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**An Interview
with FirstNet GM
Bill D'Agostino Jr.**

Special Safety Issue

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February 2014 /// Volume 11 /// No. 02

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Bill D'Agostino Jr., general manager of the First Responder Network Authority (FirstNet), gives some details about the first steps for the FirstNet public safety wireless communications network.

See Page 16.

*Photography by Frank Sala
Cover design by Brian Parks*

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/ DEPARTMENTS /

Antenna Sites = Websites

Grab 'em by the eyes and never let 'em go.
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Why build huge steel towers, lease space on them for antennas and jump through all the hoops to keep them in compliance with federal, state and local regulations? To serve a screen in the palm of someone's hand.



Putting smaller antennas and base stations — small cells — on the sides of buildings, on lampposts, and inside commercial buildings, shopping centers, hospitals and athletic arenas has the same goal. Get the bits and bytes out there, get them out there faster, and get them out there better than the competition so face time with users is better, faster and more readily available today than it was yesterday. And make it better tomorrow, too.

What's fast enough? Two-thirds of smartphone users expect websites to load in four seconds or less.

Radware, a company that serves enterprise and carrier customers with application delivery and application security solutions, has studied this. It published the results in a 17-page report, "Mobile Stress: The Impact of Network Speed on Emotional Engagement and Brand Perception." You can get a copy at www.radware.com.

Radware's research has implications for wireless infrastructure developers, owners and investors. Wireless infrastructure is becoming

increasingly important as part of the chain that links consumers with retailers via e-commerce. Within the network the wireless infrastructure facilitates, slow connection speeds are likely to lead to higher levels of frustration and lower levels of emotional engagement. Browsing is twice as likely as the checkout to be frustrating when slow, Radware says.

The negative effect of slow network speed is not restricted to just the immediate customer frustration and loss of business through the site, it deeply affects the long-term brand perception of the retailer, making potential customers less likely to return.

Slow performance affects nonperformance issues such as quality of content, visual design and ease of navigation.

The brand damage inflicted by slow websites and poor user experience can translate directly to negative effect on purchase intent across other channels and touch points.

What this all means is that antenna sites = websites. Site developers: Keep up the pace, and bring us the face.

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EDITORIAL COMMENT

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Something New

Is it cellular? Is it public safety? It's something of both. The FirstNet network promises cybersecurity and hardened sites beyond what cellular has, and interoperability beyond what current public safety wireless communications offers.

We've been shaking things up at AGL Media Group.



For 10 years now, we have covered the industry with articles about deployment, maintenance, technology, regulation and industry

events. We have covered some individual presentations and comments, but we've never really focused on some of the people in the industry. This issue focuses on a person who has a tremendous history in our industry and is leading through his role at FirstNet. The cover

and feature article distinction goes to Bill D'Agostino Jr.

Bill has an impressive history in the infrastructure deployment industry — he is a tower guy — but also has a technology background. He is the perfect fit for the job!

We are not a public safety magazine, so why are we putting this much focus on FirstNet and Bill? Historically, deployments

have been separated into a number of vertical markets: cellular, broadcast, public safety and the federal government. And we have had fairly separate groups working in each of those verticals. However, FirstNet is the first network deployment that really blurs those lines. The volume of sites will look more like a cellular network, although the resiliency and hardening requirements will look more like a public safety deployment. The technology and operations will look more like a traditional LTE network, with

a number of twists.

If you are in this industry and reading this, you will

be involved with FirstNet. You may just not know it yet. So, it is fitting that we start the new year with a new network (effectively, a new national carrier) and the person responsible for making it happen.

Our thanks to Bill D'Agostino Jr. and the FirstNet team for working with us on this insightful interview and for the job they have undertaken.

Small Cell and DAS Everywhere!

Perhaps because I'm actually now in the small cell industry, I'm amazed at the groundswell of activity. It feels like the early cellular days. The technology that the carriers are deploying is a little surprising, as are the relatively different approaches the two large carriers use.

I'm becoming qualified on an in-building wireless design tool this week and will be overseeing some in-building wireless projects shortly. It seems the distinction between a small cell system and a distributed antenna system (DAS) is quickly disappearing. I'm eager to be working in this side of the industry.

I'm looking forward to working with it with my publisher's hat on too; and I'm very much looking forward to the launch of *AGL Small Cell Magazine*, a new AGL Media Group product to be published quarterly, beginning in March.



Rich Biby, Publisher
rbiby@aglmediagroup.com



PUBLISHER'S NOTE

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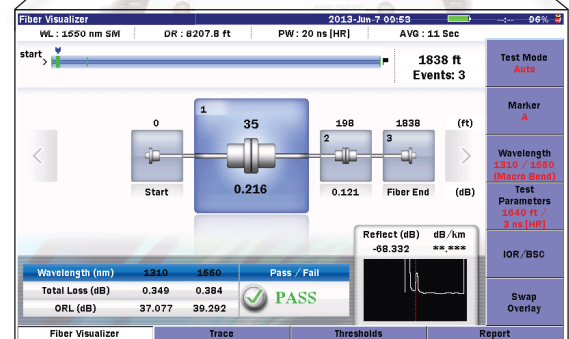
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CalWa's Robert Jystad on Wireless Infrastructure

By J. Sharpe Smith



In December, J. Sharpe Smith, *AGL Magazine* contributing editor and editor of *AGL Link* and *AGL Small Cell Link* newsletters, interviewed Robert Jystad, managing partner of the Channel Law Group and president of the California Wireless Association. Jystad's firm represents wireless carriers and tower companies on land use, leasing and regulatory matters. Jystad has appeared before planning commissions, city councils and county boards in dozens of jurisdictions throughout California and has made appearances at the FCC, the California Public Utilities Commission, the Ninth Circuit and every federal district court in California and the California Supreme Court. Jystad's remarks have been edited for length and style.

AGL Magazine: What is your involvement in the wireless industry?

Jystad: My law firm, Channel Law Group, has been representing carriers, tower companies and distributed antenna system (DAS) providers since we formed it in 2007. We are a boutique wireless firm that assists with permitting efforts, landlord-tenant disputes, regulatory authorizations and, if necessary, litigation. We have faced some of the

most challenging jurisdictions and courts in the country with positive results while at the same time dedicating thousands of hours to supporting the formation and growth of the California Wireless Association (CalWa).

AGL Magazine: How was California Wireless Association formed?

Jystad: Jon Dohm, a Crown Castle zoning manager, came to me in 2006 with the idea of starting a trade association. I had already been thinking about it for some time. Six months later, we had something put together, and PCIA was instrumental in making it happen. Officially, CalWa was formed in February 2007. We are coming up on seven years.

AGL Magazine: What was the need for a wireless trade association?

Jystad: There is a huge wireless presence in California, and it was remarkable to me that there wasn't a trade association representing wireless. California is one of the most challenging states in the country to deploy infrastructure. We felt like there was a need for a unified voice and unified effort to address some of the problems with local jurisdictions when it comes to construction of new cell sites and modifications.

AGL Magazine: How has CalWa made a difference?

Jystad: Regulation remains challenging in California. One area in which we have done a lot of work is supporting DAS companies and their deployments in the right of way and other efforts to deploy cell sites in the right of way. We had several conversations with the state public utilities commission about the industry's regulatory concerns and about how to assist the industry with having access to vertical elements in the right of way.

Members within CalWa have different perspectives that are important to them. What it takes to develop a unified voice is not particularly simple, but with some effort, you can work toward some consistency and focus on the things that matter.

I believe there are positive changes taking place. There is recognition of the importance of smartphone and machine-to-machine technology — the incredible benefits of these new devices — and an increasing reliance on them.

AGL Magazine: How does CalWa view U.S. legislation supporting collocations?

QUESTIONS & ANSWERS

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/ DEPARTMENTS /

Jystad: Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012 was a major development for facilitating deployment efforts. It was a message from the federal government that having advanced broadband service is a matter of national security and personal safety. CalWa is in discussions on legislation that would be helpful to collocations. In my point of view, when it comes to Section 6409, the FCC can do a lot to clear up any ambiguity and uncertainty. It appears to be moving in that direction.

Our primary focus concerning Section 6409 in 2014 is to be involved in the FCC's notice of proposed rulemaking aimed at streamlining wireless deployment,

either making comments or perhaps working through PCIA, which has done a lot of good work in this area. Clarification at the federal level is just imperative.

AGL Magazine: The federal government and the states are pushing for a unified approach to wireless deployments. What is the disconnect at the municipal level?

Jystad: The approach to wireless infrastructure at the local level is not consistent. You have local jurisdictions, sometimes with the help of a consultant, thinking that they can control the design of a wireless network. Instead, they are impeding the deployment of services. There is more education that needs to be done.

AGL Magazine: Are there opportunities through working with other associations?

Jystad: There is a real desire to work with the California Planning Association, the League of California Cities and other associations to get the word out about the benefits of wireless services and the need for wireless infrastructure.

One of the challenges in California is that it is a large state. Early on, most of our activity occurred in Southern California because that was home to most of our members. We needed a mechanism to encourage membership and support in Northern California. We found that in our relationship with Joint Venture Silicon Valley. We have had several events in conjunction with them.

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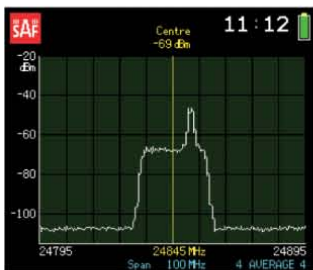


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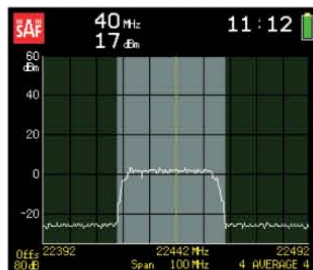


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/ DEPARTMENTS /

Silicon Valley has moderate-to-no wireless coverage, even though the latest high-tech wireless technology is developed there. Joint Venture realized that there needs to be improvement in the zoning process to encourage wireless deployment and sought out CalWa for assistance. We are very involved with them on that.

AGL Magazine: What directions are you interested in taking the association as the new chair?

Jystad: We have never been afraid to be cutting-edge at CalWa and to think outside the box about the original concept of PCIA's State Wireless Association Program. We were the first to come up with annual sponsors, the first with an advisory board and the

"We have never been afraid to be cutting-edge at CalWa and to think outside the box about the original concept of PCIA's State Wireless Association Program."

first to hire an executive director.

Now we are looking at ways to continue that innovation. What is nice is that state wireless associations around the country share that fearlessness. For example, the New York State Wireless Association developed a remarkable trade show, which required a lot of effort.

We put together a video for educating the public and public officials on the importance of wireless infrastructure, "You Can't Have One Without the Other," which was supposed to be the

first in a series. But we need to build on that success with a YouTube channel devoted to videos and short clips about the wireless industry and how it works.

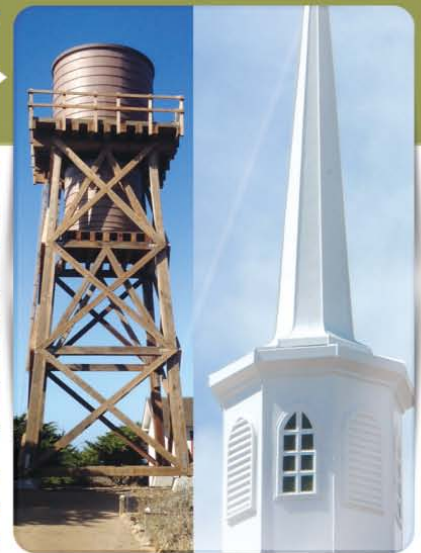
We need to improve our coordination with PCIA and its efforts to put together a clearinghouse of information for educational purposes. We need to spend more time focusing on how to educate public officials and the public at large. We have done some cool things along those lines. Our relationship with AGL Media Group is critically important to that.

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/ DEPARTMENTS /

More people need to know about the wireless association. Along the lines of our relationship with Joint Venture Silicon Valley, we want to expand our outreach outside of infrastructure providers and carriers and start talking to device manufacturers and content providers and see if we can grow interest in the wireless association.

In particular, we are excited about FirstNet and what it will mean to the wireless infrastructure industry and first responder communications. We can assist in educating people about that effort.

AGL Magazine: What is one of your short-term goals?

Jystad: One of the most important things that we are going to work on in the coming year is encouraging more involvement by our membership in the

running of the association. There has been a handful of people who made the California Wireless Association what it is. The membership has been great about participating in our events, but we need more active involvement at the committee level, more direction from our advisory board and involvement from significant decision-makers.

AGL Magazine: Now give us a long-term goal.

Jystad: There is a lot that we want to do. The long-term vision of the California Wireless Association is to become a bona fide trade association. Eventually, we want to have a presence in San Francisco, to have a presence in Sacramento and to be involved in the discussions about legislation and regulation that are necessary to facilitate the deployment of wireless infrastructure

and any other interests of our membership. While we are taking steps in that direction, it is a three-to-five year plan.

The presence of the wireless industry in California is very important. The irony that wireless deployment in California is so challenging in terms of zoning is something that needs to be faced and addressed.

AGL Magazine: You are replacing Jon Dohm, who has been the only president CalWa has known for its seven years. Big shoes to fill?

Jystad: There aren't enough good things I can say about his leadership running the association. I learned a lot watching him. We flourished under his leadership. We have ideas about new initiatives, but at the end of my tenure, if we still have in place what Jon put in place, it will be a success.

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Bill D'Agostino Jr., general manager, First Responder Network Authority (FirstNet)

FIRSTNET'S FIRST STEPS

FirstNet's nationwide deployment will result in a flurry of collocation activity and some new, primarily rural, tower builds.

