

THE BASICS OF FALL PROTECTION

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FATAL FACTS 2015

- Of the 648 deaths the actual height of the fall is known in 548 incidents.
- Of those 548 deaths 449 or 82% occurred in fall from less than 30 feet.
- 2 out of 5 of the falls were at 15 feet or less.
- Complete data available at: <https://www.bls.gov/iif/oshcfoi1.htm>

REGULATIONS

- Construction is required to follow fall protection requirements as stated in 29 CFR 1926.501 through .503 when employees are exposed to a fall hazard of 6 feet or more.
- General Industry is required to protect employees from falling into pits, off platforms, etc. at heights of 4 feet or more as stated in 29 CFR 1910.28 (Effective 1/17/17).

ANSI/ASSE Z359

- ANSI/ASSE Standard currently has 14 parts.
- If it complies with current ANSI/ASSE Standard equipment is state of the art.
- Effective 1/15/17 ANSI/ASSE 3600 pound gates on hooks and carabiners is now required. 29 CFR 1910.140(c)(8)

BACKGROUND

Bottom line is employees should be protected from falling any time they are not standing on an approved working surface.

HIERARCHY OF FALL PROTECTION

- Eliminate the hazard
- Passive system
- Fall Restraint
- Fall Arrest
- Administrative Controls

LADDERS

- Ladders must be used in accordance with OSHA Regulations and must be used in accordance with manufactures instructions.
- When used in accordance with instructions **THERE IS NO REQUIREMENT THAT YOU BE "TIED OFF"!**
- There must always be one hand on the ladder.
- Failure to follow the instructions and keep the ladder in good condition can result in a citation.

MOBILE LIFTS

PASSIVE SYSTEMS

Include Railings, Platforms, Ladders

Controlled access areas with Warning Lines are permitted in construction for roofers doing leading edge work and pre-cast concrete erection and only as part of a site specific fall protection plan.

Effective 1/17/17 Warning Lines are permitted in General Industry on low slope roofs beginning at 6 feet from the edge if the requirements of 29 CFR 1910.28(b)(13) are followed.

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FALL RESTRAINT

Prevents a worker from falling

REGULATIONS

When fall protection can't be achieved by engineering means, then industry will utilize the guidance found in 29 CFR 1910.28 effective 1/17/17

PERSONAL FALL ARREST SYSTEM

Catch you when you fall.

ABC's OF FALL PROTECTION

A-ANCHORAGE, B-BODY SUPPORT, C-CONNECTING MEANS, D-DECENT & RESCUE

ANCHORAGE

Is the key to the whole system; is the hardest to determine; and is the most often over looked.

ANCHORAGE TYPES

- A non-certified anchor is one that has been determined by a Competent Person to have sufficient strength to meet the requirements.
- A certified anchor is one that has been certified by a Qualified Person to have sufficient strength to hold when used with the specified equipment.

ANCHORAGE REQUIREMENTS

- Anchorage points shall be capable of supporting at least 5000 pounds! per worker attached to the system. 29 CFR 1926.502(d)(15), 29 CFR 1910.140(c)(13)
- Lower requirements may only be used only as part of a complete fall arrest system which maintains a safety factor of at least 2.

ANCHORAGE REQUIREMENTS

Visit www.veri5000.com for more information on anchorage connector testing.

ANCHORAGE OPTIONS

- I-beams
- Large pipes
- Structural members
- Ropes
- Cables

ANCHORAGE CONNECTION

Anchorage point must have a suitable point for connection to with a standard hook.

Connection must be used in such a way as to prevent gate loading.

PROPER USE

- Use only for intended purpose.
- This includes hooks, which is why they should not be saved and use on tool ropes, etc.
- Never use fall protection equipment for rigging and never use rigging equipment for fall protection. 29 CFR 1910.140(c)16

DYNAMICS OF A FALL

FREE FALL

Occurs first with the worker accelerating towards the earth the whole time.

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Free fall continues until the worker runs out of lanyard, normally 6 feet or less.

Free fall can be as much as 12 feet with properly rated equipment. This allows anchorage at the feet.

ARREST

Occurs when you run out of lanyard. Further you go, faster you go, faster you go the harder you stop.

ANCHORAGE CONNECTION

- Generally standard hooks go into RINGS!
- Anchorage points usually have a ring for connection to with a standard hook.
- If other things like cable loops are used the hook must be orientated to prevent gate loading.

HORIZONTAL LIFELINES

Require special attention to anchorage requirements. They are “Engineered Systems”

HORIZONTAL LOADING

Reference 29 CFR 1926.503 Appendix C for how much cable loaded can occur in the event of a fall.

Reduced by: Sag in cable, energy absorbers on cable ends, and proper installation.

