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Mine Safety Net
Specification Criteria

August W. Lamos • Richard A. Lamos • Nils M. Skarbøvig

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Uses of Mine Safety Nets

Protection against falls of rock from

- **Stope hangingwalls**
- **Development end hangingwalls**
- **ASG hanging- and sidewalls**
- **Pillar sidewalls**

Protection against seismic ejection or pressure burst ejection of rock from stope faces or pillar side walls

Conveyor belt safety netting

Mine Safety Net Structure

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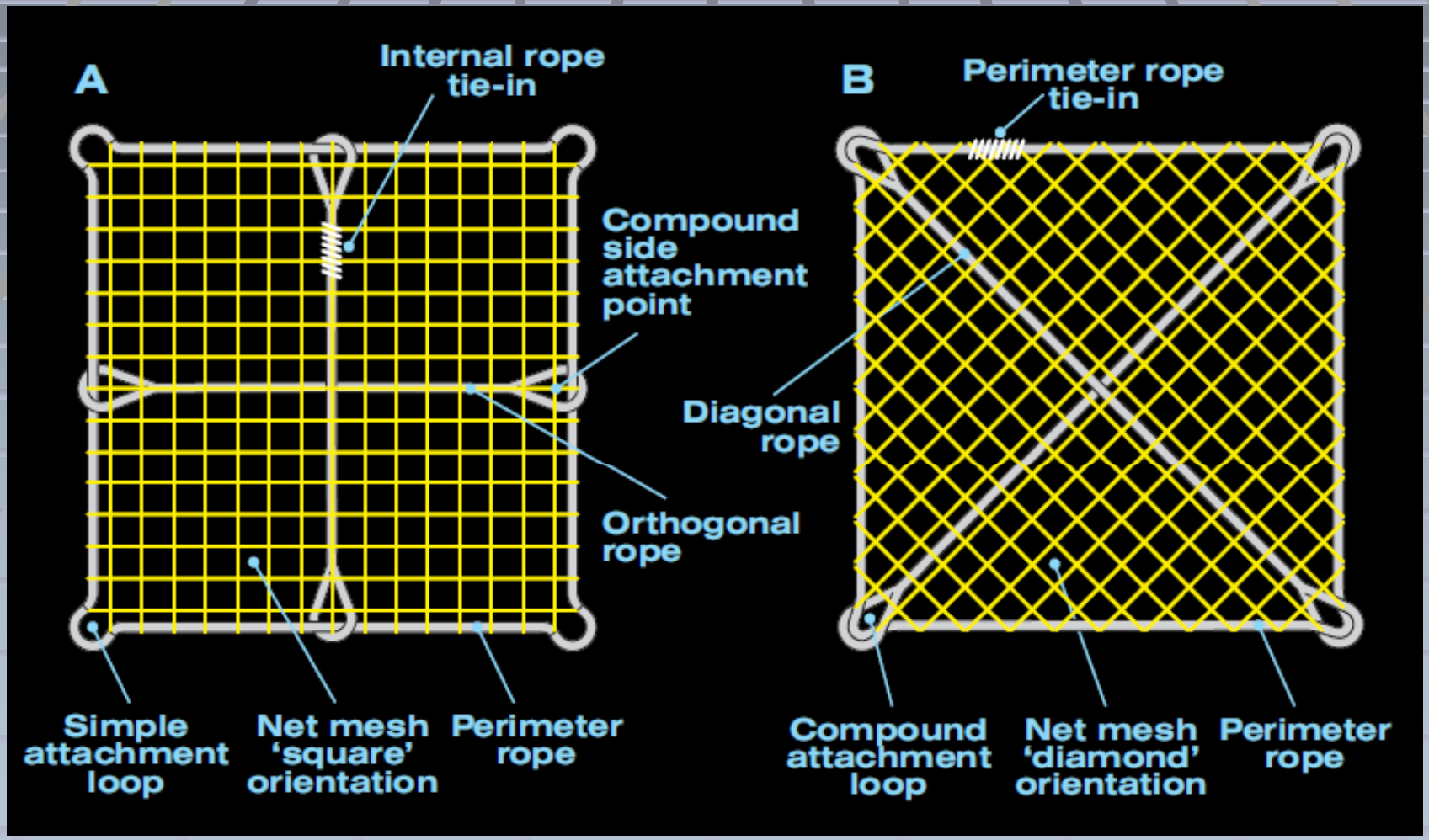