By Richard P. Biby, P.E.

/ FEATURES /

The FirstNet network holds the promise to solving a nagging, critical problem for police, firefighters, emergency medical service professionals and other public safety officials: the inability of many of their radios and other wireless devices to communicate between agencies. The solution is called interoperability.

As the general manager, Bill D'Agostino Jr. leads the First Responder Network Authority (FirstNet) in taking all actions necessary to ensure the building, deployment and operation of the network in consult with federal, state, tribal and local public safety entities, and other key stakeholders. In December, I interviewed D'Agostino. What follows has been edited for length and style.

AGL Magazine: I've known you for 15 years. You have an amazing background. Can you tell us about it?

D'Agostino: I've had the good fortune of growing up in the wireline and wireless communications industries. I

started my career at Pacific Bell as a repairman. I worked my way through a myriad of jobs in operations and construction. I joined AirTouch right

"We have to solve the mobility question to cover the largest portion of the country that's unserved today – where terrestrial network investment really doesn't make sense financially."

after the divestiture of the Bell System. I had the privilege of building a wireless network in Spain. Since then, I've been involved in building networks all over the country and world. I've also had the opportunity to work not only on the infrastructure side, but also on the service provider side and the OEM side. It's been a great ride in a great industry.

AGL Magazine: You've been with a number of wireless carriers.

D'Agostino: I have. I've been with Verizon Wireless. I've been with Sprint PCS. And I've also consulted for Alamosa PCS and for Nextel Communications.

AGL Magazine: You have the infrastructure background. How did you come to get the job at FirstNet?

D'Agostino: FirstNet was always interesting to me. I was following it early on as there were discussions about building a dedicated broadband network for public safety. I was fortunate enough to be asked to interview for the job. It's a tremendous opportunity for the country and for the industry. I'm really excited and honored to have a chance to lead it.

AGL Magazine: Can you tell us a little bit about what you're doing at FirstNet— your title and what you're responsible for?

D'Agostino: I'm the general manager, so I have the ultimate responsibility, along with the board of directors, for building the FirstNet network. Our mission is to roll out a dedicated, fully interoperable broadband network — a nationwide network dedicated to public safety. This network will give public safety agencies cutting-edge tools that will enable them to reduce response times and save more lives.

AGL Magazine: Having watched a few iterations of early incarnations of FirstNet, I would say that it seems as though everything's coming together. Can you give us a little history of FirstNet and where things will go from here?



Born of a 9/11 Commission recommendation, the FirstNet wireless public safety network is intended to deliver interoperable wireless communications. The lack of interoperable communications has been cited as a problem for first responders at the scenes of emergencies that involve multiple public safety agencies. Photo by Andrea Booher/FEMA

D'Agostino: Things are coming together, but it's a long road and we have much work to do. Public safety agencies stood together for more than five years and continued to lobby for the funding and spectrum they needed to do their jobs. FirstNet is the last recommendation to be implemented from the 9/11 Commission Report.

We're hard at work building the foundation of this organization — hiring staff, preparing our business strategy and beginning to look at our partnership strategy. Outreach is also a critical component of the work we have been doing. We've been reaching out to state, territory and local governments to learn about their unique public safety challenges and requirements. And we're meeting with the public safety community to get their input as well. In 2013, FirstNet board of directors members and executives delivered presentations and remarks at more than 85 conferences, meetings, trade shows and other events.

FirstNet has also issued 12 technical requests for information (RFIs) to learn from vendors and other stakeholders how the network should be built. We will continue to build the pieces of our strategy and our deployment plans.

AGL Magazine: Is this going to be a nationwide LTE [Long Term Evolution] network? Or will it be different technologies or one technology across the country?

D'Agostino: Absolutely one technology. It will be LTE so that we can take advantage of economies of scale and the standards of LTE.



FirstNet will extend wireless communications to rural areas using tall towers for antenna sites. Shown here, firefighters respond to a grass fire. Photo courtesy of U.S. Fish and Wildlife Service.

AGL Magazine: What elements in the network might be different from a typical carrier network?

D'Agostino: This network is going to look a lot like some of the traditional infrastructure you see. But the most fundamental part is that it won't be a carrier wireless network. It will be a public safety wireless communications network. So, you'll see us do a couple of things differently. The core, for example, has to be highly secure to provide much of our cybersecurity. That's how our information and the transport of applications will be protected. The hardening of the core and the core's security layers will be fundamentally different from a carrier network.

The basic radio network will look similar. But what you'll see in the FirstNet network is that mobility is a big element in the way public safety operates. We will consider using vehicle-based equipment to cover

certain rural and wilderness areas. You'll see a terrestrial-based network, probably with much taller sites in rural areas, and then we'll work our way into the more dense sites in urban areas. So, again, some things will look the same; some things will look different because of the nature of the way public safety works.

AGL Magazine: With any new build, you usually start with taller sites to get the coverage and then you do the infill over time. Public safety, of course, needs to have a certain degree of resiliency from day one. Is the network deployment going to mirror that of commercial wireless carriers, or will it take a different approach?

D'Agostino: It may be slightly different. We have to solve the mobility question to cover the largest portion of the country that's unserved today — where terrestrial network investment really doesn't make financial sense. You'll see some things look similar. For instance, as we move more

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Public safety wireless communications plays an important role in the efforts of firefighters to protect and save lives and property. Photo courtesy of Overland Park (Kansas) Fire Department

toward dense urban areas, we'll build those out in a similar fashion, perhaps with partners. I mentioned earlier the importance of security in the core, but we'll also have a lot of redundancy built into the network, with multiple layers of backhaul, satellite backup also seems likely, and battery backup for the ability to keep the network's terrestrial sites on the air.

AGL Magazine: Things we normally associate with public safety communications – generators, batteries, dedicated backhaul, secure sites, R56 grounding – do you expect to see all of these traditional elements of public safety communications networks in the deployment of FirstNet?



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D'Agostino: Yes. What we refer to as site hardening has various layers. Hardening will certainly, on some of the core sites, have all of the elements you mentioned. But as you think about this network, hardening will also be provided through redundancy of the backhaul and potentially the ability to fall back onto carrier networks for roaming. We'll look at every opportunity we can to provide continuity of service.

AGL Magazine: Is there a chance that FirstNet will be partnered with a carrier? If so, what are some of the elements that might be shared? For example, can they share the same antenna radiation (rad) center? Can they share some redundancy or backhaul?

D'Agostino: A lot of that remains to be seen. There's no question that partnerships will be important as we build out the network. We'll look at the possibility of sharing carrier sites. We'll look at financial partners. We'll look at state and local jurisdictional partners. There probably will be rural partnerships. A number of things will come together in the future. Specific to the antenna sites, you may see some sharing of towers, some sharing of shelter space, and some sharing of generators and battery backup. All that remains to be designed and evaluated.

AGL Magazine: For somebody in the industry, you see towers and antennas to be built. From a contractor view this looks as though it will be more resilient than a carrier deployment.

D'Agostino: The difference will be that we'll look to collocate on existing facilities first. We'll look at assets public safety agencies already have. We'll also look at assets that state governments and the federal government have. The sustainability of the FirstNet plan is important, so keeping costs low and deployment as quick as possible will lead us to use as much existing infrastructure as possible.

AGL Magazine: Do you envision a ratcheting up on the credentials or the training requirements for any of the deployment team, such as technicians and construction workers who climb antenna towers? You know we've had a not-so-good history in the wireless infrastructure industry

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with some of the tower erection and maintenance crews. How are you going to make sure the work on towers is performed in a professional manner?

D'Agostino: As with any other deployment, the scrutiny of vendors

and partners that work with us will be extensive. We'll look for the best qualified and the best trained tower workers and, obviously, the most efficient pricing we can get. We'll never cut a corner when it comes to safety. That will be made clear to everybody we work with.

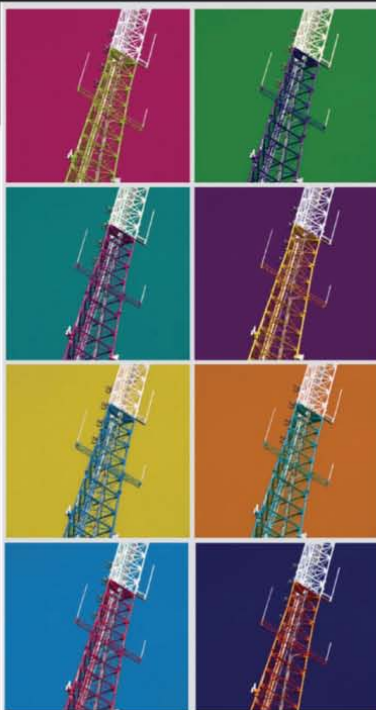
AGL Magazine: Say I'm a small contractor. How do I go about finding opportunities to work with FirstNet? Will there be a tier of larger vendors on a regional basis? Will it be on a state basis?

D'Agostino: That has yet to be determined, but the best advice I can give to interested contractors is to monitor our website for the requests for information (RFIs) and requests for proposals (RFPs) that we release. It may also be beneficial to become a qualified vendor on the General Services Administration Schedule.

AGL Magazine: What's happening on the national level versus what the states are responsible for?

D'Agostino: The legislation has three important mandates. The first is that we have to build and operate a core network. The second thing we need to do is to conduct state outreach. We've already started to conduct state outreach, and it will continue. From the outreach, we'll get to the third mandate, which is to deliver a plan to each state for a radio access network (RAN). Thus, these 56 plans have to be brought together under the one umbrella of the nationwide, interoperable FirstNet network. Highly important in those plans is that — instead of us coming at the states saying, "We're from the feds and we have a great plan for you, sign here," — we need to be able to work from the bottom up, understanding the needs, the priorities and the resources in the states, and work together with all the local jurisdictions and agencies to bring plans to the state governors that are joint plans. If we can do that, we have a high probability of success.

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INDUSTRY INTERVIEW

AGL Magazine: Your experience at Verizon with the use of the 700-MHz frequency band put you in a good position for the 700-MHz FirstNet: the antennas, the coverage analysis – all that’s going to be similar to what a carrier has. Is there anything different in the planning of the FirstNet site?

D’Agostino: Several things may be different. We have the opportunity to use high-power mobiles, so we’ll be looking at how that plays out. We’ll look at the ability to extend coverage with taller antenna sites and tower-top amplification. And we need to look at the ability to extend our signal through repeaters and other devices that may become a little more prevalent in our network than in a carrier network.

AGL Magazine: So, if there’s a tower to be built, how’s that decision going to be made? Will tower construction be part of the plan that you take to state governors for approval?

D’Agostino: There will be a state-by-state RF design. Planning will begin with the use of existing assets, and we’ll figure out the coverage from them. Only as a last resort will we look to build a new tower.

AGL Magazine: The great complication in all of this is interoperability and the multiband device debate.

D’Agostino: There are several debates. Do FirstNet and the FirstNet network replace LMR [land mobile radio] out of the gate? How do you integrate multiple bands into the devices? Or, should you integrate multiple bands into devices?

Let me start with the LMR question because it’s the biggest one. LMR is here to stay for the foreseeable future. It would be foolish for FirstNet to believe it would come out of the gate and replace LMR immediately. What’s important is for FirstNet to understand how public safety works,

how their LMR networks work and the processes that they follow, and then we need to come alongside with our data network and augment — not replace — LMR.

Ultimately, we will have the administrative voice on the network, and we will eventually have mission-

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critical voice. What's important to understand is that we will work as aggressively as we can to build mission-critical voice communications into our network, but we won't deploy it until the network is ready and until public safety says it's ready to move to mission-critical voice on the network. There's a long road between here and there.

Meanwhile, what do we plan to do with multiple bands and devices? Our hope is that partner carriers will begin to put Band 14 in their devices because they'll want to use the excess capacity of the FirstNet network, and we will be able to put carrier frequency bands into our devices so that we can roam and use those bands as backup systems for us as well.

AGL Magazine: What about the debate about there being no way to put safety traffic onto a public network because of a lack of preemption, a lack of quality service or capacity? What changes have to happen to a carrier network to allow it to carry some public safety communications traffic?

D'Agostino: I'm not sure carriers will ever give public safety communications preemption rights and the ability to preempt their customer base during emergencies. That's why it's fundamentally important that we build the FirstNet network. Public safety communications users will have priority access, and commercial wireless users will have secondary, or no access during emergencies.

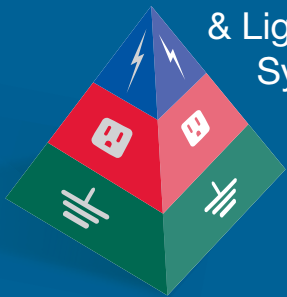
When you look at the differences between a commercial wireless carrier network and a public safety communications network, you'll see

“LMR is here to stay for the foreseeable future. It would be foolish for FirstNet to believe it would come out of the gate and replace LMR immediately”

that it's fundamentally important that we hold the FirstNet network to a public safety standard. For example, core network security will be at a level substantially above anything in the carrier networks. From there,

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everything else will start to fall in place to look like a typical radio access network with some hardening requirements that are a little bit different.

AGL Magazine: Video use with public safety communications is supposed to revolutionize how emergencies and other incidents are handled. But with the limited bandwidth FirstNet has dedicated for video, how is video going to fit in?

D'Agostino: Video is going to place a huge demand on the network bandwidth. That's where local control comes in, and that's another distinction between the wireless carrier networks and FirstNet's network. Local public safety agencies will have control of FirstNet users. They'll control



A dispatcher with a Motorola Solutions portable radio monitors video, incident command and other feeds on a Motorola PremierOne CAD system. Photo courtesy of Motorola Solutions.