INSPECTION

No rust to the point it has pitted the metal is allowed on any hardware

BODY WEAR

- Supports the body during and after the fall.
- Only full body harnesses are to be used for fall arrest systems.
- Must have back D-ring and only back D-ring is to be connected to the fall arresting system.
 - Proper d-ring placement is between the shoulder blades.
 - Check for proper placement before using extenders.
 - If d-ring will not stay put, the harness needs to be repaired or replaced.
 - Some manufactures have kits to prevent d-ring slide.
- Side rings are for positioning only.

PROPER USE

- Protect and store properly.
- Do not store wet
- Hang up if possible
- Bags are good for people who carry their equipment around.
- Destroy or return to factory if fall is arrested.
- All equipment good for one fall only!
- If harness has fall indicator be sure users know what it is.
- Destroy ALL of the equipment including hooks, keepers, and rings.
- Always wear tightly and correctly. If you wear it correctly and you fall,
- You will walk away from it. If you wear it incorrectly,

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- It will hurt you and hurt you badly! Goggle search “Loose Fitting Harness” for picture of what can happen (use caution as very graphic)

HARNESSE INSPECTIONS

- Shall be done per manufactures requirements:
- Prior to each use by the worker who is using the equipment.
- A documented inspection by Competent Person every 6 months or year depending on type of use.
- LOOK FOR THREAD DAMAGE
- LOOKING FOR DAMAGED EYELETS
- LOOKING FOR BURN HOLES
- No rust to the point it has pitted the metal is allowed on any hardware

CONNECTING MEANS

Connects the body support to the anchorage and contains an energy absorber.

ENERGY ABSORPTION

Begins at the point of arrest; Continues till force is less than 900 lbs. (ANSI) or 1800 lbs. (OSHA); or You have traveled 42 inches OSHA, 54 inches ANSI.

#1 REASON WORKERS GET IN TROUBLE IS LACK OF FALL CLEARANCE.

PROPER USE

- Swing Fall subjects falling person to vertical and horizontal forces.
- **Fall Protection Math** 1 foot over for each 2 feet out equals 30°
- Watch your lanyard does not become tangled in something.
- Use your lanyard keepers!
- Design basis is a 310# person falling 6 feet.
- More free fall or more weight and the lanyard may run out of energy absorber.
- Big Boss lanyards are approved for:
- Use by workers up to 310 to 420 pounds at 6 feet of free fall;
- Use by workers up to 310 pounds at 12 feet of free fall.
- Allows for foot level tie-off.
- Twin leg lanyards allow for 100% (always connected) tie-off.
- When moving anchor points must be within 6 feet of each other.
- Minimize the time both legs are connected.

CONNECTOR INSPECTIONS

- Shall be done per manufactures requirements:
- Prior to each use by the worker who is using the equipment; and
- A documented inspection by Competent Person every 6 months or 12 months depending on use.

LANYARD PRE USE INSPECTION

Check the hooks

Look for any opening of the energy absorber on external packs

Check indicator on stretch lanyards

Look for any damage to the webbing like cuts , tears, burn holes, etc.

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SRL USE

- Never anchor below the d-ring unless manufacture has approved the application.
- SRL's can be worn or anchored depending on the unit.
- SRL lifeline must always be under tension when in use.
- If kneeling down on an edge extra clearance maybe required.
- Do not use on granular material as you will not sink or slide fast enough to lock up unit.

SRL OPERATION

- Inside the unit is a set of paws.
- When the lifeline pulls out and speeds the paws up to 4.5 feet per second they fly out an lock.
- On a web unit the lifeline will then stretch and/or the energy absorber will open to absorb the energy and keep force on worker at an average of 900 pounds.
- Never open a unit as the spring inside can cause serious injury even with lifeline cut off.

SRL PRE USE INSPECTION

- On cable units check to see if hook indicates a fall.
- Give unit a sharp pull to be sure it locks.
- Look for any damage to the anchorage connector, harness connector, and housing.

AERIAL LIFTS

TYPES OF LIFTS

Extending and articulating boom platforms and vertical towers.

LIFT FALL PREVENTION

Extending and articulating boom platforms.

Require **FALL PREVENTION** to prevent being thrown from the bucket.

Vertical towers do not require any protection because there is not the danger of being catapulted from the platform

LIFT ANCHOR POINTS

Use only manufactures installed or approved anchors.

Use only manufactures installed or approved anchors.

If lift is not equipped proper anchors contact manufacture for guidance.

RESCUE

THE PROBLEM

- When we fall we tend to stop leg movement and blood begins to pool in the legs.
- This is know as "Venous Pooling".

PREVENTION

Do as they tell you when standing at attention:

NEVER LOCK YOUR LEGS

THE RESULT IF YOU DON'T

Gravity will pull blood into legs, then out into tissue where heart can't get it back, our brains go oxygen deficient and we pass out.

WHAT DO YOU DO, GET THE LEGS MOVING!

Push against some thing; pull them up and down; and use trauma straps.