Thermo Bond Buildings.

Regulatory Roundup — It is critical to stay on top of the latest federal regulations governing the tower industry, both to be aware of opportunities that they may offer and to understand new twists and turns in the process of siting a tower. To ensure the safety of your site, it is critical to stay in compliance with FCC rules. The 4:30 p.m. to 5:30 p.m. "Regulatory Roundup" panel will cover the FCC's evolving rules concerning environmental assessments, broadband initiatives, pole attachments, small cells and other pertinent



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Rethink Possible



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convention preview

issues. The panel moderator is William Sill, a partner in the law firm Wilkinson Barker Knauer. Panelists include Paul Besozzi, a partner in the law firm Patton Boggs; Paul Roberts, vice president of compliance at American Tower; and attorney Alan Zublatt.

Wednesday's first session covers risk management and is scheduled for 12:15 p.m. to 1:15 p.m.

Keys to Managing Tower Site Risk

— Tower owners need to be aware of the compliance issues such as lighting, signage and painting. This panel will emphasize the importance of requiring all new tenants to perform structural analyses and have post-construction inspections on all installations. Liability issues will be addressed including controlling who can work on your towers and in your compounds and requiring those contractors to have adequate insurance and training. The panel moderator is Jim Hopkins, senior vice president

of sales at SiteMaster. Panelists include Paul Roberts, vice president of compliance at American Tower; Andrew Rotenstreich, a partner in the law firm Haskell Slaughter Young & Rediker; Allan Tantillo, director of T-Mobile Towers; and David Saul, executive vice president of BB&T – Atlantic Risk Management.

Additional Wednesday sessions include **Show Me the Money! What Are My Towers Worth?**, scheduled for 1:15 p.m. to 2:15 p.m., with panel moderator R. Clayton Funk, managing director at Media Venture Partners and panelists Larry Harris, vice president of mergers and acquisitions at SBA Communications; F. Howard Mandel, president of Peppertree Capital; and William Wade, a principal at Central States Tower.

The session **In-Building Wireless: Tailoring the System to Meet the Enterprises' Needs** is scheduled for 2:15 p.m. to 3:15 p.m. The panel modera-

tor is Tom Engel, managing partner at Milestone Media. The panelists are Gary Williamson of Accrue; Alex Gamota, vice president of DAS real estate at American Tower; and Mike McKay, chief technology officer at RF Connect.

From 3:30 p.m. to 4:30 p.m., Steven Berry, president and CEO of the Rural Wireless Association will serve as moderator for the session **Rural Cell Site Development Drivers & Impediments**. The panelists are Jonathan Walter, senior account executive at GetWireless; Eric Graham, senior vice president of strategic relations at C Spire Wireless; and Mark A. Stachiw, vice chairman, general counsel and secretary at MetroPCS Communications.

For the session **Building a Better Cell Tower** from 4:30 p.m. to 5:30 p.m., the speakers are John Etere, CEO of Site Concealment; Ted Abrams, president of Abrams Wireless; and Steve Krohn, P.E., a senior engineer at Valmont Structures. ■

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law and regulation

Law Reduces Local Control of Wireless Antenna Collocation

By Michael Higgs

In what amounts to a major victory for the wireless siting industry, states and municipalities will no longer be permitted to deny or indefinitely delay requests for collocation or simple facilities changes. On Feb. 22, the president signed into law the Middle Class Tax Relief and Job Creation Act of 2012 that includes a provision granting long-sought relief from onerous zoning and planning commission reviews of simple site modifications — Section 6409, Wireless Facilities Deployment.

Currently, a great many zoning boards and planning commissions see collocation efforts or attempts at site modifications as opportunities to voice their strong opposition to any antenna placements in their jurisdictions. The ability to delay or sink applications for such minor site modifications has been an important arrow in the quiver of the anti-antenna NIMBY crowd.

One of the immediate benefits expected from this legislation is a decrease in deployment time for LTE rollouts.

Changes under the Act

Section 6409 reads, in part, “a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station.” The Act goes on to define an “eligible facilities request” as “any request for modification of an existing wireless tower or base station that involves (A) collocation of new transmission equipment; (B) removal of transmission equipment; or (C) replacement of transmission equipment.”

Michael Fitch, president and CEO

of PCIA – The Wireless Infrastructure Association, whose members include infrastructure providers and professional services firms that own and manage more than 130,000 telecommunications facilities, said, “It is a common-sense measure that will significantly reduce regulatory burdens on infrastructure deployment — saving the industry hundreds of millions of dollars over many years. The ultimate beneficiaries are the nation’s wireless users, who will gain access to better, faster and more ubiquitous service as a result of the accelerated pace of deployment.”

Fitch said that the legislation resulted from a multiyear effort mounted by PCIA with the support of its members. “We worked closely with political leaders to persuade them of the need for timely and efficient deployment of infrastructure for commercial and public safety wireless networks,” he said.

The new legislation is a continuation of federal efforts to promote collocation in the wireless siting industry. From various industry-friendly rules and rulings of the FCC’s implementation of the National Environmental Policy Act (NEPA), to the Nationwide Programmatic Agreement for the Collocation of Wireless Antennas streamlining the Section 106 National Historic Preservation Act review process, the federal authorities have once again sided with the wireless siting industry.

What is not yet known is the reaction of the zoning and planning community, although some amount of push-back is inevitable. One criticism of the language

used in the Act is the lack of definition of the term “wireless tower.” This leaves open to local interpretation exactly what constitutes a “wireless tower.” However, when combined with the FCC shot clock, municipalities will find it increasingly more difficult to stand in the way of standard collocations and site upgrades.

Streamlined federal processes

Additionally, the Act looks to streamline the process for application and grant of rights of way and easements on federal land and buildings. The General Services Administration has been tasked with creating a single form for use across all federal agencies for the application process and implementing a pricing system “that is based on direct cost recovery.”

The GSA has also been tasked, within 60 days of enactment, with creating one or more master contracts governing “the placement of wireless service antenna



Mike Fitch: “We worked closely with political leaders to persuade them of the need for timely and efficient deployment of infrastructure for commercial and public safety wireless networks.”

structures on buildings and other property owned by the federal government.” These changes should serve to make the federal government a much more attractive landlord for the antenna siting industry. ■

Michael Higgs is a principal with Higgs Law Group, Rockville, Md. His email address is mhiggs@higgslawgroup.com.

distributed antenna systems

“DAS All, Folks!”

Legacy cable operators enjoy huge advantages simply unavailable to new DAS entrants — an almost ubiquitous presence, a relatively unnoticed outside plant and pricing flexibility. DAS providers will have to evolve to face cable TV competitors. **By Jonathan L. Kramer**

This year will be remembered as the sea-change year for how wireless carriers provide wireless coverage and capacity services to their customers.

The carriers, struggling to tame the monster they unleashed of “data everything, data everywhere, data every moment” (but hampered by limited bandwidth and signal transmission latency) will fully embrace capacity-increasing, lower-cost alternatives to their efforts to obtain permits for and then to build big steel sites — the sites that take months or years of application preparation and processing, hearings and public outcry, if the sites are approved at all.

The real push will be to place small wireless nodes very close to customers’ homes. The benefits include smaller cell sizes, enhanced frequency reuse leading to increased network capacity, and significantly less latency leading to faster overall throughput speed. Just as important, small nodes will be deployed quickly and cost effectively, shifting the cost of building and maintaining the nodes to third-party non-competing vendors.

Consolidation

The distributed antenna system (DAS) business has seen a major consolidation with the sale of NextG Networks to Crown Castle last year and Crown Castle’s purchase of NewPath Networks not long before. Now the leader of small nodes, Crown Castle is about to run up against its newest competitor, one that is far better equipped and funded to make a run at cleaning

DAS’s clock.

The cable TV industry is poised, promising, and prepared to become the wireless carriers’ solution of choice for providing traditional backhaul services and, more importantly, end-to-end transmission solutions.

Major cable TV operators are beginning the process of deploying Wi-Fi nodes. In Los Angeles, for example, Time Warner Cable is in the process of deploying its first round of Wi-Fi nodes. They’re investing \$15 million in the project. The new nodes are being located about every three to five city blocks.

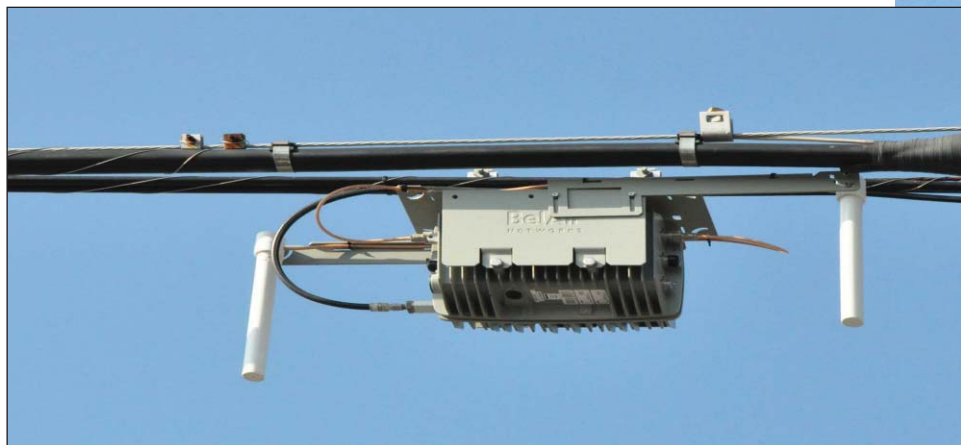
Is it a big deal? Yes, it’s a big deal.