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INDUSTRY INTERVIEW

what information is provided to the users and, during emergencies, they'll be able to decide who gets video, when they get it and what type of delay may be necessary. That's how we intend to manage bandwidth demand.

AGL Magazine: Any parting advice for possible FirstNet vendors?

D'Agostino: Position yourself with partnerships that make sense. FirstNet has some challenges, and we're going to need a lot of resources and support. Think about what it might be like to be in our shoes. We're looking for people who can provide the broadest range of solutions. Thus, our partners will be those who come to the table with a good understanding of how public safety works and can provide the most comprehensive and cost-effective options.

AGL Magazine: When do you think deployment might start?

D'Agostino: First, we need to solidify the business plan. Then, we'll refine the dates for the next steps and put in place the strategy. What you may see first from us are RFPs for devices. You will also start to see more information about the core network, which will be one of the leading-edge pieces that FirstNet needs to put in place. From there, decisions will be made on a state-by-state basis as to how the roll out begins. There is a group of four early movers that are part of the Broadband Technology Opportunities Program that have signed spectrum leases with FirstNet. Those have a target date to be on air in September 2015. And from there we'll bring on some others as the states adopt their individual plans.

For more info about FirstNet, visit firstnet.gov.

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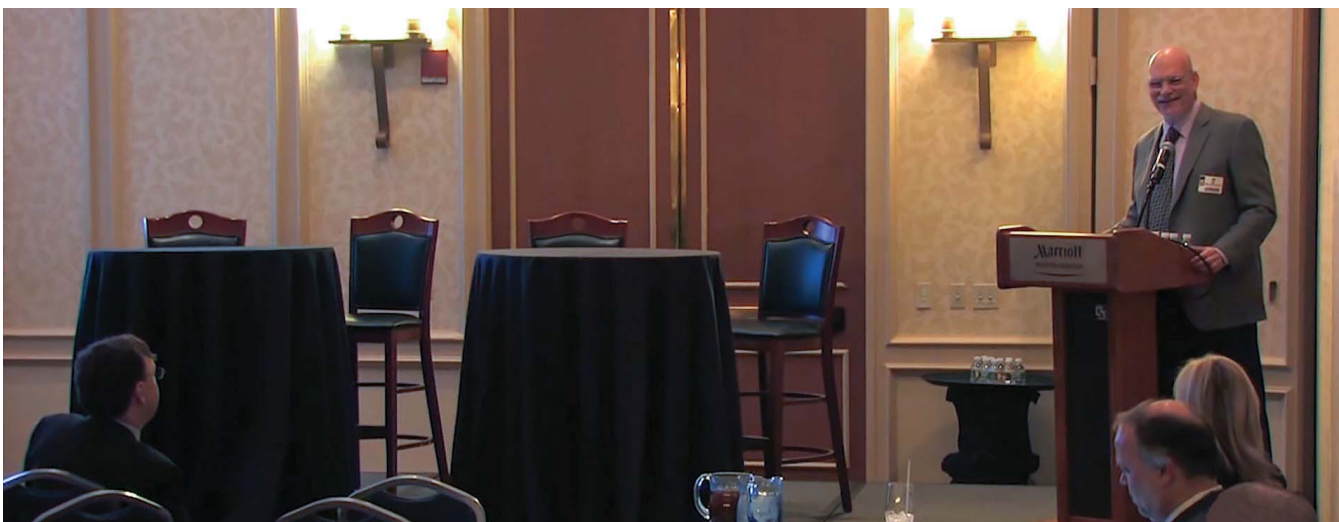
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FCC to Update Regs, Speed Deployment of Broadband

A federal initiative to accelerate broadband deployment includes ideas to improve wireless facility siting policies that could make it easier and faster to build antenna sites and to collocate on existing sites.

From a Presentation by William J. Sill

At the AGL Conference in Boston on Nov. 5, William J. Sill delivered the keynote speech. Sill is a partner in the Wilkinson Barker Knauer law firm and chairman of its Tower Group. *The following are his remarks, edited for length and style.*

The FCC has been trying for a while to help with the wireless infrastructure build out. It didn't suddenly jump on the bandwagon. In 2011, the FCC issued its important pole attachment order that applies to 30 states that have not certified that they regulate pole attachments. If a state has its own rules, the FCC rules don't apply.

The order entirely changed the pole attachment dynamic. It confirmed that wireless providers have a Section 224 right to access pole-tops. It lowered the Section 224 regulated rate for telecommunications attachment down to a level roughly equal to that of the cable rate. The two principles make it difficult for a utility to deny a pole attachment application.

The utility industry was not happy about the order because utilities view poles as being their domain, and they didn't grow up in an FCC-regulated environment with obligations to permit collocation for cellular and PCS network antennas. In court,

utilities challenged three aspects of the FCC's decision. They said that the FCC didn't have authority to promulgate the rules. They alleged that the decision was arbitrary and capricious. They also objected to the new telecom rate. In February 2013, the U.S. Court of Appeals for the District of Columbia Circuit upheld the order. In October 2013, the U.S. Supreme Court declined a petition seeking review of the D.C. court's ruling.

Section 6409(a)

Since the early days of cellular, the FCC has tried to encourage collocation, such as placing antennas on

someone else's tower, building or water tank. But some local jurisdictions were either slow-rolling or no-rolling construction permit applications. This was a challenge because the public has an insatiable demand for wireless data and voice communications. If wireless carriers can't place antennas on towers, it doesn't matter how much radio-frequency spectrum they have to carry the communications traffic.

In reaction, Congress included Section 6409(a) in the Middle Class Tax Relief and Job Creation Act of 2012, which said, "States and localities may not deny and shall approve any eligible facilities request for modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station." Congress could have just said that states and localities may not deny. But they went so far to say "and shall approve." It suggests that Congress was concerned that without those words, construction permit applications would languish not because they were denied, but because they were never approved.

The words in this one sentence have received more analysis, more microscopic review, than a lot of Talmudic scholars are capable of. Section 6409(a) was not as clear as it should have been. The terms in Section 6409(a) are close to, but not exactly the same as, the terms the FCC uses. Moreover, the act itself lacked definitions and legislative history — speeches by senators or congressmen that shed light on what Congress meant. In January 2013, the FCC issued guidance in a public notice for interpreting Section 6409(a) that used terms close to what it

used before. They analogized the expression "substantially change the physical dimensions of a tower or base station" to the 2001 Nationwide Programmatic Agreement's definition of a "substantial increase of the size of the tower," which says if the change does not increase a tower's height or width by at least 10 percent, then it is not a substantial change.

for distributed antenna system (DAS) networks and small cells, whether to exempt temporary towers from the antenna structure registration (ASR) and environmental notification requirements, how to interpret some undefined terms in Section 6409(a), and whether to further clarify the antenna permit application shot clock.

"It's important that the wireless industry really let the FCC know what kind of problems it's had and how to make things better – to give the FCC a game plan."

The FCC's public notice also said that the scope of wireless towers or base stations under Section 6409(a) is not limited to facilities that support personal wireless services under section 332(c) of the Communications Act. The public notice went on to say that localities may require an application for a covered proposal, but that 90 days should be the maximum reasonable time for review of a covered request.

Although this was a positive step, these matters were comparatively low-hanging fruit that the FCC dealt with in its public notice. The public notice left untouched other, more controversial issues. These issues are covered in a pending FCC notice of proposed rulemaking (NPRM) that the agency issued to, in its own words, "explore opportunities to promote the deployment of wireless infrastructure."

Four Major Topics

In the NPRM, the FCC considers four major topics: how to expedite National Environmental Protection Act (NEPA) and Section 106 review

DAS and Small Cells

The FCC is looking at how it can treat DAS networks and small cells, speeding up their deployment, because the agency recognizes that DAS and small cells are, in fact, different animals compared with towers. The challenge for the FCC is that DAS and small cells do not comport with the FCC's usual regulatory scheme. Usually, the entity that owns the wireless communications facility is an FCC licensee. However, one to five licensed carriers may share a DAS network, and DAS has no license. In the NPRM, the FCC says it wants to figure out ways to speed up the regulation of DAS and small cells while protecting the environment, make sure DAS and small cell owners live up to NEPA requirements, and make sure they protect historic properties as required by Section 106.

For NEPA review, the FCC proposes to expand the current categorical exclusion for collocations on existing buildings or antenna towers. FCC rule Section 1.1306, Note 1, says that under many



The FCC may decide to exempt temporary towers intended for use for less than 60 days from Antenna Structure Registration requirements. *Photo by Don Bishop*

REGULATION

circumstances for antenna collocations on an existing building or antenna tower, there's an exemption from NEPA review. Under the NPRM, the exclusion could be modified to explicitly include collocations on other structures such as utility poles, water tanks, light poles and road signs — the kinds of structures where DAS nodes and small cells would be placed.

The FCC also is trying to tackle the Section 106 review process for DAS and small cells. The NPRM asks whether consultation is needed with the Advisory Council on Historic Preservation, with state historic preservation offices and with Native American tribes. It seeks comment on three alternatives for tailoring Section 106 preservation review of

DAS and small cells. And again, they ask, "Should we come up with a categorical exclusion that excludes DAS and small cells from the Section 106 process?"

The categorical exclusion approach could be the most expeditious and legally defensible process to receive significant relief.

The second proposal is to have a program alternative. The Advisory Council on Historic Preservation has a number of innovative mechanisms to determine DAS and small cells as being a unique class and then tailor a special, expedited process for them. The problem is that the FCC has never utilized these mechanisms before. It's currently considering whether to do so with positive train control. But it hasn't actually gone through the process, so I believe that would take longer than the categorical exclusion.

The third alternative is for the FCC to find that DAS and small cell deployments are not undertakings under Section 106. Although that alternative is attractive because it would be a home run — if you're not a federal undertaking, then you don't have to do anything. You don't have to do a Section 106 review. You don't have to do a NEPA review.

Temporary Towers

In the NPRM, the FCC asked whether it should exempt from the ASR environmental notification requirements on temporary towers that would be up for fewer than 60 days. The ASR environmental notification process can exceed 60 days because it involves both local and national (FCC) public notices.

In May 2013, the FCC granted a temporary waiver so temporary

towers need not go through the ASR process. That's important because at incidents such as train derailments or shootings at schools, members of the public need to be able to communicate with loved ones to ascertain their health and welfare. Such unplanned incidents suddenly attract news broadcasters who need access to additional wireless facilities. The demand for wireless communications becomes very high because people think of wireless communications as the way to get instantaneous contact with their friends and loved ones. They don't rush home to dial their landline telephones. They pull their wireless phones out of their pockets to make calls.

The problem is, with incidents such as those and without relief from ASR environmental notification requirements, carriers would be hard pressed to legally provide temporary service because the first thing they usually would have to do is to file with the FCC and go through local and FCC public notices, which can take more than 60 days to complete, before they could provide service. In 60 days, an emergency is long past. It was interesting that when the FCC considered a petition filed by CTIA about this in the first instance and received comments about it, there wasn't a single objection. That's incredibly rare in Washington. In fact, instead of wanting the FCC to allow a temporary tower to be used for 60 days or less, some wanted the tower to be able to be used for a longer period. Thus, the tenor of the FCC consideration of this matter appears to be that the agency is looking favorably toward codifying the rule.

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Undefined Terms

A third topic of the NPRM is how to interpret several undefined terms in section 6409(a). The NPRM seeks comment about the meaning of certain terms used in Section 6409(a), including “transmission equipment,” “existing wireless tower or base station” “substantially change the physical dimensions” and “collocation.”

The NPRM is seeking comment on the effects that the state and local filing and review processes have on applications that are subject to its requirements. The FCC actually asks in the order, “Should we try to limit who can review the application?” so that, for example, the zoning board wouldn’t review the application. That’s going to be like a stick in the eye to the local jurisdictions. I expect the local jurisdictions and the states are going to come back and hit hard at the concept of additional FCC guidance in light of the FCC’s shot clock being affirmed by the U.S. Supreme Court. Some local jurisdictions may view this NPRM as their last chance to draw a jurisdictional line in the sand.

Shot Clock

Last, but not least, the FCC asks, “How can we further clarify the FCC shot clock for state and local review of wireless siting applications?” The shot clock is a mechanism that the FCC came up with that tells local jurisdictions they have 90 days to review a collocation permit application and 150 days for a new build application. And after that time, if they haven’t acted, the shot clock allows the carrier to seek judicial redress.

The Importance of the NPRM

Why should you care about the FCC’s NPRM? It’s important to keep tabs

on this and to be actively involved in this rulemaking because its outcome could help the industry’s efforts to achieve rapid broadband build out, or it could be a setback. Codifying temporary tower rules will allow carriers to respond instantly to disasters and unscheduled news events. DAS could flourish or fall short of its true potential, depending upon how the FCC decides to regulate it.

To my way of thinking, a small footprint at a low height should equal a reduced regulatory role. Treating DAS and small cells like a 200-plus-foot tower makes no sense, and such regulations could act as a curb on DAS and small cells’ future growth. And as a result of the FCC’s rulemaking proceeding, Section 6409(a) could be pumped up or deflated. The public and the industry benefit would be immense if Section 6409(a) were strengthened because collocations would be spurred by the certainty that Section 6409(a) would provide. Imagine having a construction timeline that you knew you could live up to. Further, it would provide a useful tool if the local jurisdiction chose to slow-roll on a permit application.

The NPRM provides an unparalleled opportunity, first to be heard on issues central to Section 6409(a). It’s important that the wireless industry really let the FCC know what kind of problems it’s had and how to make things better — to give the FCC a game plan. But it’s also a real opportunity for states, local jurisdictions and the industry to seek some common ground. If the FCC gets this right, we could have a well-defined system that everybody could live with. That’s much better than the alternative of going through

litigation in court after court and watching the deliberations proceed slowly over three to five years before finally reaching a conclusion.

