

## Falling Assets

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When a 38-year-old fell 150 feet to his death from a cellular tower on which he was working in December, leaving behind a wife and four children, he became not only a statistic but also a symbol of a fatal accident rate that has plagued and confounded the communication tower construction industry over the past decade.

An experienced tower climber, he usually wore a full body harness connected to the tower with a rope lanyard, but he apparently wasn't attached to the lanyard that day. Such accidents have become all-too-familiar and underscore the risks that come with erecting towers, a business that suffers from a lack of consistent safety training — or at least the failure to put such training to effective use. The industry also has been plagued by the prolonged downturn in the economy, which pressures contractors to undercut the competition with the lowest bid. In many cases, this has led them to bypass proper safety equipment and training altogether in an attempt to pare their costs.

“You have two types of companies out there: Those that buy first-class equipment and show up on the site and train people, and others that won't train and have homemade stuff they are using to pull people up and down on towers. Companies that try to do right can't compete with these jokers,” said a national sales director of a safety training company. “There can be a large difference for bids, because training isn't free and equipment isn't free.”

“It's a matter of trying to have the safest space shuttle you can build for \$1.69,” agreed the president and CEO of an end-to-end wireless network construction company. “There is not sufficient dollars involved in any given job for all of these things to be done right.” Nevertheless, he employs a full-time safety director, conducts safety meetings each week in the office and on job sites, and spends hundreds of thousands of dollars on the latest safety equipment. The result has been zero falling accidents, according to his report. No one knows exactly how many deaths are attributable to tower accidents, because tower-construction workers fall into a variety of industries and categories, from steelworkers to painters. But even the most conservative estimates far outpace job-related deaths across U.S. industry as a whole. The most recent data from the National Institute for Occupational Safety and Health (NIOSH) estimated that the fatality rate for tower erectors — one of the smallest sectors of the construction industry — averages about 460 deaths per 100,000 employees, a startling rate compared to the five deaths per 100,000 employees for all construction industries cited by the U.S. Department of Labor. NIOSH and the Labor Department indicate that more than 250 people have died in the tower-construction industry during the past decade. On average, accidents on towers and cranes result in more than 175 injuries and 25 deaths each year.

The worst accidents during the past few years were caused by companies that did not follow regulations, used improper equipment or hired untrained tower climbers, according to the National Association of Tower Erectors (NATE). In extreme cases, contractors have been known to tie a rope on the back of a bumper and pull a climber up

using a hoist. Others have tied a group of workers on a line using a small captain hoist, which is designed for lifting materials, not workers. Even when qualified contractors are hired, the multiple layers of firms that end up on a large job site often results in workers who are not qualified to climb towers. The Occupational Safety and Health Administration (OSHA) and NATE are chipping away at the problem.

Last April, John Henshaw, OSHA's assistant secretary of labor, issued a letter to more than 50 tower owners soliciting voluntary help to enforce OSHA safety standards. The agency finds it difficult to visit tower sites because they often are located in remote areas and usually don't appear on targeting lists — which red flag companies with a history of serious injury and illness rates for mandatory inspections.

Specifically, Henshaw suggested that tower owners contract only with tower-construction companies that have excellent safety and health records and that all contracts, including those with subcontractors, force compliance with all OSHA requirements. OSHA also asked that contracts incorporate strong language stressing the importance of good safety and health programs, employee training and education, and fall-prevention systems.

Rob Medlock, area director of OSHA's office in Cleveland, Ohio, is beginning to see anecdotal evidence that both tower owners and general contractors are scrutinizing tower erectors more closely in the bidding process and researching these companies' OSHA records.

“There is concern about whether subcontractors are qualified, moreso than even a year ago,” said Medlock.

But tower-safety advocates say it will take more than a letter urging voluntary assistance to enforce OSHA's safety standards. Many tower companies show good intentions by mandating in-house safety training, but uniform safety standards are lacking, said Patrick Howey, a NATE administrator. Some training programs consist of nothing more than a single piece of paper that avows safe tower construction, Howey said. NATE's primary focus in 2004 will be to create a single training standard for the industry.

“There's training mandated by a lot of companies right now, and we are happy to see anything that increases safety and safety awareness, but one thing we have noticed is that consistency among trainers is sometimes an issue,” Howey said. “There are different companies training to different standards.”

Rather than create additional regulations, OSHA is focused on establishing alliances, partnerships and voluntary protection programs. The agency also is increasing inspections and providing more outreach and training — it will make presentations at NATE's annual conference this month (Feb. 24-27 in Nashville) and other construction conferences throughout the year.

In late 2001, OSHA and NATE formed a pilot regional partnership in the Midwest that established tower-safety best practices, which included having a trained person on site at all times and requiring 10 hours of field training for each tower climber. OSHA agreed to tighter tower safety scrutiny on job sites.