The primary vendor of Wi-Fi nodes to the cable industry is BelAir Networks. Formerly owned in part by the largest

seeking capacity infill with little boxes attached to the cable plant.

The kryptonite that cable TV will use against the DAS industry, however, is not the size of the boxes, it’s a trilogy of backhaul, location and investment.

Let’s look at some telling facts. The cable TV industry has installed more than 1.5 million miles of outside plant. That plant passes more than 65 million homes and businesses. Most of that outside plant is two-way capable. Modern cable plants are fiber-rich, with fiber extending into residential areas. Cable operators routinely offer 100-megabits-per-second data services on their outside plant networks, and some offer GigE (1 gigabit-per-second Ethernet) as well. The cable industry is moving to wireless

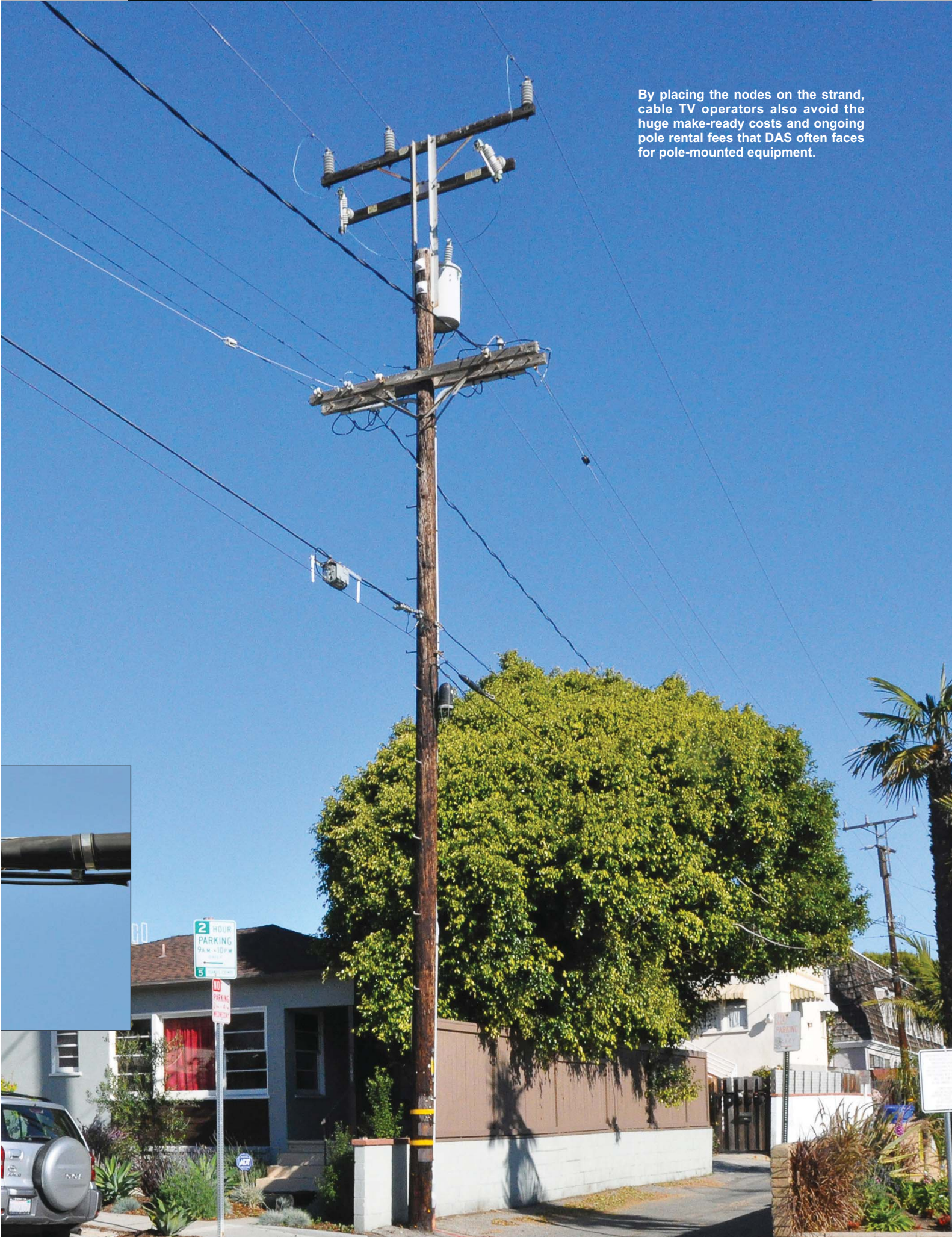


BelAir makes Wi-Fi nodes that are also capable of providing big 3G/4G solutions for wireless carriers seeking capacity infill with little boxes attached to the cable plant.

cable operator (Comcast) and just acquired in whole by Ericsson as part of its “hetnet” offering, BelAir makes Wi-Fi nodes that are also capable of providing big 3G/4G solutions for wireless carriers

service drops to eliminate the portion of a plant that is the most expensive to install and maintain.

As you probably know already, much of that outside plant, and especially the



By placing the nodes on the strand, cable TV operators also avoid the huge make-ready costs and ongoing pole rental fees that DAS often faces for pole-mounted equipment.



distributed antenna systems

fiber portion of the plant, is commercially available to backhaul carrier services from cell sites to the associated mobile telephone switching offices. DAS operators have to install fiber for their own backhaul. Cable TV operators already have made their investment in outside

ing to satellite and online-delivered video services. According to the Associated Press, the cable industry shed nearly 200,000 subscribers in the April-to-June quarter of 2011. Big cable has a burning need to find new sources of stable, plant-generated revenue, and to find them fast.

DAS operators have their own problems, too. They usually have to build their own plant from scratch, which can cost upward of \$100,000 per underground mile and \$15,000 per overhead mile. On top of this, the real number of potential DAS users per network is tiny (as in, count them on one hand). Crown Castle's Dec. 16, 2011, press release touting the NextG acquisition was illuminating because it disclosed that NextG, by far the industry leader, has on average only 1.25 tenants per network.

A basic technology limitation of DAS networks is that to add more tenants on a network typically requires installing more nodes and antennas. That's because sharing DAS nodes among several carriers reduces the available transmission power to each wireless carrier tenant. The power limitation does not apply in a linear fashion to cable TV, which can, in a matter of hours, place wireless nodes adjacent to any available pole and in pedestals, too. By placing the nodes on the strand, cable TV operators also avoid the huge make-ready costs and ongoing pole rental fees that DAS often faces for pole-mounted equipment.

Legacy cable operators already enjoy several other huge advantages simply unavailable to new DAS entrants. One is that cable TV is already in virtually every backyard of the most valuable pops — those at home. [Pop: short for "population" used as jargon to mean a person in a service coverage area.] Because the cable TV plant has been there for decades, the civilians

don't notice it. Those same civilians are far more likely to notice when DAS comes to town, and they sometimes have more than a few words to say about and against it. Another is that cable TV has greater pricing flexibility (and probably lower up-front capital reimbursement requirements) because the cable plant is already in place and already throwing off the multiple cash flows mentioned.

NIMBY reaction

How do you think the NIMBYs will react when they learn that those innocuous little Wi-Fi nodes springing up on the strand may or do also emit RF for the big wireless carriers, and those nodes are *already* literally in their backyards? My suspicion is that the NIMBY reactions will not, ah, be positive.

Here's another interesting question: How will the local government officials react when they learn that their cable operator franchisee has placed 3G/4G wireless nodes in residential backyards exactly where they might otherwise be heavily regulated (or outright prohibited) by a local wireless facilities ordinance, and they did so without benefit of public hearings or permits? I suspect that more than a few government officials will believe they've been snookered. Of course, governments might respond by saying that tiny cable TV wireless nodes are far less intrusive compared with larger DAS nodes and the street-scarring that may result from the installation of DAS fiber. We'll see.

With all this, do I predict the demise of traditional DAS?

Of course not.

DAS will continue in its segment, including its use in commercial centers, events locations and large venues. Certainly, DAS will continue to provide in-community services for its wireless customers. But DAS providers will have to evolve to face up to their new, hungry and economically advantaged cable TV competitors. ■

Jonathan L. Kramer is a radio frequency engineer and wireless siting advisor working primarily on behalf of local governments at Kramer.Firm. He also is an attorney and is the principal of Kramer Telecom Law Firm. His website is www.telecomlawfirm.com.



Cable TV is in virtually every backyard of the most valuable pops — those at home.

plant, and they have multiple sources of revenue to support that plant (cable TV subscribers, high-speed Internet users, cable telephony customers and commercial carrier service customers).

The problem facing the cable TV industry is that more and more of their entertainment video customers are mov-

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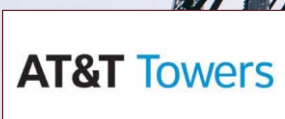
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regulation — migratory birds

FCC to Adopt New Environmental Notification Steps For Communications Towers

Towers most likely to draw requests for further environmental review are taller towers, towers equipped with guy wires and towers with steady-burning lights, especially in coastal areas, near large lakes, along ridgelines, near large rivers and wetlands, in bird staging areas, and in or near North American Flyway routes.

