



SUPER ANCHOR SAFETY

Super Anchor Safety -

OSHA 1926:502 Fall Arrest Anchorage notes regarding 5,000 pounds.

Super Anchor Safety is told by many builders, contractors, and design professionals that their structure must be able to withstand a 5,000 pound force load. This is true in part, but there is more to the OSHA Standard that must be taken into account – especially in the field of residential construction. To make sense of it all, I use the following information to help clarify in the minds of those that I am training so that they understand the regulation as set forth by OSHA. Here is how the standard reads:

Fall Protection System Criteria and Practices – 1926:502

1926:502(d)(15)(i-ii)

Anchorage used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and be capable of supporting at least 5,000 pounds per employee attached *or shall be designed, installed, and used as follows: As part of a complete personal fall arrest system which maintains a safety factor of at least two;* under the supervision of a qualified person

Yes, OSHA requires a 5,000 pound anchor attachment point, but they also in the same sentence allow you to engineer around the 5,000 pound minimum if need be. This is nothing new and has been in the standard since its inception some 30 years ago. What does a safety factor of at least two mean? In order to figure this out we need to have a baseline starting point. Let's take a look at the following numbers:

- 1) The max allowable free fall is 6':
 - a. A 6' free fall generated on average 2,500 pounds of force load'
 - b. The above number is based on a 220 pound worker
 - c. That is how OSHA came up with 5,000 pounds (a safety factor of two, or $2,500 \times 2 = 5,000$ pounds)
- 2) The max allowable force load that can be exerted on the employee is 1,800 pounds:
 - a. This can be confusing because a typical 6' fall can be up to 2,500 pounds
 - b. There are two ways to reduce the force load on the user and the system:
 - i. Eliminate/Limit/Reduce your free fall distance
 - ii. Use a shock absorbing lanyard in your system
- 3) Technical Numbers & Data:
 - a. A shock absorber limits a 6' free fall force load to 900 pounds
 - b. Working in fall restraint (no free fall) limits your max load to about 400 pounds
 - c. A typical MSR 2x4 top chord truss breaks at about 3,400 pounds
- 4) Residential Scenario:
 - a. A framing contractor wants to tie-off to an anchor point installed onto a 2x4 truss. The question comes up that the 2x4 truss is not designed for a 5,000 pound force load. Good point, but it does not need to be because the standard says 5,000 pounds or a safety factor of at least 2. The framing is using a Personal Fall Arrest System with a harness, lifeline, and a shock absorber. If he takes a full 6' maximum allowable fall over the eave or gable he will generate a force load of 900 pounds. A safety factor of 2 would equal 1,800 pounds. We just took the OSHA standard from the perceived 5,000 pound anchorage point and reduced it to 1,800 pounds by reading and applying the whole standard.

Super Anchor Safety is dedicated to helping all those in our industry understand how to best protect their workers. This information is designed to help everyone understand and apply the regulations that they work under every day. Please contact us if you ever need further information on any realm of wood framed fall protection. We can be reached at 425-488-8868 or at paul@superanchor.com

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