So, how do we do that? Well, there’s actually a precedent for that. A few years ago, the FCC was dealing with a matter involving migratory birds. It was a really tough issue because the migratory bird advocates were saying that the FCC’s rules had to be overhauled and what would happen would be that fewer towers would be built and it would take much longer to build them. The industry got together with the migratory bird advocates and PCIA and they worked out what was called a memorandum of understanding with key principles that were important to both parties. Then they provided that to the FCC, and that formed the nucleus of the final rules. It was responsive to the bird advocates’ needs and it was responsive to the wireless industry’s needs.

The same thing could take place with the NPRM. One encouraging sign is that interested parties on both sides have been talking. But in order for such discussions to be fruitful, everyone would have to put down their swords and beat them into plowshares. Even if that doesn’t occur, I must encourage you and your organizations to be active participants in the NPRM because what is decided there could determine whether the broadband build out can be done expeditiously.

The deadline for filing comments with the FCC in the NPRM was Feb. 3. Reply comments still may be filed; they are due by March 5. William J. Sill’s email address at Wilkinson Barker Knauer is wsill@wbkllaw.com.

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Magnetic Mounts Secure Antennas on Water Tanks

After a water district banned welding or using epoxy on water tanks to mount cellular antennas, wireless carriers and their installers turned to the use of magnetic mounts for noninvasive placements.

By David Klein

The Otay Water District in Southern California uses 39 water tanks to serve 200,000 customers. Thirteen have wireless communication antennas attached. Because of environmental and safety issues and concerns about damage to its tanks from welding and epoxy, the district requires new antennas mounted to its water tanks to be installed using a magnetic mounting system or other nondestructive alternative. The district

also mandates those same standards any time an antenna is modified or replaced, and whenever the district schedules a tank to be painted.

“It costs a half-million dollars to paint a water tank inside and out,” said Brandon DiPietro, inspector supervisor for the Otay Water District. He said welding can damage the interior coating of the tank, and hiring a diver to repair that damage is costly. The use of epoxy to attach antennas is also an issue

for DiPietro. “They have to grind through the exterior paint. You have expansion and contraction issues, and eventually the epoxy mount needs to be replaced.”

Antennas mounted with epoxy have been known to fall off towers. Tai Irish, senior project manager at Goodman Networks, a telecommunications network services company, said, “Everything on the tower was on the ground. The epoxy failed.”

Goodman Networks is the vendor

“Epoxy would have taken much longer, three to five days to prep, apply and let it cure, and then test it. It just took two days to install the magnetic mount system. At a cost of \$5,000 to \$7,000 a day, it’s a big savings.” –Brandon DiPietro

for AT&T Mobility in San Diego. When the wireless communications giant wanted to expand its coverage by attaching eight antennas to an Otay water tank in Jamul, Calif., Irish was charged with finding a system that met all the specifications. He contacted Metal & Cable. Irish was familiar with our company’s magnetic mounting system because he had successfully used it on a job in Washington state about seven years ago. “I remember it worked out great,” he said. “It was a real clean install. It saved a lot of time and was much easier to put on than epoxy.” He recommended AT&T use the system on the Otay tank.

Noninvasive, Permanent Solution

A magnetic mount is a permanent, noninvasive technology that can quickly and easily secure antennas to steel surfaces. The Metal & Cable product is specifically designed to accommodate the curvature of water tanks. Because the system relies totally on magnets to attach the materials, no welding or epoxy coating is needed, avoiding potential damage to the tank. DiPietro, with the Otay Water District, noted that a layer of factory-installed Mylar polyester film between the magnet and the steel tank stops any stray voltage from getting into the tank and damaging the coating system. Installation time is greatly reduced. Most systems can be installed in a

day or two as opposed to four or five days using epoxy. Antennas are attached to 12-foot masts made of anodized extruded aluminum using 300-grade stainless-steel U-bolts, so rust is not a concern.

The magnetic mount system is available in five basic designs. The one selected for the AT&T/Otay project is specifically designed for side tank mounting. All eight antennas were attached to the side of the tank near the top of the steel structure.

“Wind was the governing factor in this case,” said Al Di Donato, a structural engineer and owner of Di Donato Associates in San Diego, who recommended the magnetic mounts. “Antennas are like sails in the wind. We have wind gusts here up to 80 miles per hour. They can shake the entire tank.” Taking that into consideration, Di Donato recommended the contractors install three magnetic plates for each antenna rather than the customary two plates.

Handling the Weight

Every 24-inch-by-24-inch plate in the magnetic mount system is secured with 24 magnets. Each magnet provides 100 pounds of vertical pull and 33 pounds of shear strength. Using three plates for each antenna provided 7,200 pounds of vertical pull and 2,400 pounds of shear strength, far more than was necessary to hold the 8-foot panel antennas and the remote radio

units (RRUs) that AT&T added to each of the antennas. The RRUs added an additional 110 pounds of weight to each mast. Bob Sabb, construction manager for AT&T in San Diego, was not concerned about the added weight.

“You can load these things up with weight,” he said, “and we did. It was a substantial load.” Di Donato, who had never worked with



our company’s magnetic mounts before, said it may have been a bit of overkill to add the third plate, but, he said, “We went a little bigger than was necessary. I put in a safety factor. I am confident it will hold. If we do any more water towers I will propose that we go with this Magnemount system.”

Quick Installation

Installing the antennas using the magnetic mounts was quick and easy, according to Dennis Ferquez, construction supervisor for Aliantel in Murrieta, Calif., the firm hired to install the equipment. Using a man-lift, two men were able to complete the entire job in just two days. “It went up real easy,” said Ferquez. “It was a lot quicker than using epoxy and a lot less work.” He also noted

ANTENNA INSTALLATION



Magnetic mounts supporting the entire system of antennas, remote radio units and cables for AT&T.
Photography by Tai Irish, Goodman Networks.

ANTENNA INSTALLATION

that the system provides a quick and easy way to temporarily remove the antennas for maintenance or for the water district to paint the tank.

Speed of installation was a selling point for Goodman Networks' Irish. "There was no prep involved, no grinding down, no painting," he said.

DiPietro, with the water district, said the time saved by using the magnetic mount system instead of epoxy also saved a lot of money. "Epoxy would have taken much longer, three to five days to prep, apply and let it cure, and then test

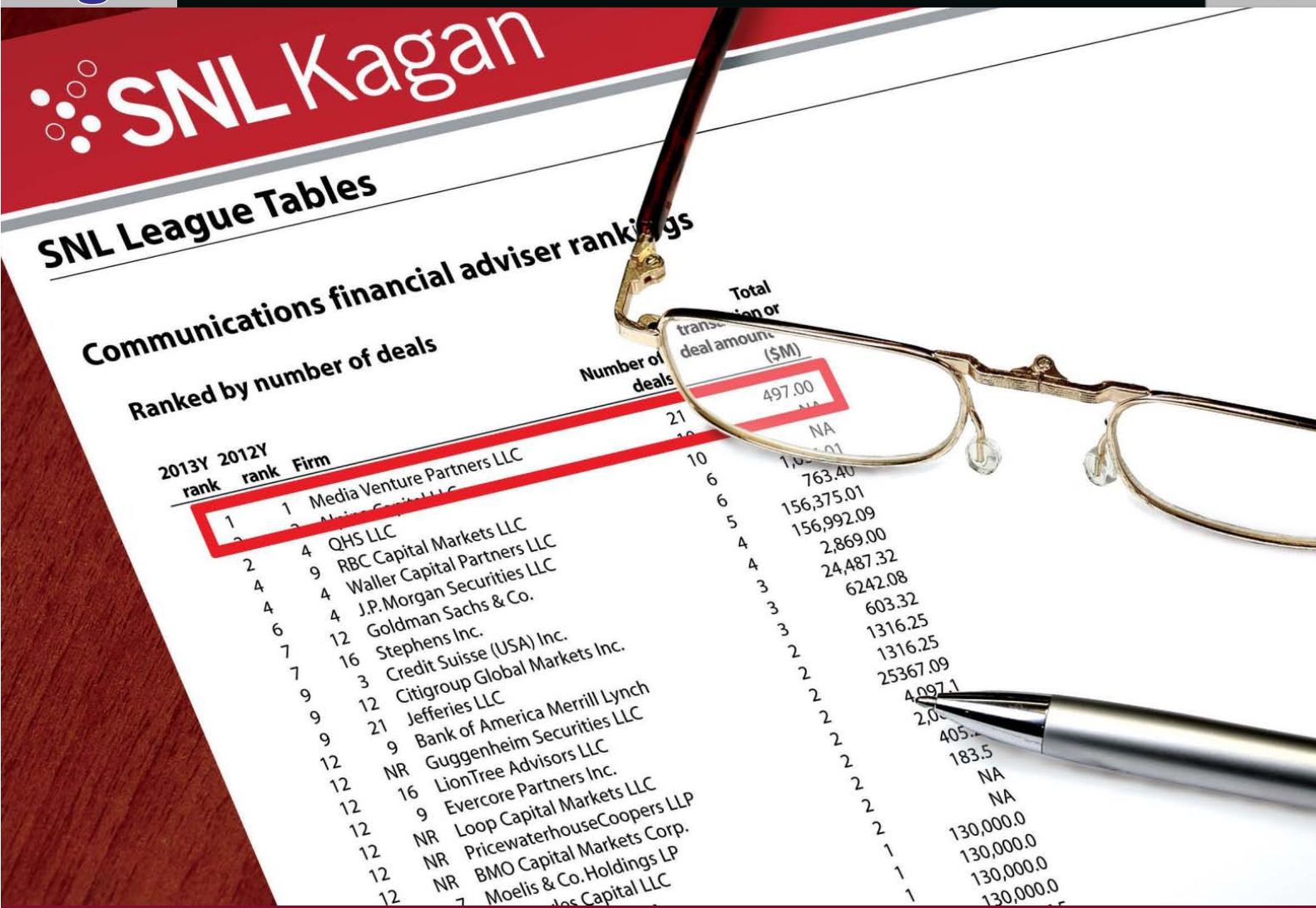
it," he said. "It just took two days to install the magnetic mount system. At a cost of \$5,000 to \$7,000 a day, it's a big savings, since you are paying for one or two days instead of four or five days. It's cost-effective."

AT&T's Sabb said he was also impressed with the installation. "It was very clean, very efficient," he said. But Sabb said the biggest advantage of the Magnemount system is that it is noninvasive; it doesn't damage the water tank as welding can. By using magnets instead of

welding, "you reduce the risk of damage dramatically," Sabb said. "All it takes is one bad welder and I buy a water tank. And I am not interested in buying a water tank."

About the Author:

David Klein is president of Metal & Cable, Twinsburg, Ohio. His email is david@metal-cable.com. Under the trademarked names of Magnemount and Side Tank Mount, the company offers magnetic mounts described in the article.



2013 Was Another Great Year.

SNL Kagan, a leading industry source for data and analysis of the communications and media sector, recently released its 2013 league tables. For the second year in a row, MVP was on top.

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An instructor teaches students how to measure radio-frequency (RF) levels on a rooftop as part of a safety course. Photo courtesy of Narda Safety Test Solutions.

The NATE Exchange Safety Portal

Plenty of choices await visitors to a safety training and products Web portal. Participating companies belong to the trade association for tower construction and maintenance companies.

By Don Bishop

Late last year, the National Association of Tower Erectors (NATE) launched a Web portal to help with finding, selecting and purchasing the right training and products for workers who climb telecommunications towers as part of their technical, maintenance or construction jobs. At natehome.com/nate-exchange, users can access the portal, which is dubbed the Exchange and promoted as a premier safety education resource.

The portal is intended to be a convenient, consumer-driven, one-stop

shop for tower construction and maintenance companies and for individual tower technicians to gain access to the most sophisticated and up-to-date training courses in the tower industry, NATE says. Members of NATE qualify for discounted rates on designated training courses offered via the portal. The following is some information about participating NATE Exchange companies.

AccessRescue

Co-owner Glenn Speight said AccessRescue offers competent

climber, competent rescue, fall protection and rope access training courses for work of various types at height. The company has two facilities, one in Bristol, R.I., and another near Chattanooga, Tenn.

“Our organization has dedicated facilities with a wide variety of equipment,” Speight said. “This lets students learn how to inspect and use equipment to understand how it works and build confidence in their skills. Using our rescue background, we developed rescue procedures to create simple,

retainable procedures so those we train can help a co-worker when necessary. They'll never remember complex, convoluted concepts."

Speight said AxxessRescue performs demonstrations of every exercise. "We normally have multiple instructors to help the students, and they all do each exercise," he said. "Some of the world's largest contractors tell us, 'No one is doing what you're doing.' It's a matter of giving people what they pay for and giving them an environment to obtain the skills, and keeping it simple."

Speight said he and his partner have backgrounds in curriculum development and adult education, and that he uses his 30 years of experience as a graphic designer to prepare presentation materials without fluff or misinterpreted standards. "Many training organizations only train to pass the course,"

he said. "We want to give students more skills that apply to the environment in which they work. It's a significant difference that students appreciate."

AxxessRescue doesn't sell equipment, Speight said. "Many others make their money selling equipment," he said. "We don't sell equipment. We've gone to industrial sites where workers have had immense amounts of equipment, and they probably needed only a quarter of what they had. Many other companies generate revenue with frivolous sales."

Capital Tower

As both a manufacturer and training services company, Capital Tower offers fall protection equipment and maintains a network of authorized distributors, and offers on-site and in-house training. The company is ISO-9001-2000-certified for

customer service, manufacturing and engineering. Among its offerings are DBI-Sala and Protecta brand products.