By Marvin Webster

Environmental groups have long held that the Federal Communications Commission unlawfully kills migratory birds when birds die in collisions with FCC-licensed towers. These groups believe that current FCC environmental rules do not comply with the requirements of the National Environmental Policy Act (NEPA) and the Migratory Bird Treaty Act (MBTA).

In 2002, environmental groups filed *The Gulf Petition* asking the FCC to: 1) provide an opportunity for interested parties to comment on all antenna structure registration (ASR) applications; 2) prepare an environmental impact statement (EIS) analyzing the effects of towers on migratory birds; 3) consult with the U.S. Fish and Wildlife Service (FWS) with respect to the effect that the FCC's ASR decisions may have on threatened

and endangered species; and 4) take action to reduce effects on migratory birds protected under the MBTA. In 2006, the FCC dismissed in part and denied in part *The Gulf Petition*. The FCC also deferred

the petitioners' request that it take action to reduce effects on migratory birds protected under the MBTA. The deferral was based on the rationale that proceedings to determine the level of effect on bird populations protected under MBTA were already under way and that the requested action would depend on the outcome of those proceedings. Unhappy with the FCC's action on *The Gulf Petition* environmental groups subsequently filed suit. In 2008, the U.S. Court of Appeals for the District of Columbia Circuit determined in *American Bird Conservancy, Inc. v. FCC* that the FCC had not adequately evaluated the effects of its existing ASR program on threatened and endangered species and migratory birds. The decision required that the FCC provide notice of pending ASR applications, including an opportunity for public involvement in the agency's NEPA procedures under the ASR program. The court decision also required the FCC to prepare a programmatic environmental assessment (PEA) as a first step to determining whether a more comprehensive EIS would be required.

In the draft PEA dated Aug. 26, 2011, the FCC found that "the anticipated

annual bird mortality from existing and future communications towers under any alternative is not significant at the national level, whether considered as a separate, direct impact or as part of a cumulative analysis." In summary, the draft PEA concludes a finding of no significant impact (FONSI) to migratory birds at the national level. FWS officials and environmental groups have openly criticized the draft PEA as "fundamentally flawed." However, experts agree that the existing scientific data is insufficient to produce the type of species-level analysis that critics of the draft PEA desire. Furthermore, the wireless industry broadly asserts that studies relied upon by critics of the draft PEA are not sufficient to support a conclusion of significant migratory bird impacts at the species level. Release of the final PEA is pending FCC review of comments that it received pertaining to the draft PEA. The FCC expects to issue the final PEA in the first quarter of 2012.

New notification procedures

To comply with the court order and as an interim measure to address potential effects on migratory birds, on Dec. 9, 2011, the FCC released its procedural

The draft PEA concludes a finding of no significant impact (FONSI) to migratory birds at the national level.

measures toward implementing environmental notification steps for communications towers. The new procedures would require a pre-application, preconstruction notification process to provide members of the public an opportunity to comment on the environmental effects of proposed antenna structures for which an ASR application is filed. The new procedures would also require filing an environmental assessment (EA) for proposed towers over 450 feet in height.

Effective date

The FCC has projected that the new notification rules would become effective around April 2012. The rules would not be retroactive. Therefore, ASR applications that are pending on the effective date of the rules would not be required to complete the environmental notification process unless the tower configuration is changed after notification but prior to grant of an ASR application. In this case, the rules would require a new notification only if the change would have required notification in the context of an application for replacement or modification of an existing tower. However, the rules would require the applicant to provide a new notification for any increase to the proposed tower height, even if it does not constitute a “substantial increase in size” as defined in the FCC’s Collocation Agreement effective March 16, 2001.

Summary of requirements

The notification procedures would require:

- An environmental assessment (EA) for any proposed tower over 450 feet in height
- Notices requesting public comment for any tower that requires filing an ASR application
- Notices requesting public comment for any tower that is registered by filing an ASR application as a vehicle for filing an EA
- Notices for any tower that requires filing an ASR application where the lighting of an existing tower is to be changed to a less preferred lighting style (see lighting discussion elsewhere in this article)



regulation — migratory birds

- Notices for any tower that requires filing an ASR application because there is a substantial increase in size vertically or more than 30 feet horizontally beyond the existing tower site

The notification procedures would not require notice for towers for which no ASR application is filed and would not apply to height reductions, dismantlement or ASR administrative changes, such as ownership changes or contact information changes.

Public comment process

An ASR applicant would be required to provide notice at the local and national levels. The local notice would be accomplished by the applicant placing a public notice in a newspaper with local general circulation. This notice can be combined with the notice that is already required for purposes of compliance with the FCC's implementation of the

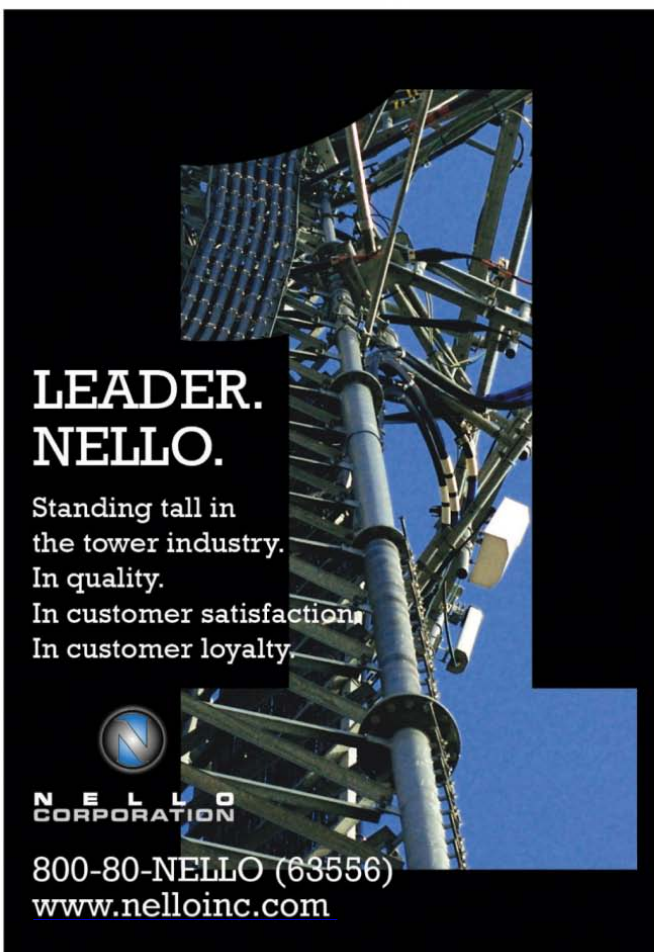
Nationwide Programmatic Agreement for Review under the National Historic Preservation Act (NHPA) so that a single notice containing the required information could serve the dual purposes. The national notice would be filed electronically with the FCC by the applicant, and the FCC would post the notice at the FCC website. An interested member of the public reviewing either notice who believes that a proposed tower may have a significant effect on the environment would then submit a request for further environmental review to the FCC.

The procedures would not require a new notification for a tower replacement, tower modification or collocation unless such an undertaking would require an undesirable lighting change or would result in a substantial increase in size as defined in the FCC's Collocation Agreement effective March 16, 2001. Generally, a substantial increase in size is defined as more than a 10 percent or more than a 20-foot (antenna separation) increase in

height, or excavation outside the existing owned or leased ground space surrounding a tower site, including existing easements. However, for purposes of the new notification procedures, expansion of the tower site by as much as 30 feet in any direction would be allowed without filing a new notice.

Lighting changes

The FCC anticipates a three-tiered system that ranks lighting styles from "most preferred" to "least preferred," depending on whether they employ: 1) no lights, 2) no red steady lights, or 3) red steady lights. The environmental notification process would be required where the lighting is changed to a less-preferred lighting style. Currently, all tower lighting must be consistent with the applicable version of the Federal Aviation Administration (FAA) Advisory Circular AC 70/7460. The FAA is considering revising its lighting circular to allow lighting schemes that use red



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Possible delays

The request for further environmental review by an interested party must be received by the FCC within 30 days after the national notice date, which must coincide with or come after the local notice. Ideally, both notices would occur on or close to the same calendar day. The 30-day comment period will, in most cases, run concurrently with review/comment periods under other NEPA items, such as tribal, historical and environmental agency reviews and consultations. A request for further environmental review by an interested party must be received within this 30-day period and must contain a supported statement explaining the basis for belief that the proposed tower may have a significant effect on the environment and thereby require further environmental review.

The FCC believes that the new notice procedures will not ordinarily cause delays unless there is a particularly clear showing that a tower under 450 feet in height may have an environmental effect. That said, environmental interests have fought long and hard for an opportunity to comment on FCC actions relative to tower siting and effects on migratory birds. Therefore, it is logical to believe that the notices, particularly national notices posted on the FCC's website, will be closely watched by environmental groups and similarly interested parties.

Towers most likely to draw requests

for further environmental review are taller towers, towers equipped with guy wires and towers with steady-burning lights. When location is factored, towers in coastal areas, near large lakes, along ridgelines, near large rivers and wetlands, in bird staging areas, and in or near North American Flyway routes are likely to draw the most requests for further environmental processing and thereby result in delays.