Mine Safety Net Testing

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Most tests performed at the SIMRAC Savuka Dynamic Drop Test Facility

Test drop mass:	450 kg
Maximum drop height:	2.0 m
Stoping width:	1.2 m
Maximum kinetic energy:	8.83 kJ

Savuka test advantages and disadvantages:

- Realistic dynamic loading
- Test net size limited to 1.5m × 1.5m
- No instrumentation
- De facto industry standard

Savuka Dynamic Drop Tests

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Savuka Drop Test 123

Package

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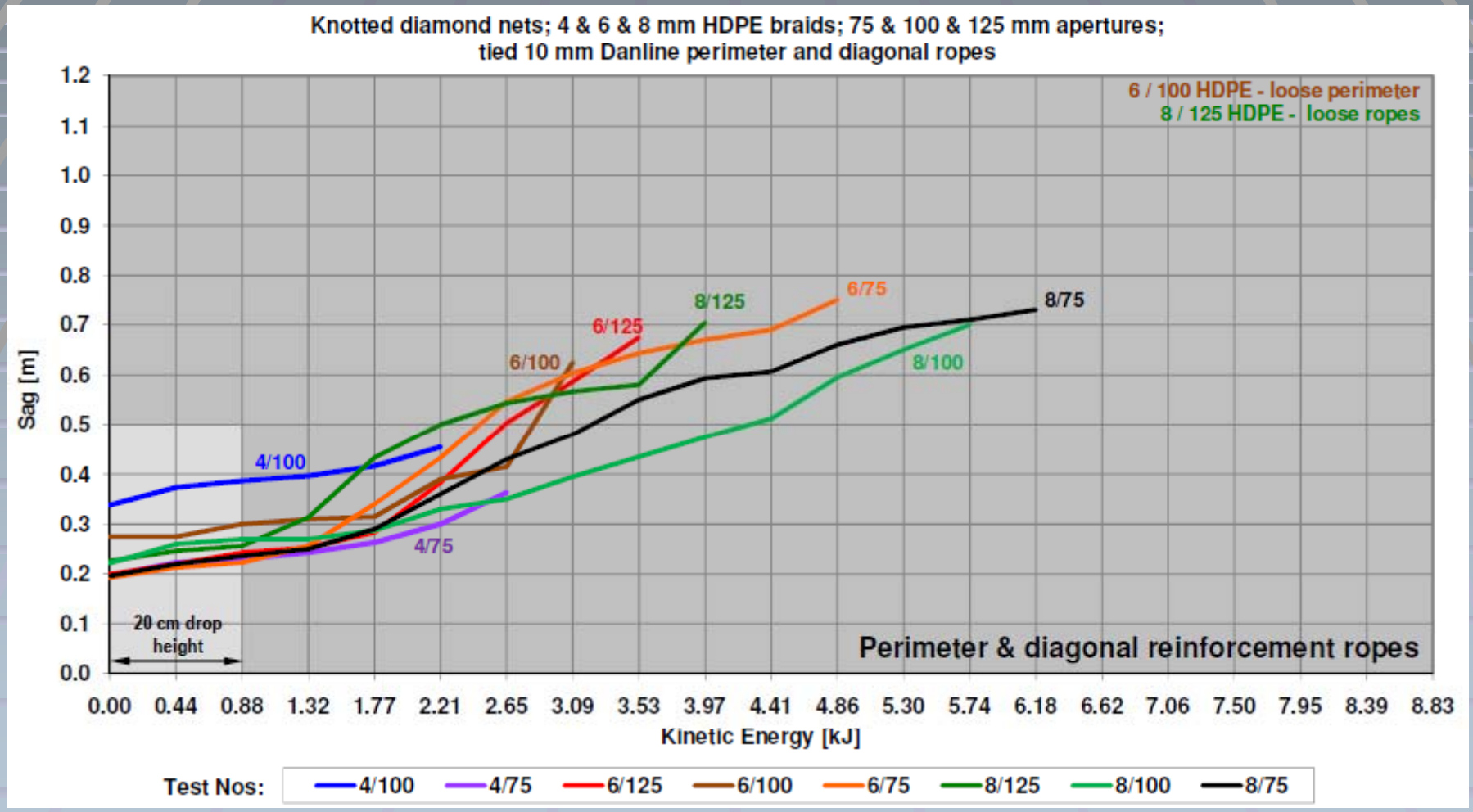
Knotted HDPE Nets' Performances