CITCA

With college-accredited tower erection and safety training programs, CITCA serves the communications industry using facilities at its headquarters near Chicago and with regional facilities in Alvarado, Texas, and Morgantown, W.Va.

ComTrain

Courses offered by ComTrain meet ANSI/ASSE and OSHA criteria for accepted practices in safety, health and environmental training. The company has provided climbing safety, fall protection and rescue training since 1996 for all types of structures, industries and occupations.

NATE Exchange Participating Member Companies

AxxessRescue
axcessrescue.com

Capital Safety
en.capitalsafety.us

CITCA
citca4training.com

ComTrain
comtrainusa.com

Corporate College
corporatecollege.biz

Global RF Solutions
gfrs.net

Grand Rapids Community College
grcc.edu/schoolofworkforcedevelopment

Gravitec Systems
gravitec.com

Honeywell
millerfallprotection.com/training

Knight Oil Tools - Advanced Safety
knightoiltools.com/advanced-safety

LBA University
lbagroup.com/lba-university

LTC - Lakeshore Technical College
gotoltc.edu

Narda Safety Test Solutions
narda-sts.us

Pacific Safety Solutions
pacsafetysolutions.com

Safety Connection
safetyconnection.com

Safety LMSystems
safetylms.net

Safety One Training International
safetyoneinc.com

Tech Safety Lines
techsafetylines.com

TES
towergear.com

Vertical Rescue Solutions - PMI
pmirop.com

Wireless WorkForce
twwftraining.com



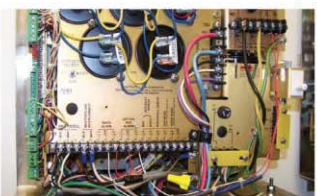
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“The NATE Exchange is a great opportunity for selling and for businesses and companies building towers to learn where to obtain training and what training is required.”—Bill Koontz

Corporate College

Bill Koontz, project manager at Corporate College, a part of Western Iowa Tech Community College, said the college’s new Tower Academy is offering its first courses this month. “We put in place all the required safety and awareness courses for a beginning and intermediate climber,” he said. “It starts with OSHA 10-hour and continues with first-stage DPR, authorized climber, competent climber and competent climber rescue training. We’re batching them into a weeklong training session. They start Monday at 8 a.m., and we go for 40 hours and they finish Friday at 5 p.m. with all the training to have the certifications.”

Corporate College has 20-foot towers for training indoors, and in summer 2015, it will have an 80-foot stand-alone tower outside. The college conducts classroom instruction and tower training in the same location.

“We were awarded a Susan Harwood grant this year, which allows us to deliver free, on-site training in tower rescue, climbing and OSHA 10-hour,” Koontz said. “We have to deliver three modules we developed for OSHA: tower deconstruction, rigging essentials and RF essentials. As long as employers let their employees go through those three two-hour modules, we can do other training for free while on-site.”

Koontz said the Corporate College has been a part of NATE for quite some time. He said he is on the NATE safety and education subcommittee.

“The NATE Exchange is a great opportunity for selling and for businesses and companies building towers to learn where to obtain training and what training is required,” Koontz said. “It’s an opportunity for Corporate College to have the Western Iowa Tech name placed with a group of other providers and to be seen producing and delivering safety training. You’re not necessarily allowed to be a part of the NATE Exchange unless you follow a standard NATE has. That says our quality is good as a community college and we’re in with the other safety companies.”

Global RF Solutions

Marvin Wessell, chief executive officer at Global RF Solutions, is a member of IEEE and a working subcommittee member for IEEE PC95.1 Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic and Electromagnetic Fields, 0 Hz to 300 GHz, and a voting member of the IEEE’s International Committee on Electromagnetic Safety. The company’s areas of expertise include FCC compliance, antenna and network level troubleshooting, RFI isolation and resolution, performance optimization, site coordination and project management.

Grand Rapids Community College

Mary McGraw, training coordinator, said the college’s partner is Safety Technology of Wales in the United

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/ SPECIAL SECTION /



Students receive training for rescuing a co-worker.
Photo courtesy of Corporate College.

SAFETY

Kingdom. “We brought their program to Grand Rapids, Mich., to instruct wind turbine technicians,” McGraw said. “Then we realized the need in the tower industry. We realized that the training is similar.”

The college offers instruction in competent climber, competent rescue and authorized climber. “We follow the NATE course training standards,” McGraw said. “These courses help people be mindful when they are climbing and working to make sure they and their climbing partners stay safe. If an incident does occur, it teaches them proper methods for rescue of a casualty. For the most part we train people who already work in the industry. The tower industry is growing tremendously. It’s a different worker than turbine; with the tower industry they’re more exposed to the elements. Most of the turbine work is inside the tower.”

Of NATE, McGraw said, “It’s nice to see a trade association truly behind the safety training. So many times compa-

nies do this because they have to, not because they want to. There have been tragedies, and if we can make the number of them go down, that’s wonderful. NATE has a standard, it’s a minimum standard, but that’s good.”

Gravitec Systems

Established in 1986, Gravitec first was involved with rescue, but found that fall protection and prevention could reduce the need for rescues. “We believe that fall protection training is the cornerstone of any fall protection program, and we were the first company to teach in-depth fall prevention and protection aimed at reducing fall-related industrial injuries,” information from the company says. “In 25 years, we have become the largest fall protection training company in North America. Our team of fall protection and rescue instructors logs over 50,000 student training hours each year.”

Gravitec established an equipment sales department to help clients locate the most reliable fall protection and rescue equipment for the best price. “We are not an equipment manufacturer, and we do not recommend a single line over another,” company information says. “We believe instead in advocating the best product for each individual application.”

Honeywell

“Our lead instructors are trained in the disciplines of education and instructional design, and are authorized OSHA construction safety and health instructors,” information from Honeywell says. “Instructional team members are well-versed in the development and presentation of safety training programs, regulatory requirements and interpretations, methods for protecting workers from

safety and health hazards, and the skills necessary to supervise and safely work in elevated environments.”

Honeywell instructors guide clients in the proper selection of fall protection equipment and the skills required to achieve maximum performance at minimum risk. The Miller Fall Protection by Honeywell training programs provide participants with the knowledge required to properly select, inspect and use the proper personal protective equipment for safe access to and egress from, exposed work sites.

Knight Oil Tools—Advanced Safety

The company offers crane operator courses designed to provide education in the safe practices and procedures in all industries. Electrical safety and fall protection are taught with hands-on and classroom methods.

LBA University

“We have numerous safety offerings,” said Brian Dixon, director for LBA University. “We teach RF safety in English and Spanish for tower workers, rooftop workers and the general public. We offer OSHA-related training online such as the globally harmonized system for classification and labeling. That’s the first wave of the update of hazcom 2012 changes that OSHA made to the standard.”

LBA also offers training for hazards associated with working outdoors, such as cold welder and hot welder.

LTC—Lakeshore Technical College

LTC calls its training “workforce solutions,” and it offers more than 100 career programs, customized training for business and industry, continuing education for personal and professional enrichment, and basic skills education.

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/ SPECIAL SECTION /



Students at a tower site used for safety training.
Photo courtesy of Corporate College

Narda Safety Test Solutions

Bob Johnson, director of safety products, said Narda has been offering a three-day radio-frequency safety officer course for 20 years. "If you're going to hire someone to make surveys or if you were going to perform surveys yourself, the course gives you a higher level of knowledge

that you need to manage a safety program," he said. "It's not a simple class like I'm going to put a personal monitor on and what do I need to know. It's for the person who's running it."

Narda offers wideband personal monitors worn by employees, and it makes the SRM series of narrowband RF survey meters and antennas that allow measurement of fields many times lower than standards allow and that have the ability to identify any and all emitters by their frequency, as well as power. The company's NBM Series of RF survey meters and probes is said to be the most accurate nonionizing radiation system available. It provides a broad frequency coverage of electric and magnetic fields and has probes shaped to international standards.

Pacific Safety Solutions

Specializing in delivering environmental safety and health for contractors in the wireless telecommunications industry, Pacific Safety Solutions develops and implements safety programs, trains employees and assesses sites. With innovative teaching techniques, the company seeks to more effectively gain influence over a client's safety culture to improve productivity and reduce operating costs through minimizing loss.

Safety Connection

Detailed, hands-on fall protection training from Safety Connection includes competent person, competent rescue, crane fall protection and rescue, authorized climber, competent climber and competent climber and rescue courses. The company also offers assistance with equipment purchasing.

Safety LMSystems

A combination of classroom training, on-site practical skills testing and on-line courses from Safety LMSystems is intended to provide an effective, cost-efficient training solution. Continuous and evolving training is an essential building block to a successful telecommunications business, information provided by the company says. The president and owner, Gordon Lyman, is chairman of the NATE/OSHA Relations Committee.

Safety One Training International

Tower climbing safety and rescue training from Safety One Training International teaches climbing safety, rescue and fall protection. The company customizes courses to fit client requirements for rope access, confined space and other unique challenges. Information supplied by the company

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also says it is expert in winter survival, snow vehicle and snow cat safety. Courses offered include arid survival, UTV and ATV operator training and helicopter passenger safety.

Tech Safety Lines

With proprietary training and patented safety equipment, Tech Safety Lines is dedicated to providing a culture of safety and protecting workers at height. In addition to providing on-site and on-demand rescue training, the company provides safety consulting, fall protection, fall arrest systems and a training curriculum. Its in-house training facility has multiple training platforms and classrooms.

TES

Also known as Tennessee Equipment Supply, TES developed a training division at the request of customers who wanted more detailed instruction and a better understanding of their equipment and its proper use, information supplied by the company says. TES trains to ANSI, OSHA, NATE, NFPA and SPRAT requirements. It offers a variety of products, training and

services related to fall protection, rescue and access. TES is a stocking distributor of DBI-Sala, Elk River, Petzi, PMI, Sterling Rope, Novatec, AB Chance, Tractel and Skylotec products.

Vertical Rescue Solutions—PMI

With an emphasis on rescue planning and regulatory compliance for organizations and individuals who work at height, Vertical Rescue Solutions – PMI is dedicated to saving lives by providing rescue and safety consultation and education. The company offers 16 standard courses and can tailor courses by industry and location. VRS courses emphasize the use of life safety gear manufactured or distributed by PMI.

Wireless WorkForce

A California company, Wireless WorkForce offers courses focused on the wireless industry in three categories: environmental, health and safety certifications for every OSHA-mandated requirement, technical training designed to develop technically minded persons into productive technicians, and product and project training created to certify technicians in the deployment or use of specific equipment.

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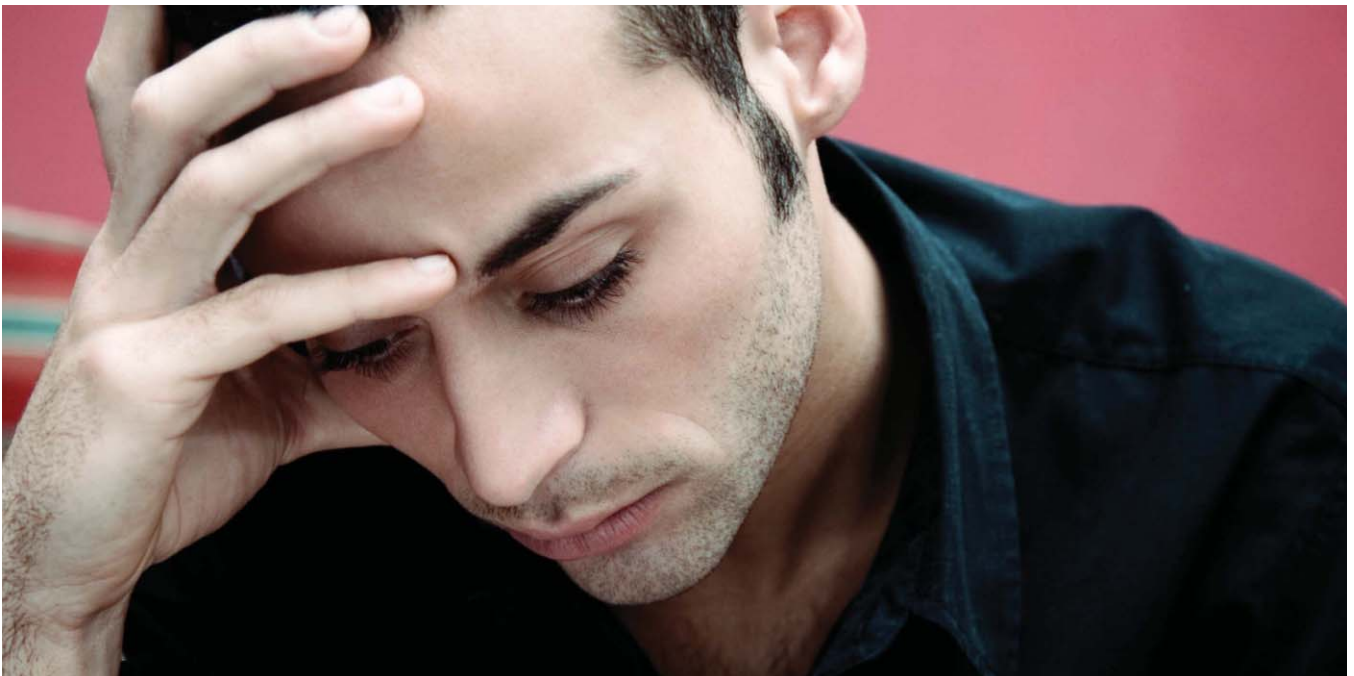
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On the Road Again...