Where an adverse effect may result, the applicant must consider avoidance and minimization measures such as reducing tower height, eliminating the use of guy wires, eliminating tower lighting, and down-shielding ground lighting where feasible. Such concessions may eliminate the need for an EA or may allow the FCC to grant an EA with a FONSI. As a general rule, when filing an EA where the FCC grants a FONSI, a typical 90-day NEPA process should only extend by 50 to 60 days. However, when mitigation must be negotiated to achieve a FONSI, the entire NEPA/EA process may take upward of 180 days. In any case where an EA is required, the applicant must present an analysis of alternative sites and designs that were considered and present the rationale for why the chosen site and design are preferred. ■

Marvin Webster is principal scientist at Environmental Corporation of America, an environmental and cultural resources consulting firm specializing in environmental, NEPA and NHPA regulatory permitting for wireless facilities and other federal projects. His email address is marvin.webster@eca-usa.com.

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Fall Hazards One of OSHA's "Big Three"

OSHA is continuing to crack down on employers who violate fall protection requirements. **By Mark A. Lies II and Elizabeth Leifel Ash**

In 2010, the Bureau of Labor Statistics (BLS) reported that fatal work injuries involving falls decreased 2 percent in 2010 (from 645 in 2009 to 635 in 2010), although each one of these incidents is a human tragedy. Fortunately, since 2007, fatal falls in the private construction industry have decreased by 42 percent. Despite this decrease in injuries, OSHA's fall protection standards continue to be among the leading bases for citations against employers. In 2011, in fact, OSHA's construction fall protection and related scaffolding standards were the top two most frequently cited standards.

Fall protection requirements are located in multiple places throughout OSHA's standards, particularly for general industry (Part 1910). The application or potential application of several different standards can make it difficult for employers to determine their fall protection obligations. The following information outlines the various OSHA standards that contain fall protection requirements and recommends proactive measures for employers to identify and prevent fall hazards.

Legal framework

Fall protection requirements apply in a large variety of situations, including on rooftops (with or without a pitch), working on top of large tanks or other equipment, working on top of tractor trailers, and using fixed or portable stairways. The general term "fall protection" involves more than just preventing personnel from falling, it also includes preventing tools and other equipment from falling from elevated surfaces onto employees walking or working below.

Under OSHA's General Industry

standards (Part 1910), the following specific code sections contain fall protection requirements:

- 1910.23, guarding floor and wall openings and holes
- 1910.66, powered platforms for building maintenance
- Appendix A, guidelines (advisory)
- Appendix C, personal fall arrest system (Section I mandatory; sections II and III, not mandatory)
- 1910.67, vehicle-mounted elevating and rotating work platforms (aerial lifts)
- 1910.132, general requirements related to personal protective equipment
- 1910.268, telecommunications
- 1910.269, electric power generation, transmission and distribution

In general, OSHA requires some form of fall protection equipment for any walking or working surface that is elevated four feet or more. Such fall protection equipment generally refers to guardrails (including mid-rails and toe boards) or other fixed barriers that physically prevent an employee from falling. Fall protection can also refer to personal fall arrest systems such as harnesses and lanyards that will stop an employee from falling more than a specified distance.

Section 1910.132 places a general obligation on employers to identify hazards in the workplace that may require personal protective equipment. Personal fall arrest systems are considered personal protective equipment; therefore, employers are required to evaluate the workplace to identify potential fall hazards and to

provide and require the use of appropriate protective equipment to protect employees from those hazards. This regulation also requires employers to certify that this assessment has been done and that the fall protection equipment has been provided.

OSHA's construction standards (Part 1926) contain more consolidated fall protection requirements. For example, Section 1926.501 requires employers to provide fall protection equipment for any employee walking or working more than 6 feet above the lower level.

Whether OSHA's general industry or construction standards apply depends on the type of activities employees are engaged in. The lines between general industry and construction activities often blur in industries in which employees perform some activities that fall within the "construction" category and some activities that fall within "general industry" categories, such as the outdoor advertising (billboard) industry, and building inspectors who enter construction areas to conduct inspections. Thus, careful scrutiny of which category of standards applies is necessary for any employer to determine its obligations with respect to fall protection.

Recent developments

OSHA continues to aggressively enforce fall protection requirements through issuing citations to employers who violate any one or a combination of these standards. For example, OSHA recently issued a roofing company in Massachusetts 10 "Serious" citations related to employees working on a ladder jack scaffold atop the roof of a building in Boston. The citations amounted to \$42,000 in civil penalties.

Similarly, OSHA has recently cited multiple employers around the country in connection with tragic falls through building skylights. Employees who are not in the roofing industry, but who venture onto a roof to check HVAC systems or make other repairs to the roofing system, may not be as aware of fall hazards, particularly where there are openings in the roof surface such as skylights or vents. In February 2011, OSHA cited Ryder Transportation Services and its outside electrical contractor for violating the general industry standard, 29 CFR §1910.23(a)(4), after an electrician died on Ryder's premises. In 2006, Ryder designated the rooftop of its Doraville, Ga., facility as a restricted area, forbidding access to Ryder employees. This demarcation served as an alternative measure ensuring compliance with standing OSHA skylight regulations because the rooftop skylights had neither a protective screen nor a fixed standard railing on all exposed sides. Furthermore, the skylights' design blended in with the surrounding tin roof, camouflaging a perilous 25.8-foot drop to the ground. In order to repair ventilation fans, however, an outside electrician was granted access to the rooftop without being made aware of the skylight hazards. Sadly, the electrician fell to his death after a skylight collapsed under his weight.

In addition to aggressive enforcement, OSHA has also proposed extensive revisions to the general-industry category of walking and working surfaces regulations. Although OSHA first proposed these revisions in the 1990s, OSHA reopened the rulemaking docket in 2010 and held multiple public hearings in 2011 in an effort to move forward with the revisions. OSHA has slated October 2012 as a goal for publishing a final rule revising the walking and working surfaces standard.

Conclusion and recommendations

There is no question that under Dr. David Michaels, OSHA's administrator and the assistant secretary of labor for occupational safety and health, OSHA continues to crack down on employers who violate fall protection requirements. Employers should be aware of the po-

tential liability associated with allowing employees to work at elevated heights and should take all reasonable measures to ensure that employees are protected while working on elevated surfaces. Along these lines, employers should develop a strategy, including:

- Employers should evaluate the workplace to identify elevated areas that may require guardrails or other protective equipment.
- Employers should develop written fall protection work rules that cover any situation that involves employees walking or working at heights, including using mobile equipment like manlifts and mobile platforms.
- Employers should ensure that employees are trained to recognize potential fall hazards in the workplace and to notify management of any unprotected walking/working surfaces that are elevated greater than 4 feet.
- Employers should ensure that

whenever a personal fall arrest system is required, employees are trained to inspect the equipment for defects before each use, and to store and maintain the equipment properly to prevent damage.

- Employers should train supervisors to administer disciplinary action against employees who are working at heights without required fall protection equipment.
- Whenever an outside contractor is brought on site, the host employer should seek the contractor's assurance that employees are provided with the required fall protection equipment. Otherwise, the host employer may face OSHA liability under the multi-employer worksite doctrine. ■

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How to Create and Preserve Legal Privileges for Environmental and Workplace Safety Audits

Plan for possible Occupational, Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) inspections in a way that protects attorney-client privilege to reduce exposure to possible enforcement actions and heavy penalties.

By Mark A. Lies II and Elizabeth Leifel Ash

Under the Obama administration, many federal agencies, including the Occupational Safety and Health Administration and the Environmental Protection Agency, have redoubled their efforts to enforce existing laws and regulations. OSHA and EPA, in particular, have seen significant increases in their inspection and enforcement budgets, including the hiring of more inspectors and a call for more inspections. Accordingly, it is more important than ever for companies regulated by these agencies to identify potential compliance gaps and take corrective action before a federal agency conducts an inspection.

Conducting a compliance audit is one way businesses can get ahead of the curve in terms of their environmental and workplace safety compliance. Before such an audit is conducted, however, it is important for the company to take measures to protect the eventual audit report from disclosure to a government agency or private litigant pursuant to subpoena or discovery request. The following information outlines legal privileges potentially available for environmental and workplace safety

audit reports and recommends actions companies can take to avail themselves of those privileges.

Available legal privileges

Attorney-client communications — Perhaps the best-known legal privilege that can apply to compliance audit reports is the protection for attorney-client communications. In order to establish this privilege, three factors must apply: 1) there must be an attorney-client relationship; 2) the communication must be for the purpose of seeking or obtaining legal advice; and 3) there must be an expectation that the communication be kept confidential. In some cases, the attorney-client privilege can extend to a document prepared by a third party where the client provides information to the third party retained by the attorney for the primary purpose of obtaining legal advice from the attorney. See, for example, *U.S. v. Bornstein*, 977 F.2d 112, 117 (4th Cir. 1992).

Recently, the Occupational Safety and Health Commission (Review Commission) held that a workplace safety audit report prepared by a third party

retained by the attorney who needs the services of the third party to translate technical or complex information provided to the third party by the client in order to have effective legal consultation on the information between the client and the attorney and the third party prepares the documents for that purpose may be protected as an attorney-client communication. In *Sec'y of Labor v. Delek Refining Ltd.*, 23 O.S.H. Cas. (BNA) 1567 (O.S.H.R.C. July 11, 2011), the Review Commission overturned the administrative law judge's decision that a draft process safety management compliance audit report prepared by a third-party consultant was not privileged. In response to OSHA's request for subpoena for the draft audit report, the employer argued that the draft report was an attorney-client communication and was, therefore, not subject to disclosure to OSHA. The judge rejected this argument, finding that the employer had undertaken the audit in order to comply with OSHA's Process Safety Management Standard, which specifically requires such an audit, and therefore the report was not privileged.