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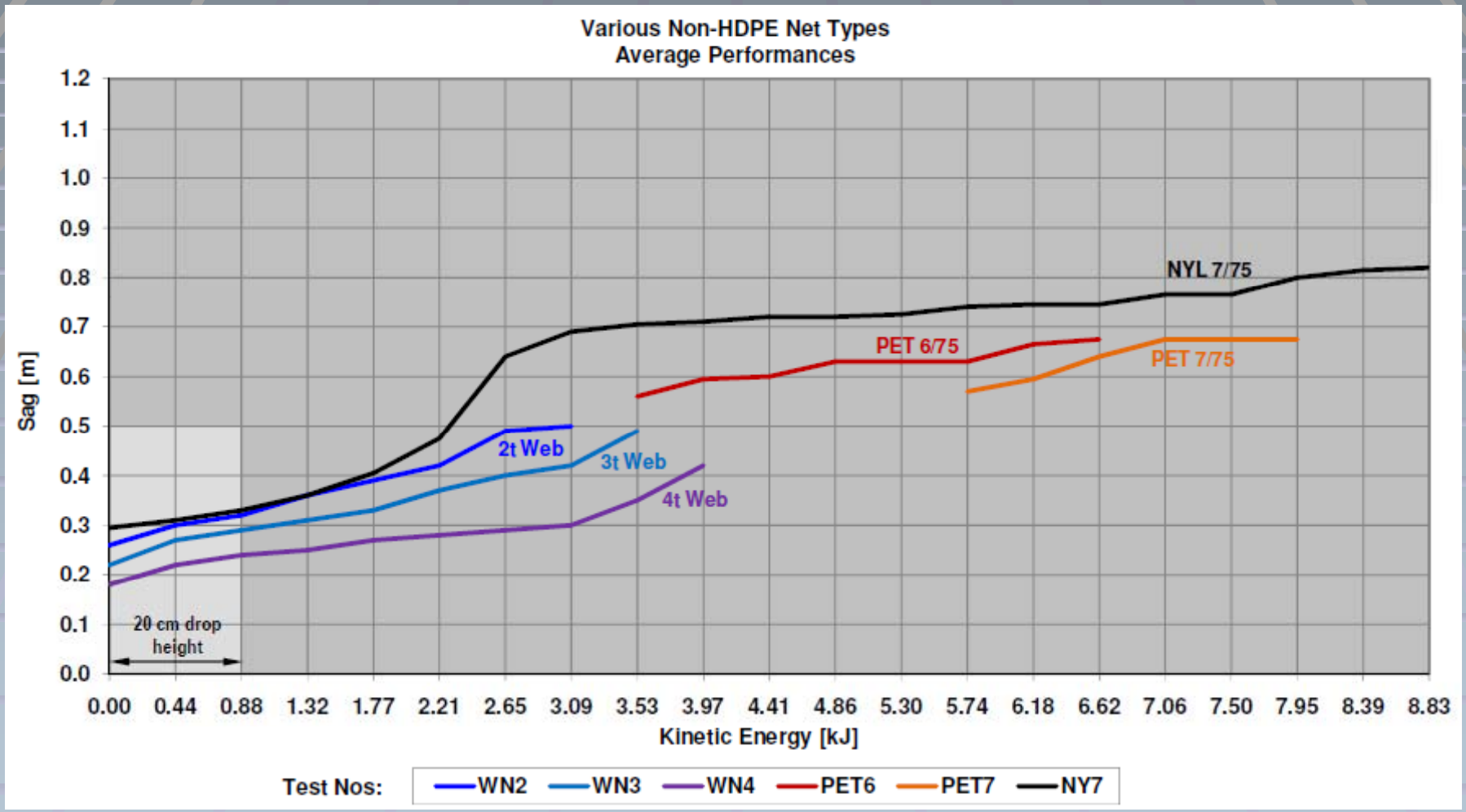
Various PET and NYL Nets' Performances



