

3M Science.
Applied to Life.™

Fall Protection

CalCIMA Spring Thaw 2019

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#PowerOfOne



3M Fall Protection



DBI-SALA & Protecta Brands

Field support:

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Orange County Training Center- Tustin, CA

-Fall Protection, Confined Space, Rescue courses

Active vs. Passive Fall Protection

Active

- Fall Arrest
- Fall Restraint
- Work Positioning



Passive

- Guardrails
- Handrails
- Netting
- Hole Covers
- Warning Signs



ABCs of Active Fall Protection

A- Anchorage System

B- Body Support (Harness)

C- Connecting Devices

D- Descent & Rescue/ Dropped Objects

E- Education

Inspections

Frequency

- Prior to each use by Authorized Person
- Twice annually by Competent Person (documented)

Inspection Components:

- Webbing
- Stitching
- Labels
- Hardware (D-Rings, metallic components, plastic components, etc.)
- Snaphooks & Carabiners
- and more...

Anchorage System

Definition: secure point of attachment for lifelines, lanyards, or deceleration devices

Non-Certified Anchorage strength requirements

- 5000 lbs. Fall Arrest
- 3000 lbs. Work Positioning
- 1000 lbs. Restraint

Certified (Engineered) Anchorage

-designed, installed, and used under the supervision of a Qualified Person as part of a complete personal fall arrest system which maintains a safety factor of at least two times maximum anticipated force

Body Support

Harnesses distribute fall forces over the upper thighs, pelvis, chest, and shoulders

Provides connection point on the worker for the personal fall protection system

Desirable traits:

- Fast and simple to adjust, put on, and take off

- OSHA and ANSI compliant

- Comfortable

D-Rings

Dorsal D-Ring: Only acceptable D-Ring for fall arrest

Chest D-Ring: Ladder Climbing

Hip D-Rings: Working Positioning & Restraint

Shoulder D-Rings: Retrieval & Vertical Entry

*One snaphook connection per D-Ring



Harness Fit & Sizing

Should fit snugly; a loose harness may cause:

- Bodily injury
- Choking
- Potential to fall out of harness

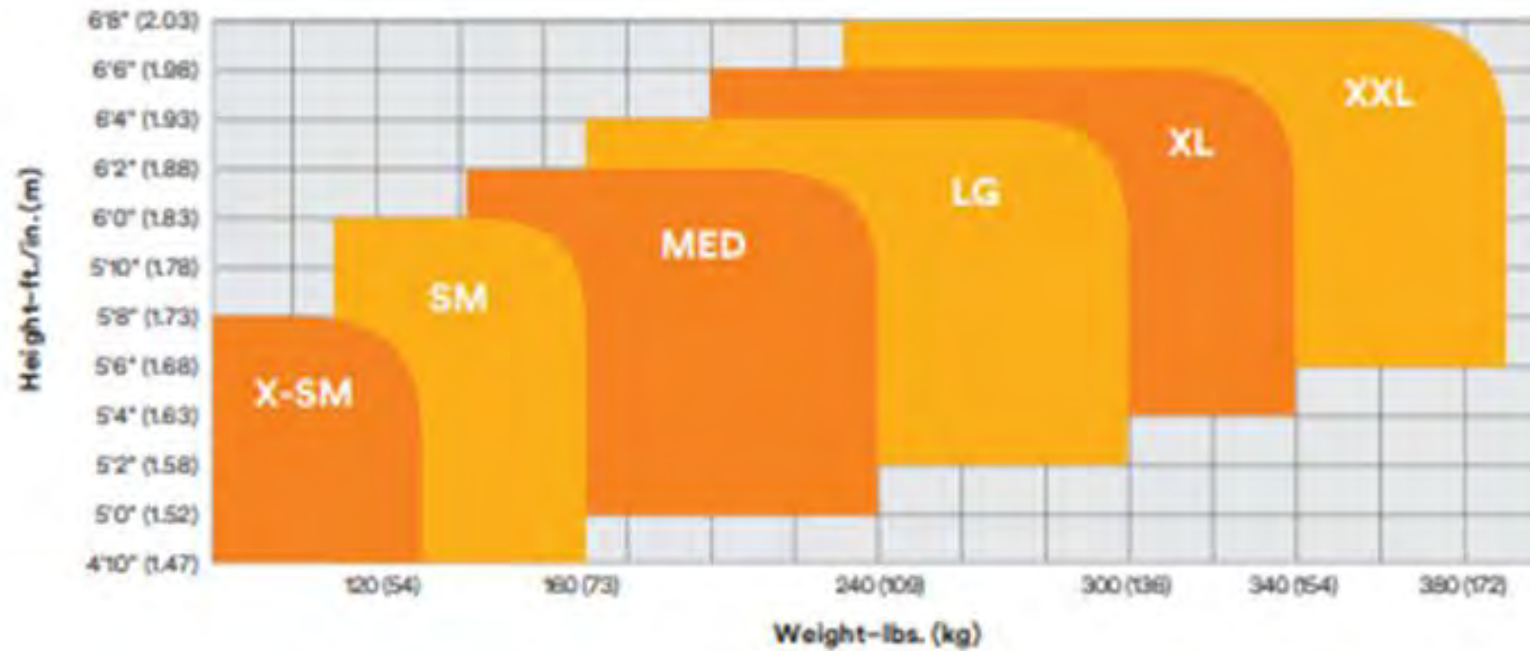
Weight capacity varies by harness

Leg straps: should be able to slide flat hand underneath, but not a fist

Dorsal D-ring: centered in between shoulder blades

DBI-SALA & Protecta harnesses: One size up

Harness Fit & Sizing



Connecting Devices

Connect a worker's harness to the anchorage system

Types

Lanyards

- Shock Absorbing Lanyard
- Fall Restraint Lanyard
- Positioning Lanyard

Self-retracting lifelines (SRLs)

- Personal SRL
- Traditional SRL/SRD



Connector Components

Cable/Web Line

Snaphooks & Carabiners

- 5000 lb. breaking strength
- Dual action
- Self-closing and self-locking
- Gate strength: 3600 lbs.



Energy Absorbers

- Max. Weight Capacity
- Max. Free Fall
- Max Arresting Force



Fall Arrest Lanyards

Types

Single Leg

Twin Leg

Shock Absorber

External

Internal

Avg. Length: 6 ft

-18 ft. fall clearance required



Self-Retracting Lifelines

Traditional

- typically mounted directly overhead
- must be aware of swing fall hazards; swing fall occurs when anchorage is not located directly above worker's head



Personal

- typically connected directly to harness
- Single leg
- Twin leg



Fall Clearance Requirements

Clearance is measured from anchor point to lower level

Vary based on type of connector

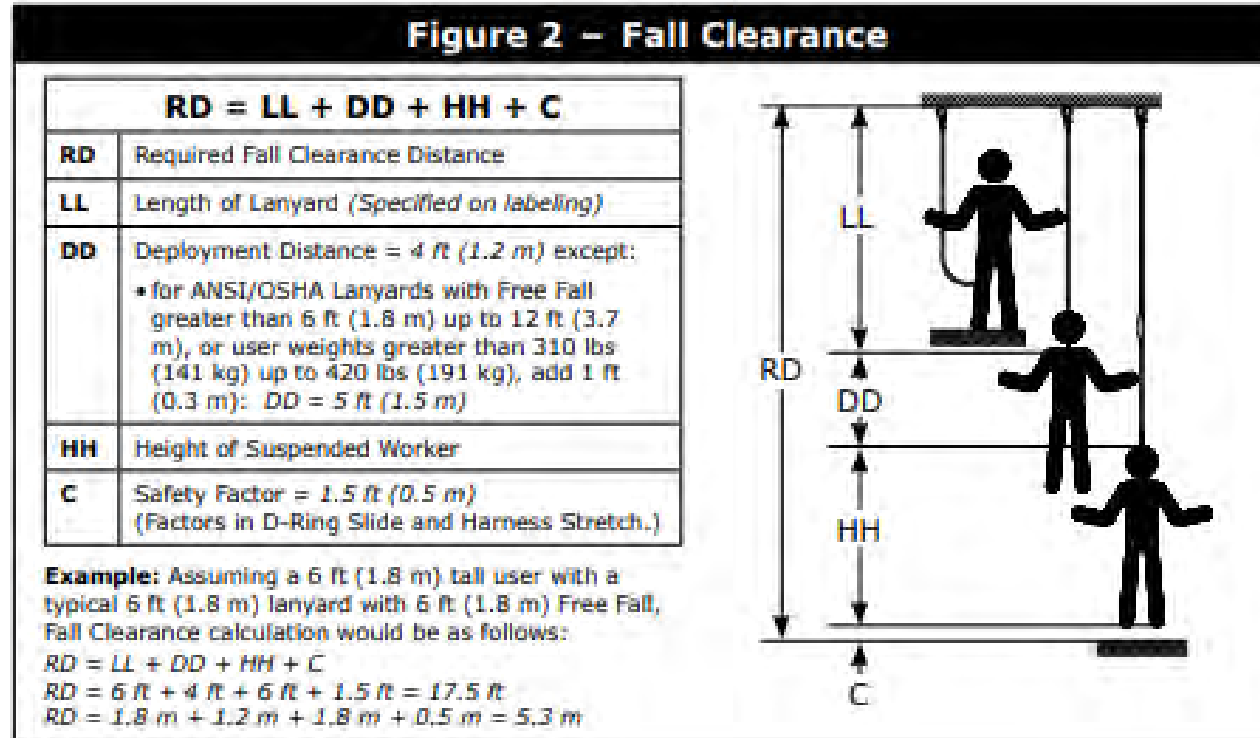
SRLs can require less fall clearance than fall arrest lanyards