Employers have an obligation to ensure the workplace environment neither exacerbates nor contributes to the onset of employee mental health problems. Here's what that means for tower construction and maintenance employers.

By Dr. Bridgette Hester

Preliminary data from tower climbers indicates they average 210 to 300 days of travel per year. The small number of climbers in the antenna-site industry and the nature of the job make an extraordinary number of travel days inevitable. You who use the services of tower climbers are aware of this, so why should I mention it? Although you may be aware of the copious amount of employee travel, are you aware of how it affects your climbers, their families, productivity levels

and your bottom line? The focus for most employers tends to be almost exclusively on the bottom line; however, research has proven that the extensive amounts of travel your climbers endure can take a toll on every aspect of your business.

The human element is always (at least it should be) more important than the bottom line. In that spirit, I will illustrate how the human factor — your employees — affects all elements of your business, including your bottom line.

Human Element—the Employee

Your most valuable asset is your technicians. Without them, you don't have a business. Being mindful and intimately aware of the human element that drives your business is not only smart, it's sound business practice. Not being mindful of this element can risk your company's reputation. With the prolific use of social media, one intentional or blatant disregard for an employee's safety or health could easily place a

business on a social media wall of shame. Employers have not only a responsibility to their checkbooks and bottom lines, but also a moral and legal responsibility to protect their employees and provide them a healthy and safe working environment.

personal level, you provide not just monetarily, but you also demonstrate moral support for the time they spend away from their families.

Travel is part of the job, and frequently travel is for extended periods. There are men and women in this

absorb some information. Place yourself in the shoes of the people driving and building your business. Read. Reflect. Ponder. Then, consider making some changes in order for your company to become employee-focused, if it's not already.

I think of the families separated from their loved ones for 200, 250,300 or more days a year and I shudder.

Two hundred plus days on the road is detrimental physically, mentally, emotionally and spiritually to the technician. An employee-focused company will provide equipment and training and invest in its men and women. In doing so, you create a solid foundation of mutual respect and integrity that your men and women can appreciate. When you invest in them on a

industry who do not mind the travel and in some cases thrive on it. However, more often than not, your employees have extended families: wives, husbands, children, mothers, fathers, siblings, nieces, nephews. It's potentially easy to lose sight of this while you land the contracts and focus on the business. This is an opportunity to take a moment and

Family Life and Relationships

I was one of those wives of tower climbers. My late husband Jonce Hubble's employer was respectful of our home life and the need for family members to spend time with one another. Although my husband's travel was fairly extensive during certain seasons, the management at the company that employed him usually limited his travel to two to three weeks at a time with a few weeks between jobs. I believe that this was due to the family atmosphere created by his employer. The owners of the company and its

Suggestions From Climbers and their Spouses

Keep the jobs local (#1 response).

Keep the jobs to 2-3 weeks.

Give time off for family emergencies.

Give time off to be home on the holidays at a decent time, not the same day or hours beforehand.

Provide the climbers with Skype to have face-to-face time with family when they have to be away from home for extended periods.

Provide ticket/gas money or a hotel room for spouses or children one time per month if they will be away from home longer than two months.

Provide employee paid outings to which spouses are invited (picnics, company vacations as a company).

Give a bit more per diem.

I was out for eight months, five to six days at a time, and home for two to three days at a time, and then flew right back out. A paid week off would have been really nice. All I did was sleep when I did go home because I was so tired. This left me no real time to spend with the wife and kids. This is not good for a family man.

If married, but no children, allow the spouse to travel with the climber.

Allot the climber a family separation pay bump after an agreed upon number of days (30 or 60 days).

Try harder to find people willing to learn the trade in the areas they send us away to.

Offer higher compensation.

Rotate crews of climbers to reduce the amount of time spent on the road.

/ SPECIAL SECTION /



SAFETY

managers cared about employees' spouses and children. They were genuinely concerned about the emotional and mental health effects of extensive travel on their employees' families. We had it better than most. I think Jonce might have traveled 150 to 175 days a year, maybe a bit more every other year or so.

I think of the families separated from their loved ones for 200, 250, 300 or more days a year and I shudder. Even though Jonce's travel was relatively light in comparison with most climbers, we still had problems with time lost in the relationship, not feeling an emotional connectedness after extensive periods of travel, parenting difficulties, money problems, loneliness, depression, anxiety and feelings

of abandonment. When I consider how those problems would have been intensified or how the problems could have spiraled out of control if his travel schedule had been much worse, it leaves me wondering. How do other climbers' relationships and marriages survive? A lot of times, they don't.

Research reveals the detrimental effects extensive travel and work-related pressures have on families. Extended periods away from home can have significantly negative effects on the psychological well-being of one's spouse. Extended periods away from home also affect the quality of relationships between spouses, between the absent parent and their children, and increased levels of marital discord and dissatisfaction. These also increase the

likelihood of divorce and instability.

Stress at work spills over into the family environment. Furthermore, jobs that provoke poor interpersonal family relationships and negative familial outcomes include jobs with rotating shifts, irregular and extended periods away from family, and jobs that conflict with the spouse's work schedule. Jobs that require extensive periods of separation are also positively correlated with negative familial effects, such as role confusion and role and personal realignment.

Mental Health

Work can be a valuable and wonderful source of accomplishment and self-efficacy, and its positive benefits have been recorded for years in academic research. Work provides needed encouragement and an increase in self-esteem, and it provides people with a sense of accomplishment and pride. However, work that requires attention to mentally and physically demanding conditions, that is dangerous or life threatening, or that involves extensive amounts of travel can also create, exacerbate and reactivate mental health disorders in employees.

Extensive periods of travel and demanding and sometimes dangerous physical demands are commonplace in the telecommunications industry. Although employees agree to these conditions upon hire, it is the responsibility of the employer to monitor employee health to ensure the employees are not pushed to the breaking point. Mental health issues are extremely serious. They have devastating effects on families if left unaddressed. It is the responsibility of the employer and the employee to work together to address problems that affect the worker and the worker's family. Mental

health problems, whether pre-existing or developed over time, affect both the employee and the family left at home.

In her book *Ambiguous Loss: Learning to Live with Unresolved Grief*, Pauline Boss reported that when one spouse is away from home for extended periods, the home-based spouse is often left to constantly adjust, taking on the duties and responsibilities of the absent parent, often without the support and encouragement that defines the intimate relationship of marriage. Furthermore, Boss wrote that the constant readjustment and the frequent comings and goings of the traveling spouse can increase the likelihood of feelings of abandonment and mental health issues.

Other researchers reported lower rates of marital satisfaction and higher rates of turbulent relationships with children. Additionally, several research studies have found that absence from the home for extended periods and work responsibilities perceived by the home-based spouse as excessive or demanding increase the likelihood for higher depression rates, irritability and loneliness — symptoms similar to that of post-traumatic stress disorder, mood problems and disorders, lack of energy, loss of a sense of personal control and other mental health problems.

Self-Medicating

It's no secret that the tower construction and maintenance industry has an embedded drug culture, and to say otherwise is putting your head in the sand. I am by no means stating that every climber uses drugs. I don't believe that to be the case. I am also not stating that every climber who uses drugs is doing so for mental health reasons or to self-medicate. Sadly, there are those who use drugs for no

other reason than to get high.

Let's save a thorough discussion of drug abuse in the tower construction and maintenance industry for another time. However, I do want to focus on mental health as a function of drug use. Given that people self-medicate for a variety of reasons and that there is a mountain of research affirming drug use to mitigate mental health problems and symptoms, it is not unreasonable to assume that a certain percentage of climbers use drugs as a coping mechanism. This perceived need to self-medicate may stem from a variety of reasons, many of which

as a belligerent attitude, poor work performance, legal costs, increases in insurance premiums and OSHA investigations. Beyond these possibilities, you have an employee choosing to self-medicate instead of seeking help for the problems that may have led to one or more addictions.

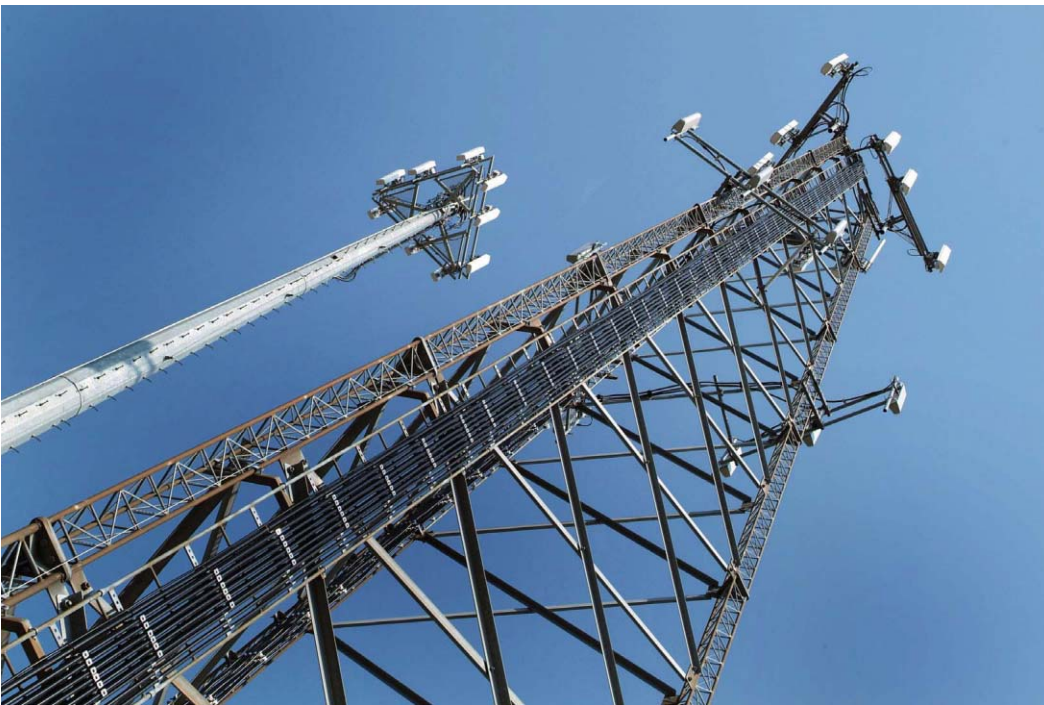
Employers do not need to babysit their employees. Employers are not responsible for every problem an employee has, and in fact may not be responsible for any of them. Nor should the employer take on the responsibility for someone else's

A self-medicating employee may engage in unsafe activities, such as showing up at the jobsite high or drunk, climbing while under the influence, driving while under the influence or committing acts of violence.

could have nothing to do with the job. Some employers do not address the areas in their business that could cause problems or that could exacerbate employees' mental health problems. When climbers are forced to work for extensive periods away from home and away from stabilizing factors in their lives, it multiplies potential problems, most of which are costly not only for your company, but also for the well-being of your employees.

A self-medicating employee may engage in unsafe activities, such as showing up at the jobsite high or drunk, climbing while under the influence, driving while under the influence or committing acts of violence. Employees who are under the influence have the potential to injure or kill themselves or others on the job. This could lead to other problems, such

choices. Do I tolerate climbers using drugs or other substances, even in their off time? Absolutely not. However, I believe that employers have an obligation (maybe not legal, but moral) to ensure the workplace environment neither exacerbates nor contributes to the onset of employee mental health problems. The choices you make as an employer don't affect just you, they affect everyone. I know the job has to get done, I know that the deadline was three weeks ago, and I know that you need your business to become bigger and to produce more income. I also believe that if your employees are traveling too much and pushing too hard, and if the company is growing fast at the expense of you and your employees, you are doing yourself a disservice.



helping employees feel appreciated and taking a part in supporting your employees' family lives is not only the moral thing to do, it's the smart thing to do. Creating a family-oriented culture allows your employees to feel confident that they can come to you with a problem. That atmosphere creates a far more productive work environment than one in which employees feel as though they have to avoid you, self-medicate or lie about things that affect their work. Working together improves morale and productivity, increases job satisfaction and reduces turnover. It requires you to create something new, which can be a challenge. I hope all businesses within this industry strive to make these improvements.

As the president of Hubble Foundation, I deal with the families of the fallen. I also deal with the active climbers and their families, several of whom volunteer for me on a regular basis. They tell me what they want. Most climbers want a solid employer that cares about them. As a whole, tower climbers feel like no one cares about them, the jobs they perform and the personal sacrifices they make in terms of family to do what needs to be done. As an employer, your company should have a vested interest in wanting to create a solid and positive atmosphere for both you and your employees.

About the Author:

Bridgette Hester, Ph.D., is a family and workplace strategist. She is the founder and president of the Hubble Foundation, which is dedicated to promoting the safety of tower workers, site crews and green energy turbine climbers. Her email address is bridgette@hubblefoundation.org. A list of 22 references used for the article is available from the author.

Bottom Line

You know better than I do what technical aspects affect your bottom line, but there are problems that affect your bottom line that I know you might not be aware of. These are problems you might consider to be incidental or unrelated; you just deal with them as they present themselves. Problems like traffic tickets, traffic accidents, company vehicle maintenance, lower worker productivity caused by fatigue, mental health concerns, minor workplace injuries, self-medication by employees, anger and resentment.

These problems affect not only workers, but also your business. Extended travel can cause workers to become stressed and distracted, and they may not perform to the best of their ability. That, in turn, could mean your sites are a mess, equipment isn't installed as it should be, and workers may attempt to take shortcuts to get the job done. Those conditions adversely affect your company. You will experience reduced productivity, turnover, lost jobs and

jobs not performed correctly. In other words, lost revenue. Besides the business effects, you probably will be left with some cranky climbers who are no fun to be around, much less to manage.