Determine Expected Rockfall Magnitude

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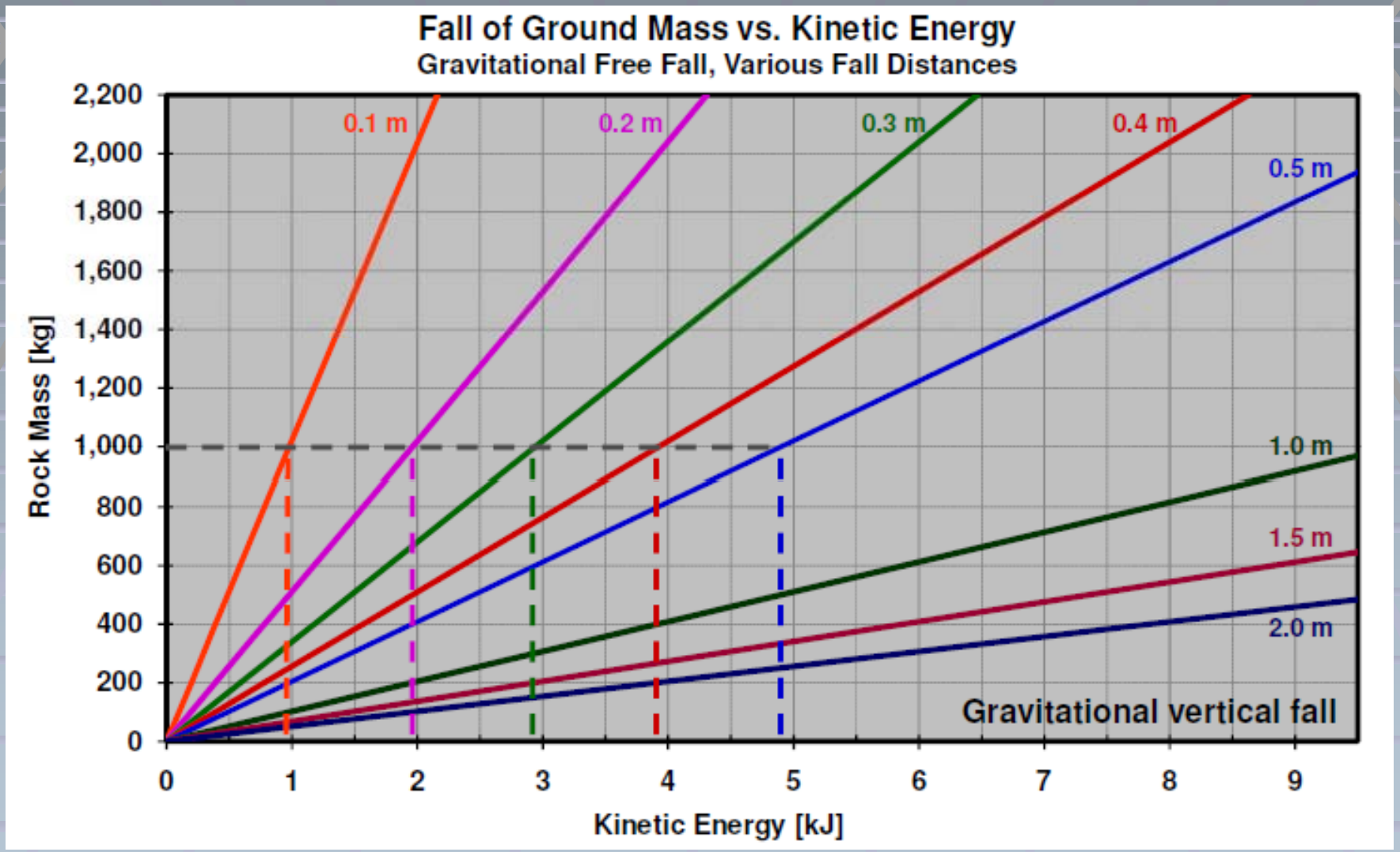
- Refer to rockfall statistics of area
- Consider site rockmass conditions
- Consider installed support capacity and support spacing
- Decide on largest rock mass to be arrested
- Apply appropriate safety factor
- Determine kinetic energy of rock, assuming expected fall distance into the net
- In seismic conditions, consider additional energy imparted on falling rock