The Review Commission remanded the case back to the judge with instructions to evaluate the audit report in order to determine whether the attorney-client privilege applied. Specifically, the Review Commission found that the employer had shown that the audit was *not* undertaken to comply with the Process Safety Management standard's audit requirement but rather was prepared to assist the employer's attorneys with technical issues associated with compliance with the Process Safety Management Standard. The Review Commission held, therefore, that the audit report was potentially protected by the attorney-client privilege, and additional evaluation is necessary before determining whether the employer was required to turn over the report to OSHA. The judge's decision after remand still is pending.

Attorney work product — Under the Federal Rules of Civil Procedure, all documents and information that are

reasonably calculated to lead to the discovery of admissible information are discoverable, which could include internal audits that may have uncovered potentially damning information. Rule 26(b)(3), however, implicitly recognizes that materials prepared by or at the direction of a party's representative (*i.e.*, legal counsel) in anticipation of litigation are generally protected from discovery.

This evidentiary privilege is sometimes referred to as the "attorney work product doctrine," but the protection is not limited to those materials prepared directly by an attorney. Rather, the privilege extends to *materials prepared by any person at the direction of an attorney*, as long as the materials are prepared "in anticipation of litigation."

The Review Commission recognizes

the work product privilege in contested OSHA proceedings. See *Sec. of Labor v. Bally's Park Place Hotel & Casino*, 15 O.S.H. Cas. (BNA) 1337 (Rev. Comm'n Nov. 7, 1991), *aff'd Martin v. Bally's*

Privilege extends to materials prepared by any person at the direction of an attorney, as long as the materials are prepared in anticipation of litigation.

Park Place Hotel & Casino, 983 F.2d 1252 (3rd Cir. 1993). In *Bally's Park Place*, the employer refused to give its employees' union a report containing emissions testing results for a piece of machinery that caused employee complaints. The employer argued that the company's general counsel requested the testing after receiving a letter from OSHA containing complaints about the machine. The employer argued that it had anticipated litigation potentially

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arising out of OSHA's complaint letter, and the report was developed to allow the attorney the ability to advise the employer on its potential liabilities.

OSHA issued Bally's Park Place a willful citation under 29 C.F.R. § 1910.1020 for failing to release exposure records to the union. The Review Commission vacated the citations, holding that the report qualified for

protection from disclosure because it had been prepared in anticipation of litigation at the direction of the employer's attorney. On appeal, the Third Circuit agreed.

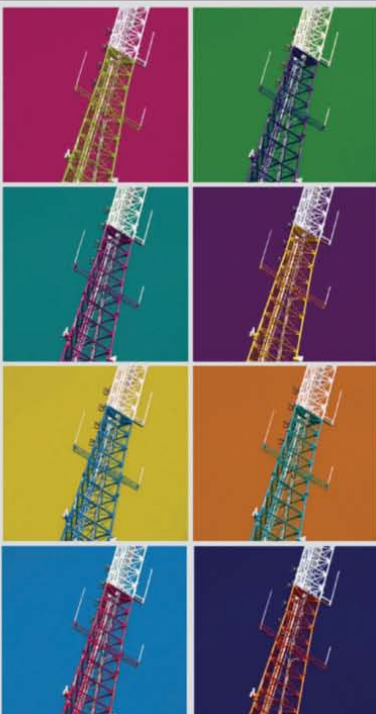
The Review Commission has also held that the work product protection can apply to investigative reports prepared after an incident such as an explosion or a fatal accident. In *Sec. of Labor*

v. Continental Oil Co., the Review Commission held that the employer was not required to give OSHA reports prepared by the company's expert consultants hired by the company's attorneys to investigate a refinery explosion. 9 O.S.H. Cas. (BNA) 1737 (Rev. Comm'n Apr. 27, 1981). The Review Commission found that the employer's attorneys hired a team of experts to investigate the cause of the explosion and to report their findings directly to the company's attorneys. In addition, the Review Commission held that the reports were prepared "in anticipation of litigation" even though no litigation had been initiated, recognizing that materials need not be prepared for any specific litigation, but only "with an eye toward litigation" to be protected from discovery.

Environmental audit privilege— The EPA (as well as many states) has a policy titled "Incentives for Self-Policing: Discovery, Disclosure, Correction, and Prevention of Violations" (the "Audit Policy") to encourage regulated entities to voluntarily conduct environmental compliance audits and to disclose incidents of noncompliance to the EPA (or the relevant state environmental authority). One piece of the Audit Policy is the elimination of gravity-based penalties where the company meets certain criteria. Notably, OSHA provides no incentive for employers to voluntarily self-disclose incidents of noncompliance.

For example, where the noncompliance is discovered through a routine environmental audit or compliance management system, the company discloses the noncompliance within 21 calendar days after discovery, then the EPA may eliminate the entire gravity-based penalty. The Audit Policy also allows up to a 75 percent offset in gravity-based penalties for self-disclosure, even where the noncompliance was not discovered during a routine environmental audit or compliance management system, as long as the noncompliance is discovered independently of a government investigation or private litigation. In addition, the EPA applies the Audit Policy to new owners who discover incidents of environmental noncompliance in

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recently acquired facilities. Such noncompliance must generally be disclosed within 45 days following closing to qualify for the penalty offsets.

The second key feature of the Audit Policy is an evidentiary privilege for audit reports generated in connection with environmental compliance audits. Under the Audit Policy, the EPA will not request environmental compliance audit reports during a routine investigation. Individual states, such as Illinois, Ohio, Michigan, Texas and Colorado, have enacted statutes that expressly provide an evidentiary privilege for environmental audit reports.

Recommendations

The foregoing cases illustrate how critical it is for employers to have procedures in place to ensure that sensitive documents and materials (such as post-incident investigation reports and internal self-audits or analyses) are protected from disclosure to OSHA, the EPA or both so the reports cannot become “smoking gun” documents containing potential admissions of liability to support issuance of citations, including willful citations and high-gravity civil penalties and negative visibility for the employer.

It is recommended that employers establish procedures to create and preserve evidentiary privileges as follows:

- Ensure that company personnel at all locations are trained and required to contact in-house or outside counsel as soon as a serious accident or environmental release occurs at the worksite or when an OSHA or EPA inspector arrives at the location. The attorney should be involved throughout the inspection, including participating in interviews of management personnel and opening and closing conferences. If the attorney cannot participate in any part of the inspection, the attorney should designate a management representative to act on the attorney’s behalf by taking notes, photographs, or otherwise documenting the progress of the inspection.
- The attorney should be engaged to direct any post-incident or other audit or investigation, including any “root cause” investigation or report, as well as the decision to retain an independent expert consultant. The attorney must be kept apprised of important developments by copying the attorney on email and other correspondence.
- Ensure that memoranda, emails, letters, or other communications that contain legal advice are not distributed beyond company representatives involved in critical decision-making who are considered to be in the employer’s “control group” by reason of their decision-making authority, which may result in a waiver of a claim of attorney-client confidentiality.
- Involve the attorney to develop a strategy for promptly disclosing instances of environmental noncompliance to ensure that all applicable criteria for invoking the Audit Policy or applicable state audit privilege law are met. ■

Mark A. Lies II is a partner in the Seyfarth Shaw law firm Chicago office. His email address is mlies@seyfarth.com. Elizabeth Leifel Ash is an associate in the Seyfarth Shaw Chicago office. Her email address is eash@seyfarth.com.

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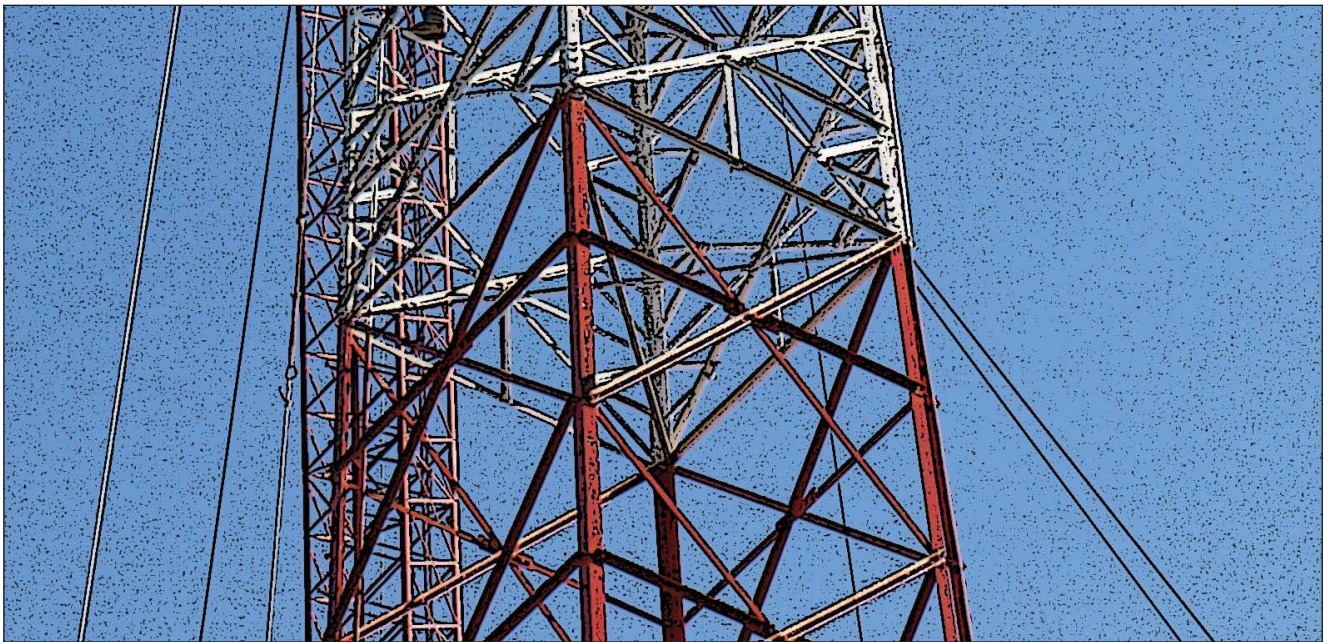


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N. Charleston, SC 29406
800•755•0689

buyers guide

Quick-Guide to Tower Manufacturers



As a supplement to January's Buyers Guide, here is a list of tower manufacturers with additional information on the types of towers they produce. Some listings include descriptions and logos paid for by the manufacturer.