Variables affecting fall clearance:

- anchor point height
- lanyard length
- deceleration distance
- height of suspended worker
- safety factor

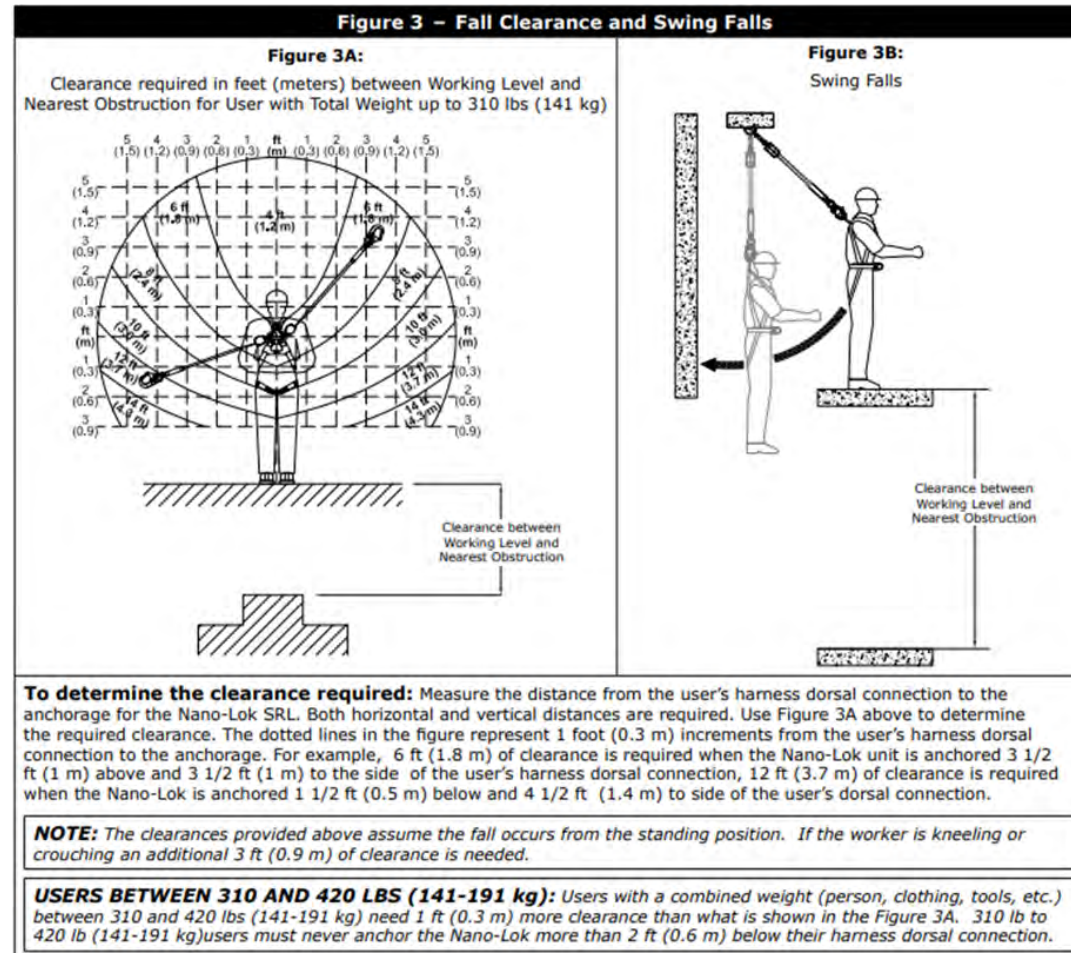
Fall Clearance Requirements

6 ft. Fall Arrest Lanyard, anchored overhead: 17.5 ft. Clearance required



Fall Clearance Requirements

Nano-Lok SRL, anchored overhead: 4 ft. fall clearance required



Leading Edge

Leading Edge: unprotected border, perimeter, or opening where a fall hazard exists

Unique risks:

- Increased fall distance
- Unpredictable lock up speed
- Increased fall arrest forces
- Increased potential for swing hazards
- Potential for sharp edge to cut or damage lifeline

Leading Edge SRLs can be used for non Leading-Edge applications!



Questions?

Thank You!