

Slips, Trips And Falls

AR Training

2012

DMME

Division of Mineral Mining

A Leading Cause of Accidents

- Second only to automobile accidents in causing personal injury.
- Responsible for 10% of all injuries.
- Responsible for 15% of all deaths.
- In 2008, two miners in Virginia were seriously injured in fall accidents. One serious injury in 2009 & 2010.
- Nationally in 2008, there were five miners killed due to falls in M/NM mining (22% of all fatalities in M/NM). Two miners killed in 2009, one in 2010, three in 2011, and three in 2012.

Causes of Slips, Trips, and Falls

- Poor Housekeeping (water, oil, trash, materials in walkways and working areas).
- Failure to use fall protection.
- Improper guardrails and handrails.
- Openings in travel ways.
- Ladder openings.
- Inappropriate ladder and scaffolding setup.
- Wet/slick conditions – winter and summer.

Slips and Trips

Definitions

- **Slip** – to move with a smooth sliding motion. Examples: Banana peeling dropped on a break room floor; Oil in the shop floor from a leaking motor; Ice/snow on a catwalk.
- **Trip** – to catch the foot against something so as to stumble. Examples: Power cord strung out in the floor; Material left in the walk area of the shop; Water hose left lying in the work area.

Falls

Definition and Facts

- *Fall – the act of falling by the force of gravity.*
- Falls usually occur with a slip or trip too.
- Falling to the same level can exert forces of over 1000 pounds to the body (person weighing 150 lbs. or more).
- 25% of all disabling injuries are a result of falling.
- 8% are from the same level and 17% are from the next level.

Handrails and Toeboards

- Crossovers, elevated walkways, elevated ramps and stairways shall be of substantial construction, provided with handrails, and maintained in good condition. Where necessary, toeboards shall be provided.
(4VAC25-40-1820)

