

Reese's

PIECES

RTS specializes in providing weld inspections, mappings, and condition assessment services to the tower & pole industries



Welding Defects – Undersized Welds

In recent issues we have been highlighting common reasons for a failing CWI report. One of the most common issues seen in the field is undersized welds.

What is an Undersized Weld?

An undersized weld is basically insufficient weld material in a connection. A weld inspector compares the as-built weld sizes versus the required weld sizes on the project drawings. For example, if the requirements are for a 1/2" fillet weld and the as-built welds are 3/8", then the inspector will mark the offending areas as undersized.

Why Do Undersized Welds Occur?

Undersized welds are simply due to the welder not installing enough weld material in the connection or a misunderstanding related to the weld symbol requirements.

What Does the Code Say?

AWS D1.1 Structural Welding Code – Steel (2015), Table 6.1, Visual Inspection Acceptance Criteria, is the reference location for whether undersized welds are rejectable. Table 6.1, Part 6, addresses undersized welds and gives the inspector guidelines.

The size of a fillet weld in any continuous weld may be less than the specified nominal size (L) without correction by the following amounts (U):

| L | U |
|---|---------------------------------------|
| <i>specified nominal weld size (in)</i> | <i>allowable decrease from L (in)</i> |
| ≤ 3/16 | ≤ 1/16 |
| 1/4 | ≤ 3/32 |
| ≥ 5/16 | ≤ 1/8 |

However, note that in all cases, the undersize portion of the weld shall not exceed 10% of the overall weld length. □



Reese Tower Services Acquires Industrial Rated sUAS

Reese Tower Services is pleased to announce the addition of a DJI Matrice 210 with the Zenmuse Z30 to their fleet of sUAS.

The Matrice 210 is an industrial small unmanned aerial system (sUAS) that offers superior capabilities that includes better wind resistance and an IP43 water resistance rating. The Zenmuse Z30 is a powerful 4K camera with 30x optical zoom and 6x digital zoom resulting in a total magnification of 180x. The combined platform of the Matrice and Z30 will let RTS provide the highest quality inspections, photos, and videos to their current and future customers in addition to giving the company the capability to fly in adverse weather conditions when required.

Additionally, since the sUAS will have 30x optical zoom, the company will be able to maintain a larger flying distance from a structure and its critical components, allowing RTS to safely capture the data required. The zoom capabilities will allow the abil-

ity to closely observe the overall structure quality, where other sUAS are limited by the quality of their cameras and how closely you can fly to the structure.

Vice President Jeremy Klapac said, "We're very pleased with this new addition to our current fleet."

With the industrial capabilities of the Matrice 210, partnered with the zoom power of the Zenmuse Z30 camera, we're able to add a host of additional capabilities to this growing business segment." "I'm excited to be able to offer our customers this expanded capability," added Brian Reese, President. "With the Matrice and the Z30 we will be able to offer our current and future customers leading edge technology. We've now enhanced safety in two crucial areas: by preventing any unnecessary climbing and being able to deliver enhanced close-up images of a tower while being 20-50 feet if not more away." □





NATE Debuts Video on Step-Bolt Testing Results

The latest video highlights important findings on step-bolts designed to enhance safety for tower technicians working at heights

NATE has released a video that was produced as a result of several prominent industry step-bolt testing events that were conducted at the University of Dayton Research Institute (UDRI) in Dayton, OH. The Climber Connection video, entitled “To Tie-Off or Not to Tie-Off”, contains important safety information that the industry’s tower technician workforce needs to know before working on tower structures installed with step-bolts. The informative video was unveiled at the 2019 Wireless West Conference in Scottsdale, AZ.

The video shows jaw-dropping footage of the static and dynamic drop tests that were performed at the UDRI facility in order to test the strength of step-bolts. The video reinforces the key findings of the testing that 5/8” step bolts, while suitable for climbing, do not have the capacity to be used as an anchorage for any

type of personal fall arrest systems.

“The information contained in this video should be utilized by every company and worker in the industry as a training tool as it contains important step-bolt related information derived from our testing,” said NATE Board of Directors member John Paul Jones, who helped spearhead the testing activities. “I would like to thank all of the manufacturers, tower owner/vertical realtor firms, contractor companies and technicians who collaborated together on these testing initiatives. The results obtained from the testing will ultimately help create a safer environment for the men and women working at elevation on monopole towers,” Jones added.

Click the icon to watch the Step-Bolt Testing video. NATE encourages tower technicians and industry stakeholders to actively participate

in this campaign by posting the video on their respective social networking platforms using the hashtag Climber Connection. NATE also encourages industry workers to share their comments on the video through social interaction on the Association’s Facebook and Twitter pages.



The Climber Connection Volume 4 campaign was developed by the NATE Member Services Committee in conjunction with the NATE Safety & Education Committee and is designed to provide specific resources and communicate the Association’s message directly to the industry’s workforce.

For more information about NATE, visit www.natehome.com today. □

Article courtesy of NATE

Towers, Satellites and 5G Wireless Communications

By Don Bishop
Special to Reese’s Pieces

Nothing can match towers, distributed antenna systems and small cells for bringing high-capacity wireless communications connectivity to the most people, most of the time, in populous places. And towers offer the most bang for the buck for mobile network operators that share the towers among themselves.

For years, however, folks who may not necessarily know the technical reasons behind the advantages for having base antennas relatively close to users for optimum wireless connections have suggested replacing towers with Earth-orbiting satellites. Until recently, such satellites have been impossibly far away – 22,500 miles above the Earth in geostationary orbit. Cell signals are too weak to cover that distance. Geostationary satellites typically are used to distribute radio and television, such as SiriusXM, DirecTV and Dish Network. Before microwave networks and then fiber-optic ca-

ble networks, they were used for long-distance telephone calls.