Years of research have demonstrated that the morale of employees has a direct relationship to productivity. If employees don't feel appreciated or if they feel taken advantage of, productivity goes down, revenue suffers, workplace environments become tense, and the working relationships between you and your climbers is going to take a serious hit. Everyone loses. In that spirit, I have taken comments and emails from climbers on how they feel about this particular topic. Suggestions from climbers and their spouses are on page 49.

Depending on company size, some of these suggestions are not feasible for every business in the industry, and that is understandable. The list offers a way for you to generate your own ideas to improve your relationships with your employees. Improving the workplace,

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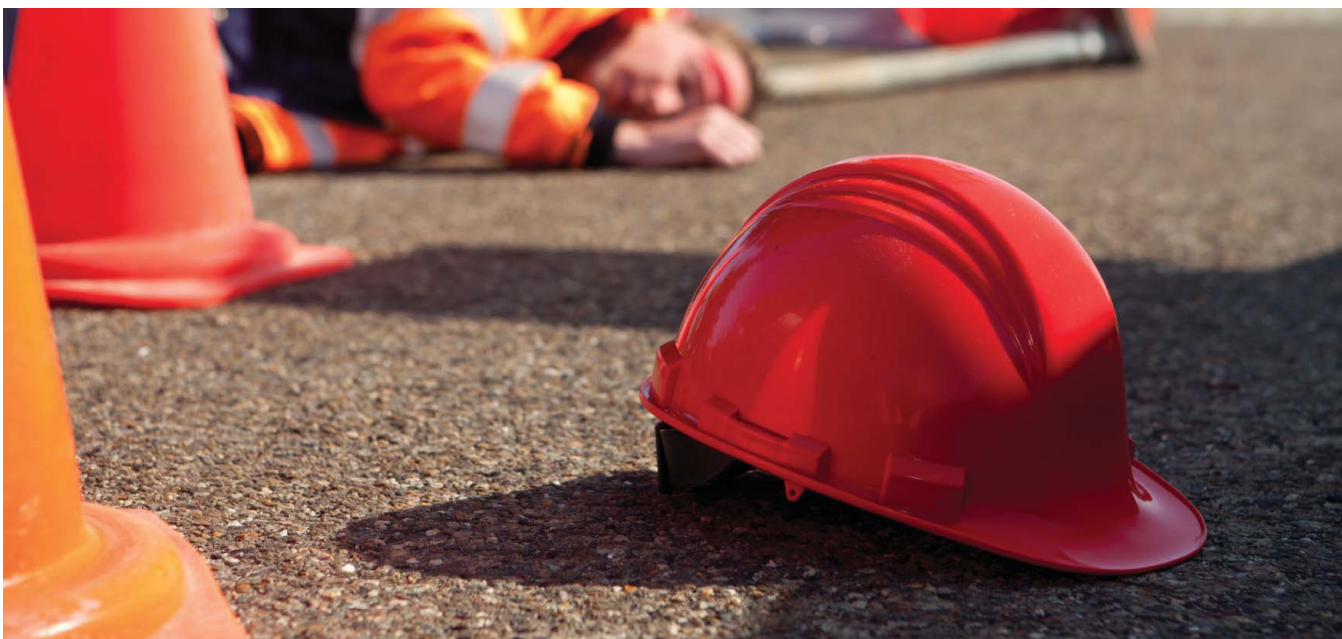
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Workers' Comp Storm Threatens Tower Service Companies

Rising experience modification rates, fewer insurance carriers willing to write policies for tower service companies and the behavior of some tower service companies spell trouble for the tower service industry.

By Bruce Eades

The current trend with workers' compensation insurance in the tower service industry portends a perfect storm that could stop tower construction and maintenance service in its tracks. During my 28 years in the insurance business, I've seen the insurance industry have its hard and soft markets. The current market has serious implications for the tower service industry. We are in a hard market with fewer insurance companies. When the insurance market is hard, it

means insurance rates are high and underwriting standards are tight.

Specific to the tower industry, there has been a change to the coverage class code and the split experience modification. Additionally, many tower service companies use poor hiring practices, and in the context of a highly litigious society, that spells trouble. What is brewing could turn the wireless industry on its head, because without workers' compensation insurance, the tower service industry is dead. Here are my concerns.

The National Council on Compensation Insurance (NCCI) Split Experience Modification Rate (EMR) Change

The wireless telecommunications carriers are contractually requiring tower companies' EMR to be a 1.0 or lower. Meanwhile, the NCCI has changed how the EMRs are being calculated, and most EMRs will be raised because of this ruling. EMRs range from 0.0 to 2.0. An EMR of 1.0 means the insurance company makes no adjustments before

calculating an insured's premium. An EMR of 1.3 means the premium is increased by 30 percent to compensate for a number of workers' comp claims at a given company that is higher than the industry average.

The Insurance Market is Hard

The current hard market is driving pricing up for all tower service companies. This is because of poor underwriting results and a lack of investment income at the insurance companies. The downturn in the economy also had its effects. Fraud cases have increased. Some employees facing layoffs have opted to file workers' compensation insurance claims instead of taking unemployment insurance benefits. For more information on the continuing hardening of the insurance market, visit www.insurancejournal.com/topics/hard-market.

Fewer Workers' Compensation Insurance Carriers

Only a few remaining companies are willing to write workers' comp insurance policies for tower companies. Most insurance companies have a treaty exclusion that will not allow them to insure companies with height exposure. For companies with fewer than 20 employees, there are only three possible carriers willing to insure tower service companies: Zurich, Amerisafe and AIG.

These three carriers can provide coverage for most states. All three have limitations, including minimum premiums, which hurt small companies. These carriers like to operate in some states and not in others, which can hurt companies doing business in multiple states. To my knowledge, no insurance companies are willing to write workers' comp coverage for startup tower service companies.

Zurich has made a few exceptions in the past. New tower companies and some existing tower service companies are being forced into the assigned risk pool in the states they are working in. Some companies are obtaining workers' comp insurance through professional employment organizations (PEOs). Buyer beware: States

covered by PEOS are limited, and there is no coverage for an uninsured subcontractor. Recently, a tower service company insured with a PEO had a fatality. The PEO is denying coverage.

Fatalities

During 2013, the number of fatalities increased, along with the number of

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major injuries. This experience will further tighten the already hard workers' comp insurance market, and the regulatory environment can be expected to get tougher.

Poor Hiring Practices

Current hiring practices are at an all-time low level of quality. Todd Schlekeway, executive director, NATE, put it perfectly when he said, "There is an arms war going on." Hiring practices are the worst I've ever seen. There is so much tower service work out there to perform that many tower service companies are hiring anyone they can get their hands on to meet customer demand. Pre-hire practices are poor, post-offer practices are poor, the pre-claim process is poor and the post-claim process is poor. In my view, this is why so

many fatalities occurred in 2013 — many tower service companies have lost their safety culture.

Continued Contractual Demands

Customers of tower service companies are demanding more. They are shifting a greater amount of their liability onto the tower service companies — as much as they can. Some requirements are becoming ridiculous, and the insurance companies are saying they just don't need the headache and are saying no to this class of business.

NCCI Class Code Change

The governing code is being changed from 7612 to 7600. The rate per \$100 of coverage on class code 7600 is less than 7612, which owners of tower service companies will like. However,


as previously mentioned, few insurance companies are willing to write workers' comp insurance policies for tower service companies. The few insurance companies serving tower service companies are already having poor underwriting results. Why would they want to take an even greater premium loss with the code going from 7612 to 7600? Also, lower premiums with the same amount of losses will force EMRs even higher. I fear the few remaining insurance carriers will stop writing policies for tower service companies altogether.

Lack of Awareness in the Industry

Tower service companies, owners and large wireless carriers are clueless about how serious the situation is. It reminds me of our national debt. People in our country do not want to

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hear about the debt. They just put their heads in the sand and hope it will go away. The same holds true in the telecom industry. There has to be serious conversation with all parties.

Lack of Coverage Knowledge

Many tower service companies are doing business in several states and are assuming that they have workers' comp and general liability insurance coverage. Workers' comp claims are triggered in one of three ways: the state in which the injury occurred, the state in which the employee lives or the state in which the corporate office is located. Claimant attorneys will often file claims where benefits are the richest. If a service company does not have the state where the claim is filed on its worker's comp insurance, the claim can be denied.

Legal Environment in Some States

In 2013, many insurance companies pulled out of certain states — New York, Florida and Illinois, to name a few. Many tower companies have general liability insurance and may have no idea that the policies may have a total exclusion for work being done in New York, Florida or Illinois. Courts have awarded some injured workers benefits under both workers' compensation and general liability insurance. This step taken by courts is unfounded, and it has serious implications. Workers' comp insurance was designed to be a sole remedy. The legal maneuver that includes awards under general liability insurance is forcing said insurance carriers to put state exclusions on

the general liability policies.

In my view, the good news is that all of these items can be fixed with proper communication. It starts with hiring practices, pre-hire, post-hire, pre-claim and post-claim policies. Tower service companies that focus on best-in-class hiring practices are more profitable, have fewer losses, happier employees and lower insurance costs, and their owners have fewer headaches.

About the Author:

Bruce Eades, CIC, AAI, is regional president of Insurance Office of America. Since 1994, he has focused on the telecommunications industry, building one of the largest retail insurance agencies in the country. His email address is bruce.eades@ioausa.com.

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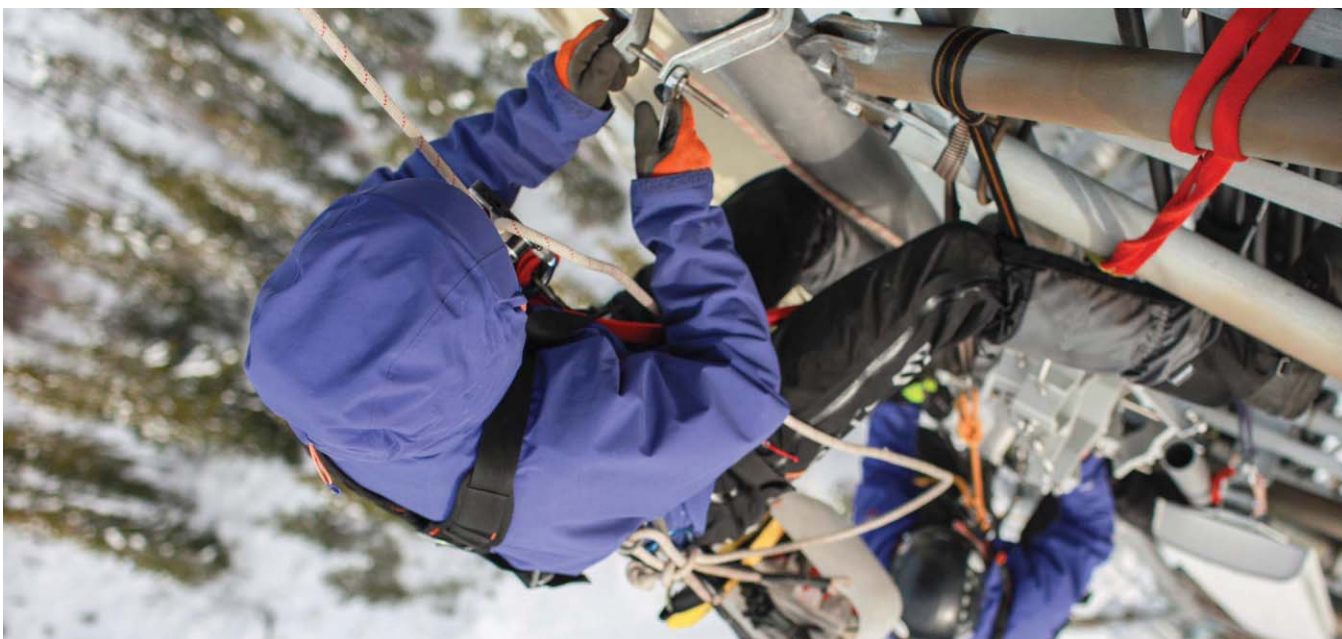


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The Deep Freeze: Limiting Liabilities for Cold Weather Hazards

Workers at tower sites need protection from extreme weather, including the cold. This winter's polar vortex provided a reminder of employer obligations to mitigate the hazard cold weather represents.

By Mark A. Lies II and Kerry M. Mohan

In one of the coldest winters in decades, employers must be mindful of the potential health and safety hazards cold weather can create and how cold weather can also result in OSHA liabilities. Unlike its campaign to prevent heat illness, OSHA has not announced a program to prevent cold-related illness. However, employers should anticipate that OSHA will apply the same scrutiny to both hazards. Consequently, proactive employers must consider

developing cold illness programs including a job hazard analysis, personal protective equipment (PPE) assessments for cold weather, and ensuring that employees are provided appropriate personal protective equipment and are trained to identify the signs and symptoms of cold illness. Further, it is important that all employers, regardless of whether they are subject to OSHA's general industry or construction standards, take such precautions.

OSHA Liability

Federal OSHA does not have a standard related to the hazard of exposure to cold. However, exposure to cold can temporarily diminish an employee's mental capacity and physical coordination, and excessive cold can cause employees to lose focus or muscle control, injuring themselves or co-employees. Excessive cold can cause circulatory complications resulting in frostbite and respiratory illness from inhalation of frigid air. This is a particularly

acute problem when operating mechanized equipment or working around hazardous machinery. Thus, exposure to cold carries its own unique hazards and liability issues, including OSHA.

Workers' Compensation

As all employers are aware, illnesses and injuries that arise out of and in the course of employment can result in workers' compensation liability. Thus, if an employee sustains a cold-related illness or injury, the employer will face this potential liability.