Using this partnership as a model, OSHA expanded its tower-safety program to several Eastern states in late 2003, offering partnerships to communications structure contractors and tower owners. Eligibility criteria required tower contractors to implement a number of safety policies, including OSHA training sessions and work-site evaluations.

There is evidence these partnerships are working. Statistics from the Midwest partnership show improved compliance rates among all tower-construction companies in that region,

not just those involved in the project. The first year of the partnership also saw a noteworthy reduction in the number of serious violations related to fall protection, said OSHA's Medlock.

"Statistics show that 10 of our Midwest tower-construction partners who were inspected ... received four violations. [But] only one violation was related to fall protection," he said. "That is a significant improvement."

The number of tower-related deaths in North Carolina has alarmed the state's department of labor, prompting the agency to craft its own rules regarding tower safety. The state registered eight tower-related fatalities from 1997 to 2000, including a triple fatality in which the workers fell 1200 feet. North Carolina's ninth death occurred in November 2003, when a 19-year-old worker fell 140 feet from a wireless tower.

The state's new proposed tower-construction rules — expected to pass through the state legislature this year — require workers who climb communications towers be "tied off" to a safety system at all times and that fall protection be provided above six feet. In addition, new towers would have to incorporate a "safe climbing device," while existing towers would be retrofitted to provide a safe way for workers to access them.

Already, the state's tower companies are being careful about what they do, said Ivette Mercado-Bijkersma, safety standards officer with the North Carolina Department of Labor, who wrote the proposed regulations.

"They feel like they are being watched. ... We're happy they feel that," Mercado-Bijkersma said. "We have a special-emphasis program here that deals with construction. Compliance officers can visit any construction site they want to. When they see a group working on a tower, they inspect it."

North Carolina's new standards are expected to serve as a template for the rest of the country. The Advisory Council on Construction Safety and Health (ACCSH), a federally mandated construction advisory group that recommends potential health and safety standards to OSHA, recently formed a committee to develop construction standards that specifically address the tower-construction industry and are based on North Carolina's proposed legislation. Many of the construction regulations on the books today don't apply directly to the tower-construction industry.

In the end, stiffer OSHA fines may be one of the best tools to combat the "low-bid syndrome" prevalent in the industry, said RSI's Tucker. "OSHA has to increase fines to make people take responsibility for safety." Currently, fines are based on the size of the company involved in the accident, and do not consider a firm's violation history nor the severity of the mishap, according to Tucker.

"We want to see an industry where we don't lose anyone," said NATE's Howey. "One person dying is too many."

#### *FALLING NOT ONLY RISK FACED BY CLIMBERS*

Not only must tower climbers deal with the treacherous conditions associated with working several hundred feet in the air, but radio-frequency emissions from towers can make them ill, according to the national sales director of a safety training company. Personal protection units can tell climbers when they are too close to a dangerous area, but improper use of the equipment can give workers a false sense of security, he said.

The Occupational Safety and Health Administration (OSHA) requires all workers exposed to radio frequency waves to undergo RF safety training. In addition, the Federal Communications Commission (FCC) mandates that all wireless and RF-generating sites be fully compliant with its environmental rules for evaluating the potential for human exposure. That can be difficult at times, as most municipalities require wireless operators to co-locate their towers as much as possible, which can result in total RF radiation exceeding legal standards.

The FCC has aggressively enforced its rules for more than three years. The commission established a Sept. 1, 2000 deadline for compliance with its RF guidelines, which regulate human exposure. The first FCC Notice of Violation for RF exposure was issued on July 12, 2001, and others have followed. Last fall, for example, the commission held individual FM licensees liable because the total RF radiation metered at their site, a telecommunications and antenna farm, exceeded the guidelines by 50%. As a result, four broadcasters were fined \$10,000 each.

The FCC also has established a 24-hour toll-free number for complaints about RF safety. OSHA also has a role in the enforcement effort; the agency is called to sites when an accident occurs or if the FCC makes a site visit.

For liability reasons, Tucker suggests that tower owners employ a third party to inventory the site to show areas of danger concerning RF or other site hazards.

*a Towering Problem*

Fatal injuries per 100,000 employed for selected industries

TOWER ERECTORS	460.0
PILOTS AND NAVIGATORS	69.8
FARM OCCUPATIONS	28.0
CONSTRUCTION LABORERS	27.7
TRUCK DRIVERS	25.0
GROUNDSKEEPERS	15.0
NON-CONSTRUCTION LABORERS	14.2
ELECTRICIANS	13.5
POLICE AND DETECTIVES	11.6
CARPENTERS	6.9
AVERAGE FOR ALL OCCUPATIONS	4.0

Source: U.S. Department of Labor