Aero Solutions
5500 Flatiron Parkway
Boulder, CO 80301
Joe Commander
(720) 304-6882
jcommander@aerosolutionsllc.com
www.aerosolutionsllc.com
Types: self-supporting, monopoles, rooftop, engineered monopole and tower reinforcing systems
Company description
Aero Solutions provides a diversified range of engineered monopole and tower reinforcing products and services that save tower owners money, improve safety and reduce cycle time. Our internal technical services and project managers provide our customers with industry leading estimating and design

tools and Design/Build Services.
See ad on page 27



Allstate Tower
232 Heilman Ave.
Henderson, KY 42420
Kevin Roth
(270) 830-8512
kroth@allstatetower.com
www.allstatetower.com
Types: guyed, self-supporting, monopoles, rooftop, tilt-over
Company description
Allstate Tower (AST) fabricates a full line of self-supporting, guyed, agriculture and specialized steel structures engineered specifically for the demanding requirements of its clients. AST offers turnkey installation service, tower

maintenance and inspection services for any type of tower. AST has successfully served the broadcast, wireless, CATV, agriculture, government, utility and general contracting markets for over 10 years.
See ad on page 42

Aluma Tower
1639 Old Dixie Hwy.
Vero Beach, FL 32960
Ricardo Amaral
(772) 567-3423
atc@alumatower.com
www.alumatower.com
Types: guyed, self-supporting, transportable, rooftop

American Tower Company

5085 St., Rt. 39 W.
Shelby, OH 44875
Wayne Wilfong
(419) 347-1185
info@amertower.com

www.amertower.com

Types: guyed, self-supporting, rooftop



Antenna Products

101 S.E. 25th Ave.
Mineral Wells, TX 76067
Mark Allen

(940) 325-3301 Ext. 219
sales@antennaproducts.com

www.antennaproducts.com

Types: guyed, self-supporting, transportable — also safety climb systems, ladders, custom towers to 720 feet AGL

Company description

Antenna Products, established in 1946, is a designer and manufacturer of antennas, towers, safety climb systems and tower accessories. The company's products are used worldwide in commercial, military and government installations. Additionally, Antenna Products is a premier supplier of safety climb systems, ladders and tower accessories. The company has a complete inventory

of accessories for immediate shipment. Please contact Antenna Products for your tower needs. The company's products are designed and manufactured in the United States.

AN Wireless

3850 Hendricks Road
Austintown, OH 44515
Sam DiTullio
(888) 209-9002

info@anwireless.com

www.anwireless.com

Types: self-supporting, rooftop



Bell Tower

6037 S. Industrial Road
Chelsea, OK 74018

Bruce Burris
(918) 780-0020

belltowersales@sbcglobal.net

www.belltowercorp.com

Types: guyed, self-supporting, monopoles, water tower, rooftop

Company description

For 22 years, Bell Tower has been designing, manufacturing and installing towers throughout the United States,

from 100-foot self-supporters to 2,000-foot broadcast towers. With its experienced staff, Bell Tower offers customers the finest safety record in the industry and fair pricing on even the most challenging projects.

Cell Trees

5401 S. Canada Place
Tucson, AZ 85706

David Weekley
(805) 934-4535

david.celltrees@verizon.net

www.celltreesinc.com

Type: camouflaged

Company description

Cell Trees makes new monopines, monopalms, monobroadleaf, saguaro cactus, dead frond skirts, RF growth pods and 10-foot palm fronds. The company has in-house field crews that can refurbish old tree poles. Cell Trees manufactures its own products so it can custom-fit anyone's monotree. Cell Trees guarantees zoning approval with its new product and with rehab.

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13435 Estelle St
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Newbury, OH 44065
Jeff Syslo
(440) 564-5484 Ext. 234
jsyslo@engend.com
www.engend.com

Types: self-supporting, monopoles, camouflaged, water tower, rooftop

Company description

Engineered Endeavors is a leader in the design and manufacture of antenna structures. The company provides a complete line of structures including monopoles, pine tree poles, flagpoles, light poles, disguised monopoles, steeples, cupolas, chimneys and all types of rooftop screening. Engineered Endeavors provides in-house engineering with registered engineers in 48 states.

See ad on page 8



FWT

5750 E. I-20
Ft. Worth, TX 76119
Bill Sales
(817) 907-0060
info@fwtinc.com
www.fwtinc.com

Types: guyed, self-supporting, monopoles, transportable, camouflaged, concrete/silo, water tower, rooftop

Company description

FWT designs and manufactures self-supporting and guyed towers, monopoles, disguised and camouflaged sites, flag poles, COWs (cell-on-wheels), and the patented PowerMount (cell on utility tower) and PowerArm (cell on utility pole) antenna mounts.

See ad on page 25



GeoStrut

1374 W. 200 S.
Lindon, UT 84042
Mike Davis
(801) 356-1311
mdavis@geostrut.com
www.geostrut.net

Types: guyed, monopoles, transportable, rooftop, telescoping

Company description

GeoStrut towers offer an affordable carbon fiber option to traditional steel towers. GeoStrut's unique open lattice design offers incredible performance at a fraction of the weight, significantly reducing installation costs while increasing logistical savings. Environmentally friendly, GeoStrut towers never corrode, saving even more money in reduced maintenance costs.



Sub. of TWR GROUP

GlenMartin

1205 W. Broadway
Columbia, MO 65203
Clint Ladouceur
(800) 486-1223 Ext. 1015
clint.ladouceur@glenmartin.com
www.glenmartin.com

Types: guyed, self-supporting, monopoles, transportable, camouflaged, rooftop, fold-over

Company description

GlenMartin, a division of TWR Group, is an ISO 9001:2008-certified international corporation specializing in infrastructure development and design. The company emphasizes honest principles and well-engineered products at the best possible prices. Most importantly, GlenMartin looks at everything from the customer's perspective. By doing so, the company ensures that its customers have the confidence that their needs will be understood and met.



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PHONE: (541) 548-0812
FAX: (541) 548-0812
EMAIL: info@hitechcomposites.com
1266 SOUTH LAKE ROAD, REDMOND, OREGON 97756

Hi-Tech Composite Structures

1266 S. Lake Road
Redmond, OR 97756
David Ullrich
(541) 548-0812
dcu@hitechcomposites.com
www.hitechcomposites.com

Types: camouflaged, water tower, rooftop

Company description

Hi-Tech Composite Structures is a full-service provider of RF-friendly concealment systems with in-house engineering and design capabilities. The company works hand in hand with the installing contractors to limit the amount of field time and labor to reduce overall costs. Contact Hi-Tech Composite Structures today to help with all your concealment needs.



Industria Real

Eclipse # 2791 Col. Jardines del Bosque
44520 Guadalajara, Jalisco, Mexico
Ivan Ramirez
+52 33 3880-0700
sales@industriareal.com
www.industriareal.com

Type: self-supporting

Company description

Industria Real (Anker Electric), founded in 1978, manufactures transmission towers and electric substations. The quality of the company is endorsed by the Federal Electricity Commission, a body of the Mexican Ministry. Industria Real produces self-supporting towers, but the company can also manufacture towers under customer specifications.



Larson Camouflage

1501 S Euclid Avenue
Tucson, AZ 85713
Tom Feddersen

(520) 792-1686
feddersen@larsoncamo.com
www.larsoncamo.com

Types: camouflaged, water tower, rooftop

Company description

Larson pioneered cellular camouflage with the first mono-pine cell tower in 1992 and has been leading the industry ever since. Product offerings include pines, palms, elms, cypress, cacti, rooftops etc. We also refurbish trees with field-installed bark, branches and fronds.

Magnum Towers

9370 Elder Creek Road
Sacramento, CA 95829
Brandon Naffin
(916) 381-5053
brandon@magnumtowers.com
www.magnumtowers.com

Types: guyed, self-supporting, monopoles



Nello

211 W. Washington St., Suite 2000
South Bend, IN 46601

Kevin Goggins
(574) 288-3632
sales@nelloinc.com
www.nelloinc.com

Types: guyed, self-supporting, monopoles, transportable, camouflaged, rooftop

See ad on page 20



Peabody Concealment

13435 Estelle St.
Corona, CA 92879

Sales: (951) 734-7711
sales@peabodyconcealment.com
www.peabodyconcealment.com

Types: self-supporting, monopole, camouflaged, water tower, rooftop and prefabricated RFTC concealments and enclosures

Company description

Peabody RF transparent concealment is the leader in prefabricated cell site concealment enclosures, offering design, engineering and fabrication of custom-built antenna screening products. Large prefabricated sections install in hours versus traditional build-on-site enclosures that take days or weeks, saving you thousands in installation costs. Enclosures are built to match existing architecture to help pass zoning and siting regulations for easy permit approval.