Slips and Falls

Both OSHA's general industry and construction standards require employers to provide safe walking and working

surfaces. This obligation to ensure safe walking and working surfaces extends not only to immediate work areas, but

or other powered industrial equipment on icy surfaces where the operator can lose control of the equipment.

OSHA requires that employers evaluate whether a cold hazard exists by evaluating the temperature and wind conditions within the workplace. If a cold hazard exists, employers must develop means and methods to protect employees from cold hazards.

also to building entrances and even company parking lots. Thus, an employer's failure to de-ice a parking lot or to mop wet floors not only exposes employees and bystanders to dangerous slips and falls, it also exposes the employer to OSHA citations and civil litigation. These hazards can extend to operating equipment such as forklifts

Personal Protective Equipment

All employers are required to undertake job hazard assessments and provide employees personal protective equipment that is necessary for the job at hand. Thus, before an employee is assigned to a job that could expose him or her to the hazard of cold, the employer must evaluate the extent of

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the hazard (e.g., how cold are the conditions), how long the employee will be exposed to the hazard, and what personal protective equipment is required to ensure that the employee can perform the job safely. Specific to the hazard of cold, such PPE may include additional layers of clothing, insulated footwear, gloves and

multiple changes of clothes to permit the employee to remove wet clothes.

Snow Removal from Heights

One major hazard associated with cold weather is snow and snow removal. In addition to ensuring that employees removing snow from sidewalks and parking lots are

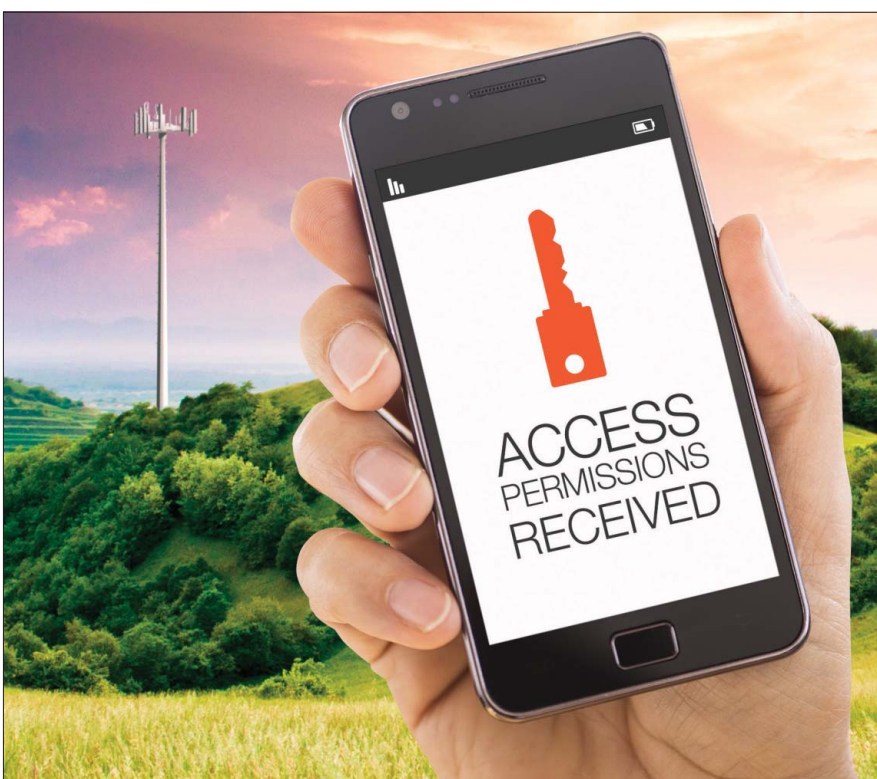
provided the necessary personal protective equipment and are safe from slips and falls, employers must take extra precautions to protect employees involved in snow removal from rooftops and elevated areas. Many tragic accidents have occurred when employees have slid off of rooftops that were icy or had insecure footing because of accumulations of snow. For instance, employers must ensure that employees working 4 or more feet above a lower level or 6 or more feet for construction work are provided adequate fall protection. Moreover, when an employee accesses a rooftop or elevated area with a ladder, the employer must take extra precautions to ensure the ladder is secure and de-iced.

Snow Removal Equipment

Snow removal can involve numerous tools and equipment, all of which can represent potential hazards to OSHA. For instance, the use of shovels or other ice or snow removal tools presents the risk of musculoskeletal injuries, struck-by hazards, and potential death caused by overexertion. Further, the use of snow blowers or heavy snow moving equipment can raise concerns regarding machine guarding, electrocution and lockout/tagout. Employees who operate snow blowers will need to be provided with protective eyewear to prevent injury from the snow and ice that is being discharged from the equipment. Thus, although these tasks may be one-off or short in duration, employers must still ensure employees follow any existing safety rules.

General Duty Clause

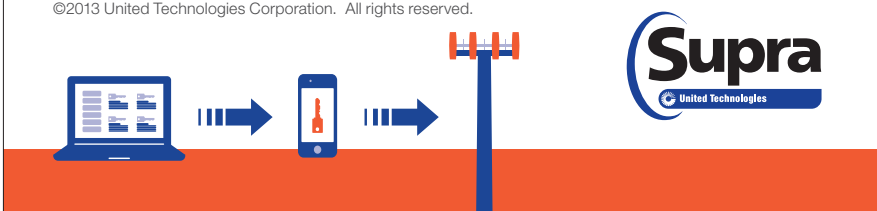
Perhaps most importantly, OSHA can regulate the hazard of cold exposure in the workplace under the General



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Duty Clause (Section 5(a)(1)). As OSHA's Safety and Health Guide to Cold Stress provides, cold is a recognized hazard to human safety and health. Its effect on employees ranges from frostbite to death, depending upon exposure. OSHA requires that employers evaluate whether a cold hazard exists by evaluating the temperature and wind conditions within the workplace. If a cold hazard exists, employers must develop means and methods to protect employees from cold hazards. These range from changes in work practices (rest breaks, job rotation, providing warming stations), to personal protective equipment, to engineering controls (radiant heaters, wind shields). Employers who fail to take such steps are subject to citations and monetary penalties.

Additional Considerations

In addition to the issues identified already, employers must remember to comply with OSHA recordkeeping requirements when it comes to cold illness as they do with any other injury or illness. For instance, when an employee becomes incapacitated by cold and requires medical treatment, loses consciousness, has days away from work or restricted duty — or dies — this information must be recorded on the OSHA 300 Log. Further, widespread cold-related illnesses may prompt an employee to contact OSHA, resulting in an on-site inspection, so the employer must be prepared to demonstrate its efforts to protect employees against this hazard.

OSHA also mandates there be adequate first aid assistance to provide emergency medical assistance to employees suffering from cold illness, which must either be

provided by the employer or reasonably available from third-party responders (e.g., EMTs, fire department) within three to five minutes after the emergency occurs.

Compliance Recommendations

Cold-related illness can be subtle. For example, exposure to cold can

lead to dehydration, frostbite, trench foot and hypothermia. Yet, by the time an employee begins to feel the cold's negative effects, the illness may have already set in.

To prevent cold-related illnesses and injuries, the employer should develop a written cold exposure program that includes the following elements:



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- **Hazard identification:** Identify potential cold hazards (job functions, equipment, etc.) Employees should be consulted in this process to ensure that the employer has not overlooked any hazards.
- **Hazard correction:** Correct or reduce the potential cold hazards identified.
- **Employee training to encompass:**
 - o Description of various types of cold-related illness
 - o Information on how cold-related illness occurs, including:
 - Environmental conditions
 - Working conditions
 - Individual employees health conditions or work practices (e.g., failure to consume water,

- o wear adequate PPE, or remove PPE during breaks)
- o How to recognize the common signs and symptoms of cold illness
- o Duty to promptly report to a supervisor if the employee or co-employee is experiencing the signs and symptoms of cold illness and to obtain assistance
- o Inform employees that no employee will be subject to any retaliation or action for making such report
- o Documentation of the training
- o Training provided in a manner that employees can understand, including training in the employee's native language if necessary
- **Supervisor training:**
 - o Train supervisors to recognize the signs and symptoms and how to respond.
 - o Explain the employer's program and how to implement it.
- **First aid:** Adequately train and provide first aid services, using either in-house or outside providers.
- **OSHA recordkeeping:** Comply with OSHA recordkeeping for any illness or injury that occurs that is recordable.

Conclusion

If the employer follows these recommendations, it will reduce the potential for cold-related illness by its employees as well as its legal liabilities associated with cold illness.

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industry for compliance with FCC and OSHA regulations for working in electromagnetic fields. Training covers major standards and exposure limits, thermal and non-thermal health effects, RF radiation awareness, safety equipment, and setting up a safety program.

www.unitech-rf.com



CLIMBING HARNESS

The TowerClimber harness line from **FallTech** has been expanded with the addition of the products that optimize durability and comfort. As with the ComforTech series, the Journeyman harnesses also feature the ComfortWrap sling seat design, twin O-ring lower assembly connectors with pivot action, a padded D-ring holder with integral shoulder pads and TPR outer shell, nine-position tongue-buckle leg closures, a 6-inch contoured ballistic waist pad and a heavy-duty belt.

www.falltech.com



PERSONAL RF MONITOR

The FieldSense personal RF monitor from **FieldSense USA** warns technical personnel when they are about to enter dangerous RF zones. The meter allows workers to avoid areas of antenna sites where they would be in danger of RF overexposure. The unit monitors the operational frequency range of all bands commonly used for mobile telecommunications. Features include a bright LED indicator of RF field strength and a loud alarm that warns of EMF overexposure danger.

www.fieldsense.com



FALL PROTECTION SYSTEM

The Uni-8 overhead horizontal lifeline system fall protection safety product from **Capital Safety** offers both fall arrest and restraint capabilities. The system utilizes a 1x19, 8-millimeter (5/16-inch) stainless-steel cable secured to a structure via a range of anchorage fittings.

www.capitalsafety.com

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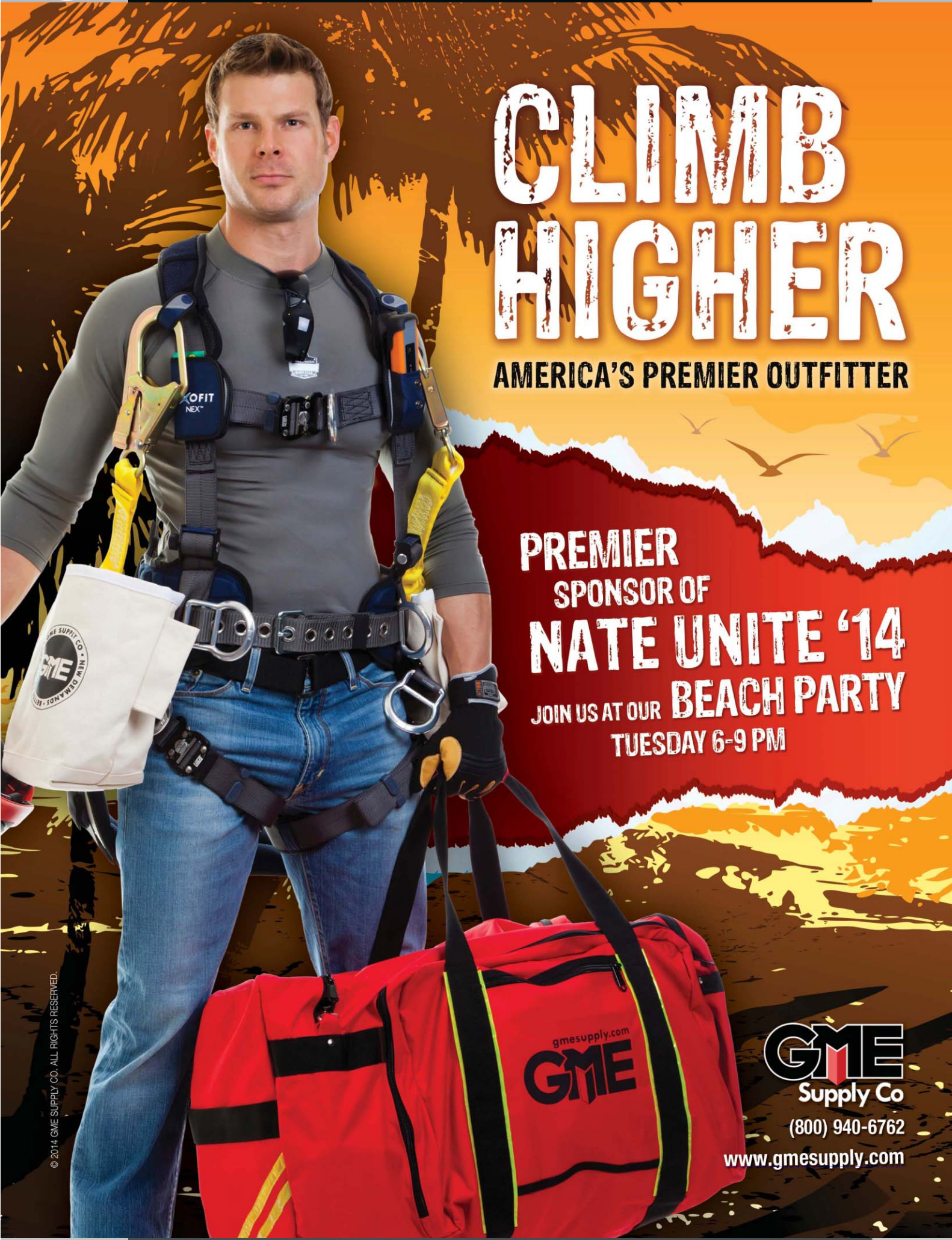
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