Free Fall Kinetic Energy



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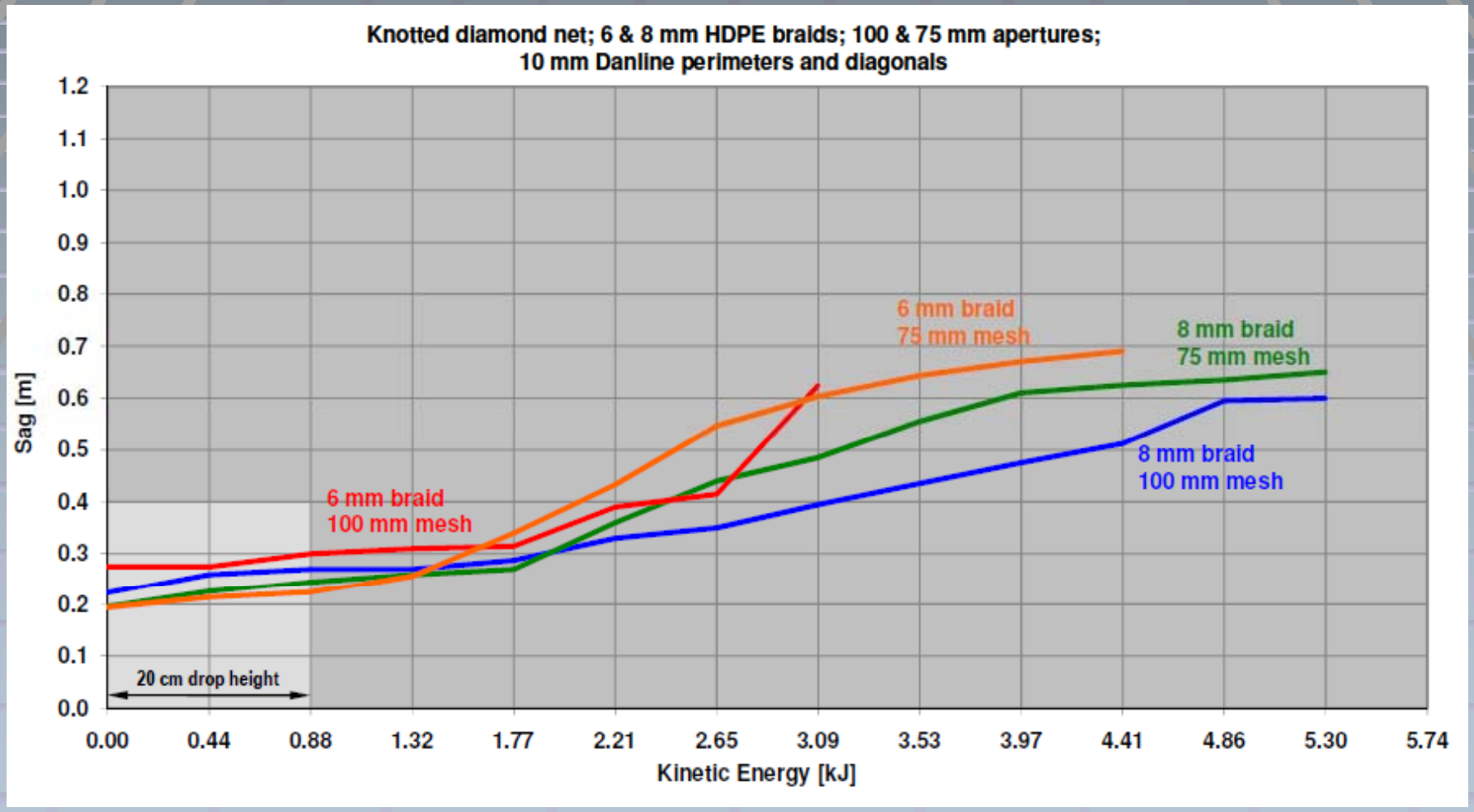