See ad on page 31

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buyers guide



Pepro
671 Colbert Ave.
Oil City, PA 16301
Kelly Lander
(814) 676-5688
klander@peprollc.com

www.peprollc.com
Types: self-supporting, monopoles, transportable
Company description
Pepro is the leading manufacturer of patented shielded enclosure and tower systems for stationary and mobile applications. Pepro's patented unguyed, articulated tower allows for vertical separation of antennas and easy deploy-

ment. It meets TIA/EIA-222-G wind load standards. Pepro is a veteran-owned small business located in Oil City, Pa.



Sabre Towers and Poles

2101 Murray St.
Sioux City, IA 51111
Mike Coghlan
(800) 369-6690

towerinfo@sabreindustries.com
www.sabretowersandpoles.com
Types: guyed, self-supporting, monopoles, transportable, camouflaged, concrete/silo

Company description
Sabre Towers and Poles designs and manufactures guyed towers, self-supporting towers, monopoles, and concealment structures. In addition, the company provides complete turnkey construction and tower and monopole modifications including structural analysis, modification design, fabrication and installation. Sabre Site Solutions, the company's components division, offers pre-engineered towers and tower components.



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SiteConcealment

18 Industrial Road
Fairfield, NJ 07004
Dan Arasin
Phone: (877) 799-9117
darasin@siteconcealment.com
www.siteconcealment.com

Company description
SiteConcealment is a specialty manufacturer and national provider of RF transparent concealment systems that are designed and engineered to meet telecommunications carrier requirements for RF transparency and ease of installation by contractors in the field.

yeah

{ This is the text message nineteen-year-old Ashley Umscheid was reading when she flipped her car and died on impact. }

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CTIA
The Wireless Infrastructure Association

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SOLAR COMMUNICATIONS INTERNATIONAL

Solar Communications International

8885 Rio San Diego Drive, Suite 207
San Diego, CA 92108

Robert Renfro
(619) 243-2750

rrenfro@rftransparent.com
www.rftransparent.com

Types: camouflaged, water tower, rooftop, maintenance and upgrades of RFTransparent concealment products.

Company description

Solar Communications International offers an array of concealment products and services for integrating wireless infrastructure into the community character, making SCI products the ideal choice in any setting. Our upgrade/maintenance services include: rebranching and re-

barking of all manufacturers' monotrees, upgrades and repairs to RFTransparent rooftop screening, and RFTransparent audit and recommendations. SCI providing the finest in RFTransparent turnkey products and services.

See ad on page 12

Sollenberger Silos

5778 Sunset Pike
Chambersburg, PA 17212

Bob Francis
(717) 816-4592

silobob@yahoo.com
www.sollenbergersilos.com

Types: concrete/silo



Stainless

1140 Welsh Road, Suite 250
North Wales, PA 19454

Ed Deetscreek
(215) 631-1323

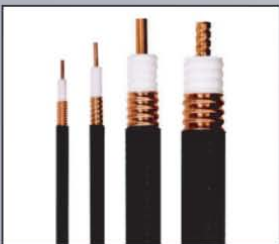
ed.deetscreek@stainlessllc.com
www.stainlessllc.com

Types: guyed, self-supporting, monopoles, rooftop

Company description

For more than 64 years, Stainless has been providing design, engineering, fabrication and installation for towers of any height to 2,000 feet to customer specifications for durability and dependability under extreme conditions. Existing structure analysis and modifications, maintenance and inspections, construction and repair, plus 24-hour emergency service, make Stainless the place to bring all of your tower needs.

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6549 Fain Blvd.
North Charleston, SC 29406
Cindy Wishart
(800) 755-0689 Ext. 124

cindywishart@stealthsite.com
www.stealthsite.com

Types: camouflaged, concrete/silo, water tower, rooftop, DAS concealments, steeples, bell/cross towers, windmills, cacti, pine and palm trees

Company description

Since founding the wireless antenna concealment industry in 1992, Stealth remains the unsurpassed leader in design, engineering and fabrication of innova-

tive antenna concealment structures. Camouflage your wireless antennas and improve the environmental landscape. From rooftops, trees and church steeples to water tanks, towers, silos and poles, Stealth has the solution.

Tower Solutions

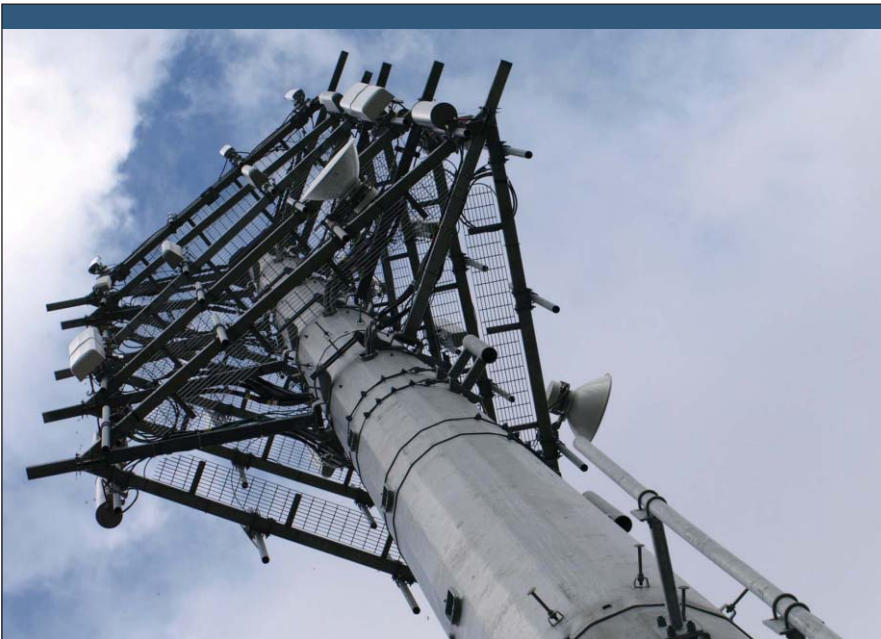
1150 Holstein Drive, N.E.
Pine City, MN 55063
Allen Karson
(480) 315-8830

akarson@towersolutionsinc.com
www.towersolutionsinc.com

Types: guyed, transportable, rooftop

Company description

Tower Solutions creates totally automatic self-erecting towers. Models include an 80-foot tower with a 2,000-pound payload capacity, a 40-foot tower with a 250-pound payload capacity and a 20-foot tower with a 140-pound payload capacity — mounted on the bumper of a vehicle and operated in the cab.



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(703) 782-0007

Richard P. Biby, P.E.

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TowerWorx

239 Welcome Center Blvd.
Lexington, NC 27295
Chris Ready
(866) 677-5959

christopher.ready@towerworx.net
www.towerworx.com

Type: transportable



TransAmerican Power Products

2427 Kelly Lane
Houston, TX 77066
Edward Ramirez
(281) 444-8277

eramirez@tappinc.com
www.tappinc.com

Types: monopoles, camouflaged

Company description

TransAmerican Power Products (TAPP) specializes in monopoles, flagpoles, trees and palm trees. The company has been in business for over 52 years and supplying direct to the market for eight consecutive years. Come by and visit TransAmerican

Power Products this year at International CTIA Wireless 2012 in New Orleans, booth # 5019. See you soon.

Trylon TSF

21 South Field Drive
Elmira ON N3B 0A6
Canada
Josh Lange
(519) 669-5421
info@trylon.com
www.trylon.com

Types: guyed, self-supporting, monopoles, rooftop

Company description

Trylon structures include self-support, guyed, monopoles, tripoles and a full line of pre-engineered stocked towers. Tower designs conform to the latest North American and International Standards. In addition, Trylon product lines include fall protection and an extensive line of steel tower accessories.

US Tower

1099 W. Ropes Ave.
Woodlake, CA 93286
Greg Ira
(954) 557-3654
gira@ustower.com
www.ustower.com

Types: guyed, self-supporting, monopoles, transportable, camouflaged, rooftop



Valmont Structures

7002 North 288th St., P.O. Box 358
Valley, NE 68064-0358
Sean Gallagher
(503) 363-9267
sean.gallagher@valmont.com
www.valmont-towers.com

Types: guyed, self-supporting, monopoles, transportable, camouflaged

Company description

Valmont is a leading manufacturer of monopoles and towers and an expert supplier of tower analysis services. The company's offering includes disguised wireless structures and portable bases. Building on a strong heritage of proven results, Valmont's superb brands include PiRod and Microflect products. Contact

Valmont today to learn more.