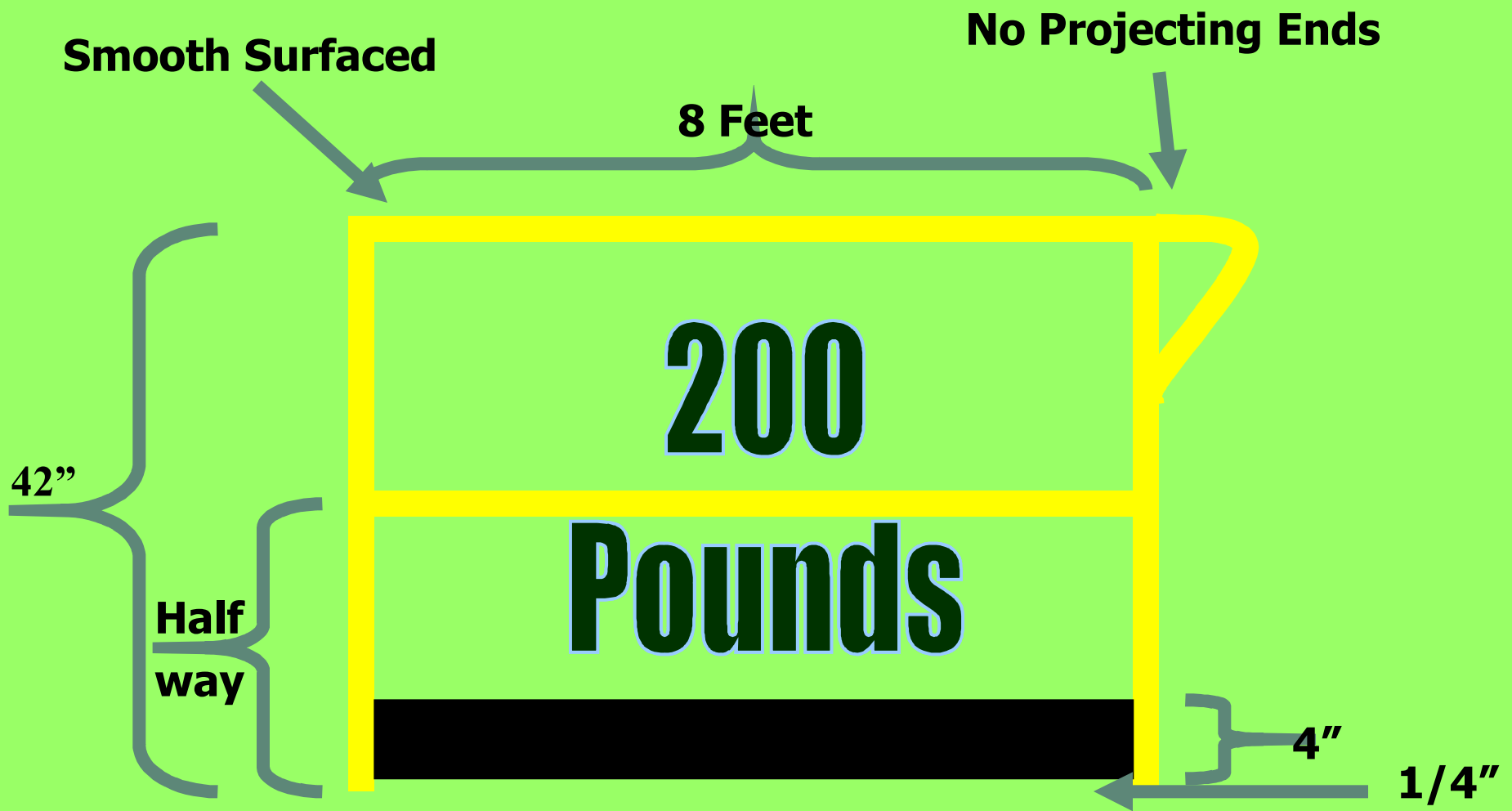


Handrail/Guardrail and Toeboard Construction

- DMM and MSHA standards do not specify how handrails/guardrails and toeboards are to be constructed.
- ANSI requirements for handrails and toe boards provide excellent guidance.

Let's build a railing!!

Standard Railing



Housekeeping

- Safe Means of access shall be provided and maintained to all work locations.

(4VAC25-40-1810)

- Materials shall be stored and stacked in a manner which minimizes stumbling.

(4VAC25-40-2540)



Where is the greatest risk, going up or going down these steps?

- Both are risky, but going down is more so since the sudden change in distance and angle of the last step would tend to “throw” a person.
- Ladders, stairways, walkways and ramps shall be kept free of loose rock and extraneous material.

(4VAC25-40-1880)



Construction and Maintenance of Ladders

- Ladders shall be of substantial construction and maintained in good condition. (4VAC25-40-1830)
- Substantial construction and good condition comes from the manufacturers requirements. When a ladder has been altered in any way the integrity of the ladder has been compromised.



Climbing On and Off Mobile Equipment

- Ladders, handrails and steps must be maintained in good condition. Fixed ladders must have at least 3 inches of toe clearance. (4VAC25-40-1850)
- Always face the ladder and have both hands free for climbing. (4VAC25-40-1910)



Unsafe Procedures

- Manufacturer's recommendations should be followed in the use of all tools and equipment.
- A safety harness with a line shall be worn when persons work where there is a danger of falling.
(4VAC25-40-1740)



PPE Best Practices

- Task train all miners to recognize hazards from falling and the proper use of safety harnesses.
- Ensure that Harnesses and lines are readily available and in good condition.



- Always follow proper procedures based on an assessment of hazards prior to starting work.
- *Use proper fall protection equipment where appropriate.*

Construction/Repair Best Practices

- Always use fall protection equipment, safety belts and lines, when working near elevated openings where there is a danger of falling.
- Protect and guard all openings through which persons may fall.
- Keep work areas clear of all extraneous materials and other stumbling or slipping hazards.
- Establish and task train personnel in safe work procedures regarding the removal and installation of hand-rails and toe-boards during maintenance and construction.
- Install temporary barriers/signage prior to the start of the job and remove them when the work is completed.
- Work place examinations must be made by certified foremen prior to, and during, shifts to identify hazards associated with tasks.
- All personnel must be alert to hazards in their work area and correct or report them as needed.

Passive Fall Protection System

Passive systems protect workers without additional action on their own behalf.