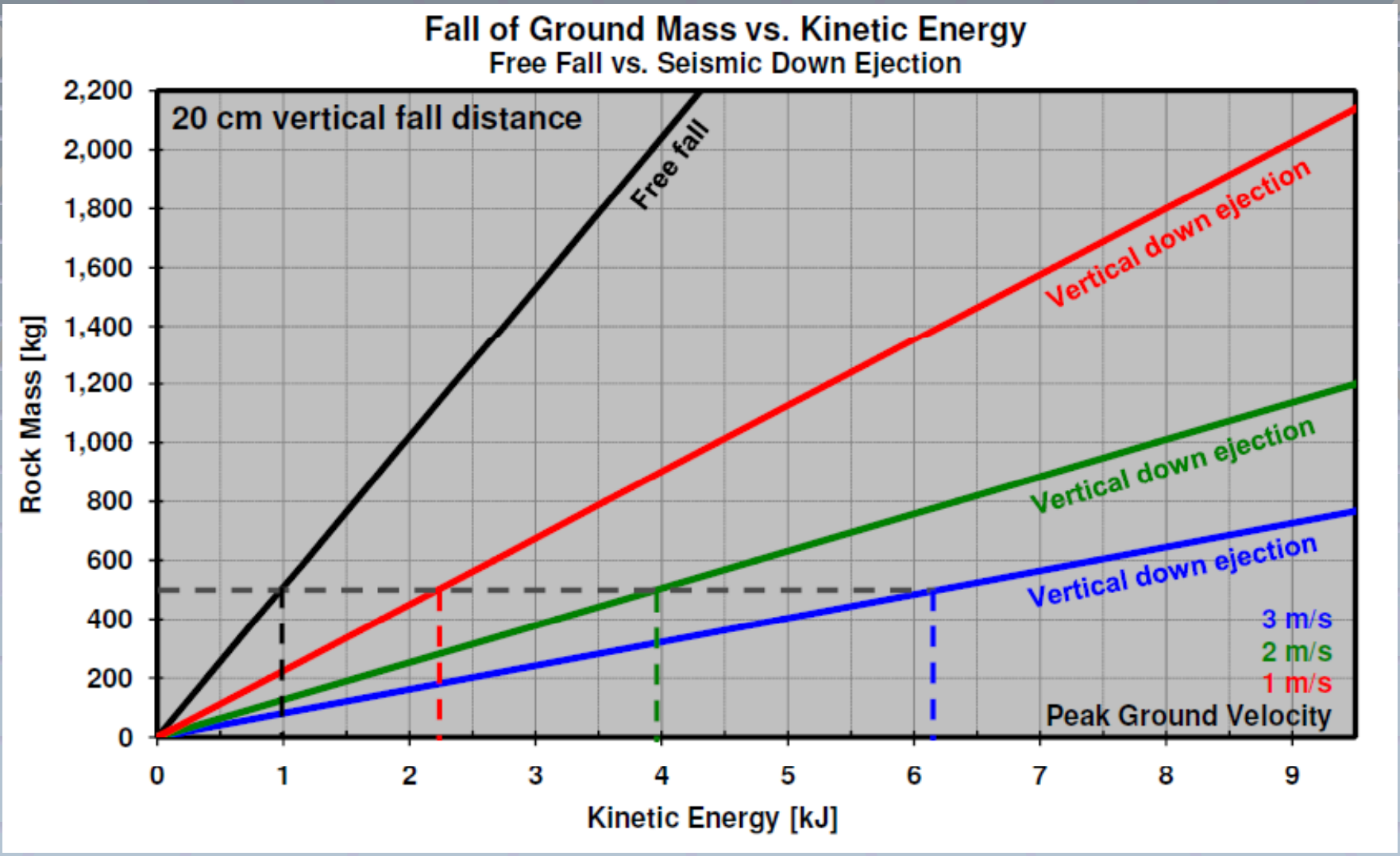
Common Mine Safety Nets' Performances



