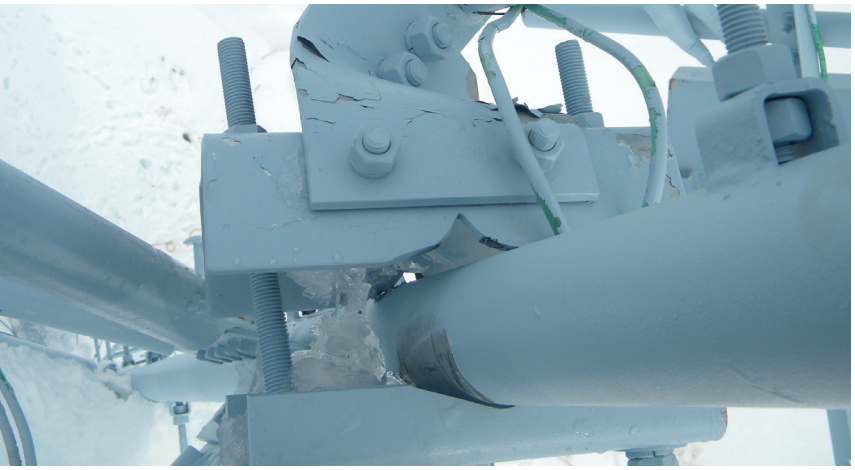
Planning Advisory Notice

Mounts and Inspections



In this PAN, we will review the inspection of mounts, man loads, and manufacturing quality inspection of mounts. Before climbing onto any mount, a competent person must inspect and assess the mount in accord with the SOW (Scope of the Work). The mount must be inspected to confirm it is stable, in good condition and undamaged. The following areas are the basics, though in some situations not wholly conclusive:

- Is the mount loose?
- Are any of the bolts, washers and nuts missing?
- Are the bolts loose?
- Are any of the welds missing? Look for areas in which a weld should be and may be missing.
- Are any of the welds broken or cracked?
- Are any of the members bent or damaged?
- Are there any other areas the lead to concern?
- Is all existing antenna hardware tight?

If the answer to any of these questions is "yes," then the mount should not be considered accessible and climbing personnel should not climb onto the mount assembly. So, who makes the final on site decision about the accessibility of the mount? First, there must be a competent person that has the knowledge and experience necessary to understand the SOW and the hazards that are present and/or predictable. This person must have the authority to correct these issues through planning and abatement. This, however, is not enough. Each climber must also be able to make personal safety decisions based upon their understanding of the SOW and their experience and knowledge.

Once a physical inspection has been completed the competent person on site must determine if the mount is rated to support man loads. A man load (not to be confused with the ability to anchor to a platform; just because a mount meets the requirement does not necessarily mean that the mount meets the requirements for anchorage) represents the weight

---

Initial PAN advisory group members are Dave Anthony, President of Shenandoah Tower Service, Ltd.; John Erichsen, Principal EET PE, Chairman TIA Committee TR14; Scott Kisting, Vice President of MUTI/Midwest Underground Technology, Inc.; Stephanie Brewer, CC MUTI/Midwest Underground Technology, Inc.; Dale Heath, Product Line Manager of CommScope; and Todd Schlekeway, NATE Executive Director.

of one or more persons that may access the mount. The TIA standard lists the minimum man load as 50 psf x platform area or a minimum of 250 lbs. Man load ratings can be obtained from the mount manufacturer. If the mount is man rated, the next step is to access the mount's ability to provide fall protection. Fall protection means the mount is sufficiently strong to act as a tie-off point should a person fall from the mount. This loading is much higher than the dead weight of a single man due to the deceleration of the person when the fall is arrested. The man load rating and the ability of the mount to provide fall restraint can only be determined by a competent engineer. This service/information can often be obtained from the mount manufacturer, the tower owner or a third party. In the event that this information is not available, then the mount should not be used for anchorage. In all cases no matter what is contained in the SOW a fall protection plan must be completed prior to any work where fall protection would be required.

What do you do if the mounts man, or fall arrest rating cannot be established? In this situation, the mount must be evaluated by a competent engineer. The best source of the data required to evaluate a mount is obviously the manufacturer of the mount. Obtaining assembly drawings is often not sufficient. The manufacturer should provide drawings that detail the connections, the dimensions of all of the members, including connections and the material strength of the member, welds and bolts. If the drawing is not available, the following is a suggested list of the information that an audit should acquire to complete a mount evaluation; however the engineer should be consulted prior to gathering the data to ensure that the engineer will have the data required in accordance with SOW:

continued on next page

- A sketch representing the mount configuration, plan and elevation views;
- A sketch labeling each member as a reference;
- Member diameter/width;
- Member length;
- Member thickness;
- Connection detail, i.e. plate width, plate thickness, number of bolts, bolt dimensions, and weld sizes; and
- The number, size and weight of all of the equipment that is currently on the mount and will be placed on the mount.

As the weight of the equipment placed upon mounts increases, it is very important to reassess the man rating as well as the ability of the mount to serve as an anchorage. In most situations, it is advisable to reconsider using a mount as an anchorage even if the mount is fully rated. Many climbers will never rely upon the mount for fall protection. Instead, the fall protection plan will be to tie back to a structural member of the tower. To restate the obvious, as the weight of the equipment placed upon the mount increases, the mount's man rating will decrease. It is important to confirm the increased equipment weight, a current trend in the industry, does not override the mount's previous man or anchorage ratings.

While inspection of the mount is essential, the quality of the manufacturing is equally important. The manufacturer of a mount must successfully source quality material including material certifications, place the mount in the specified configuration and place welds in accordance with AWS requirements. And, the mount manufacturer must understand the complex interaction between the galvanizing and the material used. Poor design and material selection decisions can lead to brittle material once the mount has been removed from the galvanizer. Using a manufacture that is AISC is helpful to avoid this and in the event that the manufacture is not AISC then the engineer should review the manufacturing process to ensure that the quality expected is what will be achieved through the process.

As in all things in our industry, maintenance cannot be neglected. Mounts tend to be more flexible than the structure to which it is attached. This movement will create loose connections; potential fatigue stresses, and may result in occasional damage, bent or twisted members. Periodic maintenance is required to reduce any weather damage that may occur. This maintenance at a minimum should occur in accordance with the TIA 222 requirements or the engineer's recommendation, whichever is more stringent. A loose bolt connection will create movement that will damage the structure or overstress the remaining bolts.

Planning is critical to the success of any given installation. At the end of the day the small amount of cost and time spent up front is returned many times over through the reduction of maintenance costs, outages and the exposure to the personnel that have to work on these structures. In the end it is maintenance, inspection, coordination and planning that will ensure a mount will continue to support all of the loads imparted. ■