- Guardrails
- Railings
- Back-guards
- Non-slip decking
- Hole/access covers
- Sufficient lighting



Active Fall Protection System

Requires worker to take positive action to prevent falls

- Using harnesses and lines when needed.
- Be alert to hazards; correct or report them and warn others.
- Practice good housekeeping.
- Follow established safety procedures.



Key Prevention Issues

- **Traction**

- Wear the correct shoes for the job.
- Provide shoe cleaning devices where helpful.
- Slip resistant walking surfaces.
- Ice melt or sand as appropriate.

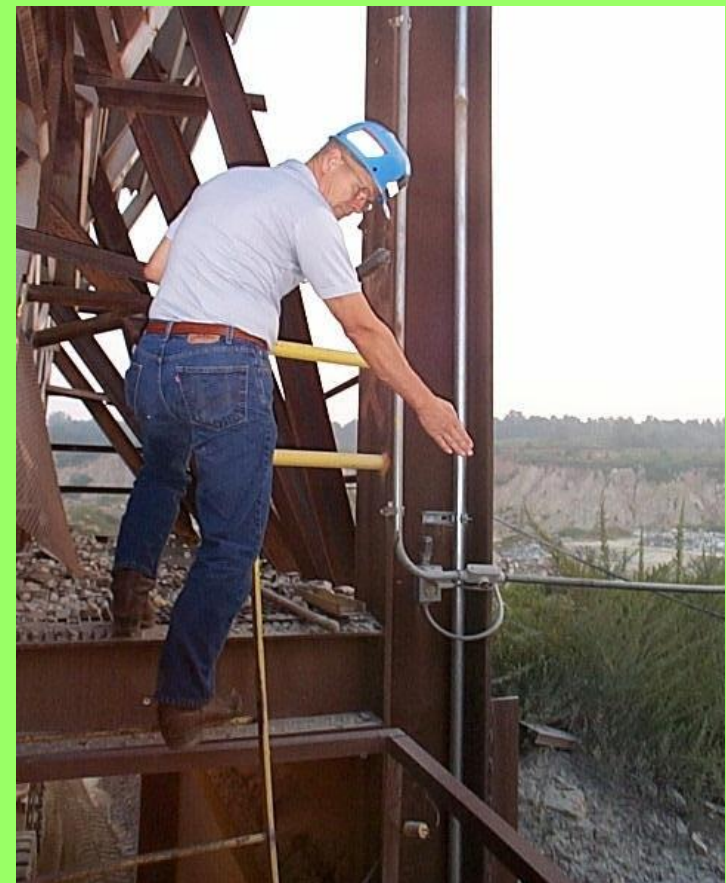


Which pair of boots should I wear today?

Key Prevention Issues

- **Construction/Maintenance**

- Walkways, stairways, ladders and railings to be of substantial construction and offer adequate protection.
- Slip resistant treads and decking.
- Adequate lighting.
- Warning signs as needed.



Key Prevention Issues

- **Actions**

- Personnel task trained and alert to identify hazards.
- Perform required inspections.
- Keep travelways clear of obstructions.
- Clean up spills. Employ good housekeeping.
- Use proper PPE



Key Prevention Issues

• Portable Ladders

- Long enough to reach (3 feet above upper landing).
- Placement on stable, level surfaces.
- Height-to-base ratio; 4 feet to 1 foot.
- Assistance during ascent or decent.
- Never lean more than 12 inches beyond side rail.
- Always face the ladder and maintain three points of contact.
- Follow manufacturer's recommendations and keep in good repair.



What about this one?

What's Going On Here?



And Here?



What About These Practices?



Assess These Accident Sites



Victim was working in this construction area



Victim was helping lower new equipment through the floor

What Needs To Be Done Here?



Is This Safe Access?

Is This Acceptable?



Review

- Maintain a good housekeeping program.
- Use fall protection and other PPE appropriately.
- Utilize slip-resistant materials where applicable.
- Place signs where potential hazards exist.
- Assure your shoes are adequate for the job.
- Keep toeboards, handrails, midrails and guardrails in place.
- Use and maintain portable ladders properly.
- Keep all travelways clear and in good repair.
- ***Most of all, be ALERT for hazards!!!***