See ad on page 41

Wade Antenna

29 Sharp Rd.
Brantford Ontario N3T 5L8
Canada
Debbie Robyn
(800) 463-1607 Ext. 247
drobbyn@wadeantenna.com
www.wadeantenna.com

Types: guyed, self-supporting, rooftop

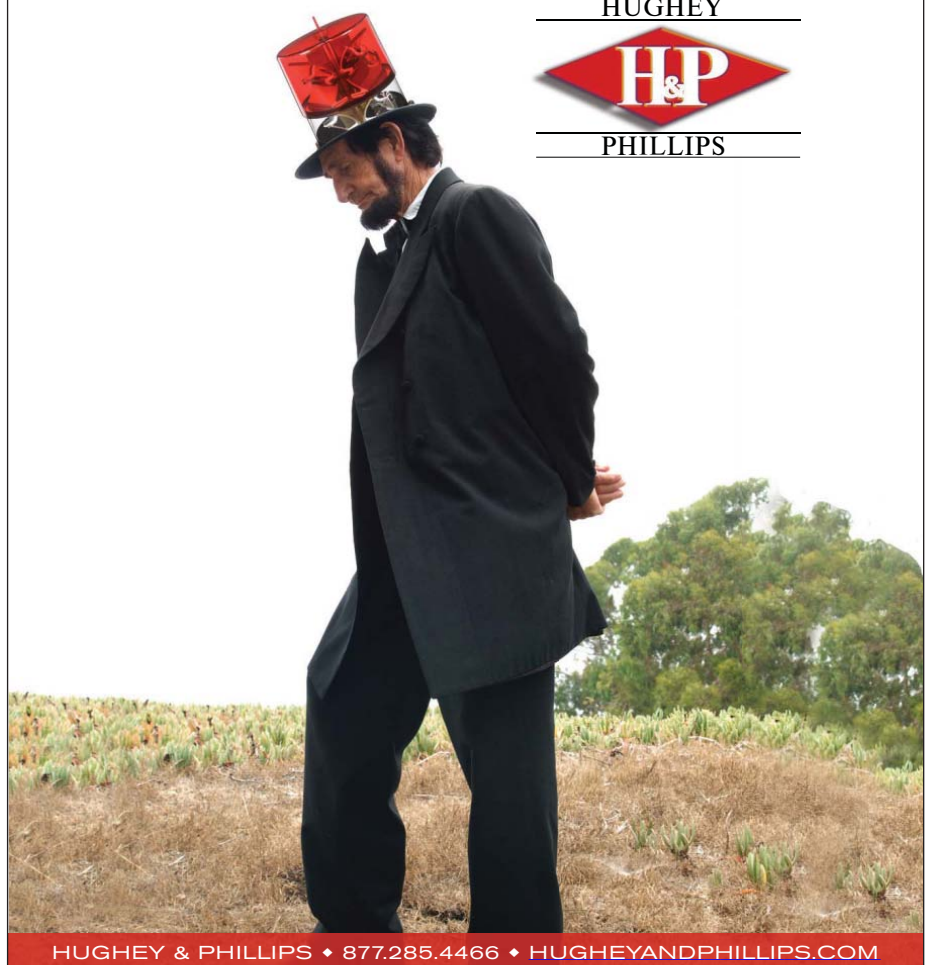
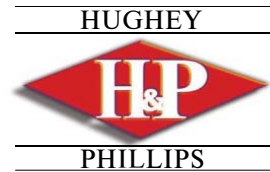
World Tower

1213 Compressor Drive
Mayfield, KY 42066
Brent Walker
(270) 247-3642
brent@worldtower.com
www.worldtower.com

Types: guyed, self-supporting

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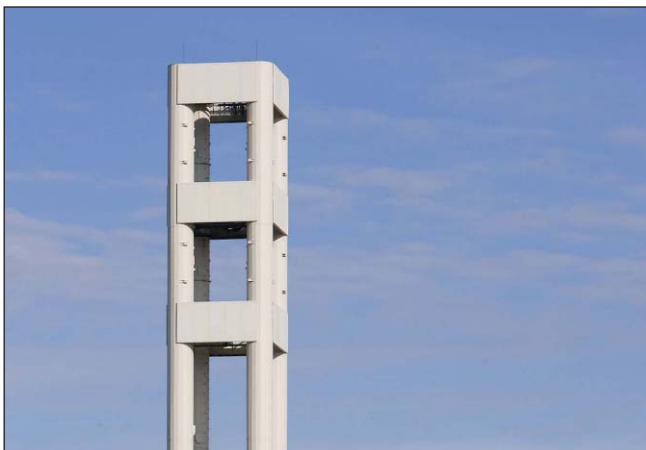
product showcase — site concealment and camouflage



Flagpole Canisters

GlenMartin's antenna Baul flagpole canisters open and close, providing access for antenna and coax installation, adjustment and maintenance. The system features two lids that split, allowing 180 degrees of access at each side without interruption. The lids are supported on standouts from the pole. The system supports GlenMartin's standardized canister sizes of 36 inches, 42 inches and 48 inches. Canisters are available for custom fabricators seeking an integrated solution.

www.glenmartin.com



Structural Disguises

FWT has developed a host of concealment products that include the Tree-Cell disguised pole, flagpoles, bell towers, towers with cladding and multileg concealment structures (shown here). Increased coax capacity is achieved by utilizing multileg designs, which are capable of supporting up to six carriers. The structures can be custom-painted, and internal platforms feature grating and handrails to make antenna installation easy and safe. The RF-transparent panels disguise the multiple levels of antennas and are available blank or can be printed with company or school logos.

www.fwtinc.com



Architectural Concealment

Peabody Concealment designed and engineered this RF-transparent concealment for a customer in Santa Rosa, Calif. It was built to match the existing building's architecture and includes "faux stained-glass" windows. The concealment was prefabricated as one piece for ease of shipping and installation.

www.peabodyconcealment.com

38 above ground level



Concealment Panels

Stealth has introduced the StealthSkin Light (SSLT) second-generation concealment panel product designed for aesthetics and scalability. The SSLT is seen in this rooftop installation that seamlessly integrated wireless antennas on the face of a 100-plus-year-old collegiate building. Modifications to the company's StealthSkin concealment panel have yielded its new SSLT panel, which is designed to eliminate thermal movement and enhance ease of installation because of its weight. SSLT accommodates all simulated surfaces.

www.stealthsite.com



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product showcase — site concealment and camouflage



Monopalm

Larson Camouflage builds sites that balance customer economics and jurisdictional requirements and desires. Larson's dead frond skirt conceals three carrier levels on a 65-foot-tall multicarrier palm tree in Ontario, Calif. A 24-foot-tall saguaro cactus was designed to accommodate six antennas and up to eight remote radio units as one of over 100 cacti in an Arizona DAS system. www.utilitycamo.com



Tree Camo

Cell Trees specializes in pine trees, palm trees, broadleaves, flagpoles, radomes and saguaro cactus. All of its RF-friendly products have been tested in the laboratory and the field to withstand speeds of up to 150 miles per hour. Cell Trees' quality control system has achieved a decade with no product failures. www.celltreesinc.com

Pencil Camouflage

Sabre Towers and Poles designs and manufactures a line of concealment products, including slip-sleeve monopoles that can be disguised as pencils, flagpoles, decorative light poles or a variety of replica trees. Another visually acceptable option is a slimline pole. Featuring internally bolted connections with the antennas hidden inside the structure, these poles can be disguised as cross poles, light poles, stadium lights or flagpoles. www.sabretowersandpoles.com

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Monotree Concealment

The patented MonoEucalyptus design from **Solar Communications International** provides monotree concealment that allows the carrier to achieve horizontal diversity. This design has become popular with city planners and zoning managers.

www.rftransparent.com



Monopines

The monopine shown here was designed and built for Rogers Wireless of Canada by **Environmental Integration**. It conceals a 97-foot tower in the scenic Algonquin Provincial Park, Ontario, and features realistic bark texture on the pole. The bark helps the tower blend with surrounding trees of the Park's Whiskey Rapids area hiking trails.

www.environmentalintegration.com



Concealment Screens

Concealment screens by **Site Concealment** are fabricated to closely match existing building color and texture. Concealment screen panels are used on building corners for antenna sectors, on equipment platforms or around entire parapet perimeters to match the building appearance to specifications. RF-transparent applications include rooftop terraces, office buildings and shopping malls.

www.siteconcealment.com

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| | | | |
|--------------------------------------|--------|--|--------------------|
| Aero Solutions | 27 | Precision Quincy | 33 |
| AGL | 42 | Reliant Shelters | 42 |
| AGL Regional Conferences | 17 | SBA Communications..... | back cover |
| Allstate Tower | 42 | Slatercom | 42 |
| American Stroke Association | 40 | Solar Communications | 12 |
| AT&T..... | 11, 34 | Specialty Tower Lighting..... | 27 |
| BB&T– Atlantic Risk Management | 28 | Spinner Atlanta | 35 |
| Black & Veatch | 7 | Stealth Concealment Solutions | 29 |
| Charles Industries..... | 21 | Telewave | inside front cover |
| Engineered Endeavors | 8 | TowerCo | inside back cover |
| FWT..... | 25 | Tower Economics | 5 |
| Hughey & Phillips | 37 | Tower Technology Summit..... | 39 |
| ITL | 20 | Valmont Structures | 41 |
| Media Venture Partners..... | 9 | Waterford Consultants..... | 36 |
| MW Telecom..... | 21 | Weatherex | 42 |
| Nello | 20 | Wireless Towers | 42 |
| OSHA..... | 12 | Women's Wireless Leadership Forum..... | 8 |
| Peabody Concealment..... | 31 | | |

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