A new crop of satellites will orbit the earth within 500 miles of the surface to bring relay equipment closer and make possible a limited amount of wireless connectivity especially for use in remote areas with sparse population that lack a sufficient distribution of towers. These are referred to as low-Earth-orbit satellites. Their antennas will be close enough to cell phones for connectivity, although not the high-bandwidth connectivity that towers provide.

In comparison, GPS satellites occupy what is called a medium Earth orbit at 12,550 miles above the Earth.

Interestingly, the idea of using low-Earth-orbit satellites for consumer wireless communications has attracted the attention of billionaires. Elon Musk’s Space Exploration Technologies plans to launch 11,943 satellites into orbit for its Starlink fleet. Jeff Bezos of Amazon plans to launch 3,236 satellites. The aptly named company UbiquitiLink plans to orbit thousands of satellites.

Meanwhile, towers remain central to 5G plans for wireless communications carriers, not only for the antennas they hold, but also for the real estate they occupy. Many wireless carriers will make use of the space on the ground near towers to house computing equipment for what is known as edge computing. The idea is to bring the edge of the internet infrastructure closer and closer to the edge of the wireless network to reduce latency.

Latency refers to the time it takes for signals to travel back and forth between components of network equipment. Low latency makes possible 5G applications ranging from autonomous vehicles to remote surgery and improved virtual reality, game-playing and other video experiences. For the antennas they hold and for the placements they offer for edge computing equipment, towers have a key role to play in 5G wireless communications. □

Don Bishop is the executive editor and associate publisher of AGL Magazine.



First Drone Delivery of a Kidney

By Dean Sigler

Meredith Cohn of the *Baltimore Sun* reported, “The first-ever organ delivered by drone was transplanted into a patient with kidney failure at the University of Maryland Medical Center, capping more than three years of work to show unmanned aircraft can safely transport life-saving organs and tissue.”

As reported in Aero-News Network, “On Friday, April 19th, at approximately 12:30am, a human donor kidney was loaded onto the UMMC drone. The flight, led by the University of Maryland UAS Test Site at St. Mary’s County, commenced at 1:00 am. The vehicle traveled 2.6 miles and flew for approximately 10 minutes. The human kidney was successfully delivered to University of Maryland Medical Center (UMMC) and was scheduled to be used for a transplant surgery at 5:00 am.”

Cohn reports that Dr. Joseph Scalea, a UMMC transplant surgeon, was frustrated by the slowness and

costs of relying on commercial flights and charters. Researching “faster means,” he found drones offered possibilities.

At a news conference, Scalea explained, “This new technology has the potential to help widen the donor organ pool and access to transplantation. Delivering an organ from a donor to a patient is a sacred duty with many moving parts. It is critical that we find ways of doing this better.”

Aero-News explains the urgency: “Organ transplants have a limited window of cold ischemia time (CIT) in which an organ can be chilled and then have blood supply restored. As of January 2019, almost 114,000 individuals were on the national transplant waiting list and every day approximately 80 people receive organ transplants, according to the United Network for Organ Sharing – the nonprofit that manages the transplant system. For sensitive medical deliveries, reducing the amount of travel time in urban settings, as well as vi-

bration during travel can help lead to better outcomes.”

Cohn’s story highlights the need for timely and safe delivery. She reports that a human heart was left on a [airliner] and when retrieved, fortunately had valves still usable.

The *Sacramento Bee* reported, “More than an hour into the connecting flight to Dallas, the pilot turned around, leading to a five-hour delay for passengers.

“In a statement, [the airline] said, “the shipment was delivered to its destination within the window of allotted time by our cargo customer. Nothing is more important to us than the safety of our customers and the safe delivery of the precious cargo we transport every day.”

“Valve tissue has a 48-hour window of viability. Amazingly, the heart made it in time to save the life of its intended recipient.” Protocols and procedures to prevent this type of admittedly rare slip-up will probably be a high priority for

future organ deliveries.

AiRXOS, a unit of GE Aviation that participated in the demonstration reported, that the organ was flown 2.6 miles in 10 minutes across Baltimore from St. Agnes Hospital to the Maryland hospital downtown in the early morning for the transplant. Such a trip takes 15-20 minutes by car depending on traffic.

Seeing other countries with transportation infrastructure gaps that manage to deliver blood, retrieve tests and samples, and deliver life-saving drugs and equipment over impassable terrain should give us hope. We can hope that drones will make it possible to speed necessary medical treatments and transplants while avoiding the gridlock of our extremely well-developed infrastructure. □

Newsletter designer Scott Dolash was a kidney/pancreas transplant recipient 18 years ago. Having seen firsthand the terrible consequences of organ failure, he suggested this article.

Reese's MINIATURES IN AERIAL INSPECTIONS



A BRIAN REESE PRODUCTION
WITH APOLOGIES TO BRYAN ADAMS

I GOT MY FIRST DRONE LICENSE.
GOT IT FROM THE FCC.



PLAYED IT 'TIL MY FINGERS BLEED.
INSPECTIONS WITH MY U.A.V.



ME AND SOME GUYS FROM WORK,
HAVE A DRONE, WE WORK REAL HARD.



HIGH-END, AE-RI-AL INSPECTIONS.
I ALWAYS KNEW WE'D GET REAL FAR.

OH, WHEN I LOOK BACK NOW,
INSPECTIONS USED TO TAKE FOREVER



BUT NOW I HAVE THIS NEW TOOL.
YEAH, MY DRONE'S IN THE AIR.

THESE ARE THE BEST DAYS
OF MY LIFE. (GUITAR SOLO)

Reese
— TOWER SERVICES —

Reese Tower Services
advocates
safe working practices.
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on our expert services
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WORDS & PICTURES by Scott Dolash



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