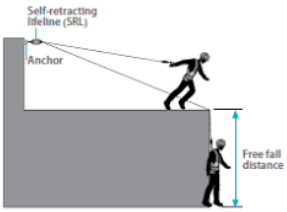
# TOOLBOX TALK #31

## FALL PROTECTION MISUSE – INSUFFICIENT ANCHOR STRENGTH

Fall protection equipment users are commonly observed attaching to inadequate anchorages such as guardrail, pipe vents or even conduit. Workers must not do this.

Fall protection users often believe that it is better to connect to something than nothing at all, even if the anchorage strength is in question. While the weight of the equipment is easiest to equate to strength (i.e. fans, equipment, pipes, etc.), this factor may be deceiving for many materials because protective coatings can conceal the core material.




Eye bolts are particularly challenging as anchorage connectors because they are rated to be loaded in plane only. When loaded outside of plane, their capacity goes down considerably, which could result in failure (i.e. when loaded 45° out of plane, the capacity is 25% of the work load limit). It is critical to understand what the eyebolt is attached to and how it is attached to confirm whether it is properly attached. It may appear strong enough but this can be deceiving. Several methods exist to avoid these misuse issues:

- All competent persons who supervise authorized persons should be trained to identify proper anchorages and be capable of judging that a non-certified anchorage has adequate strength.
- Use certified anchorages that are designed by a qualified person.
- Specify the exact equipment to be used for each system and ensure that the anchorage is designed for the different loading possibilities with 900 lb and 1350 lb average arresting force lanyards. Harnesses can be purchased for individuals up to 450 lbs. All equipment is rated for use by individuals between 130 and 310 lbs. A person who weighs more than 310 lb could completely pull out an energy absorbing lanyard and increase the average arresting force to more than 900 or 1350 lbs. This force would be transferred to the person's body and to the ultimate anchorage. Therefore, it is of critical importance to have the anchorage and the overall system designed for the maximum weight of any potential system users.
- Determine the construction of a potential anchor by using a magnet to determine whether it has ferrous content, as would be the case for steel. Tapping the material with metal will also indicate whether the material is an aluminum (metallic echo), fiberglass or composite material (dull sound).
- Users must also be trained to recognize other potential issues that impact anchorage capacity;

    1) User weight greater than 310 lbs

    2) Use of a 12-foot free-fall lanyard, which requires more anchorage capacity than a six-foot free-fall lanyard.