Seismic Kinetic Energy 1



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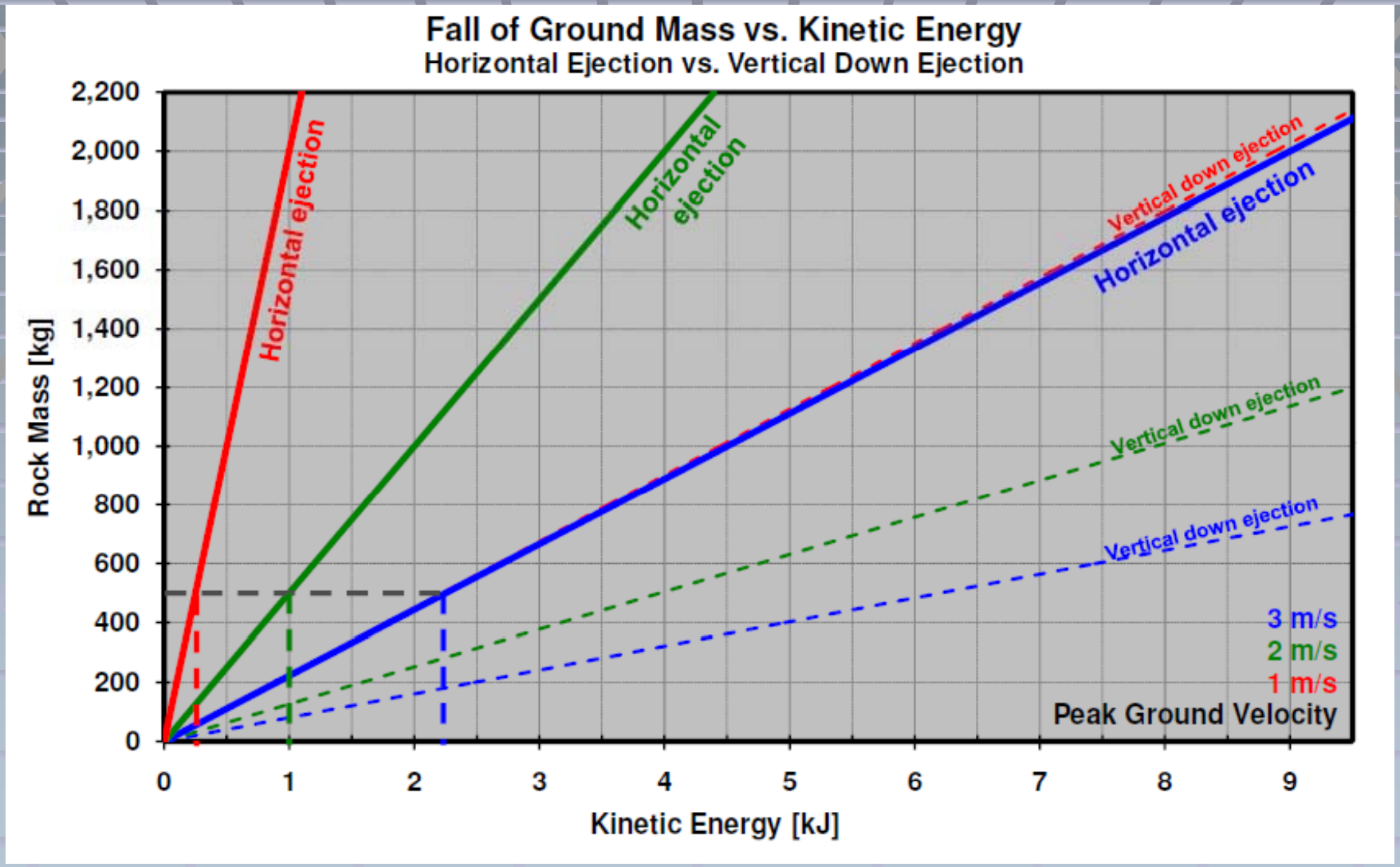
Seismic Kinetic Energy 2



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Additional Net Specification Criteria

- Consider net sag under maximum load

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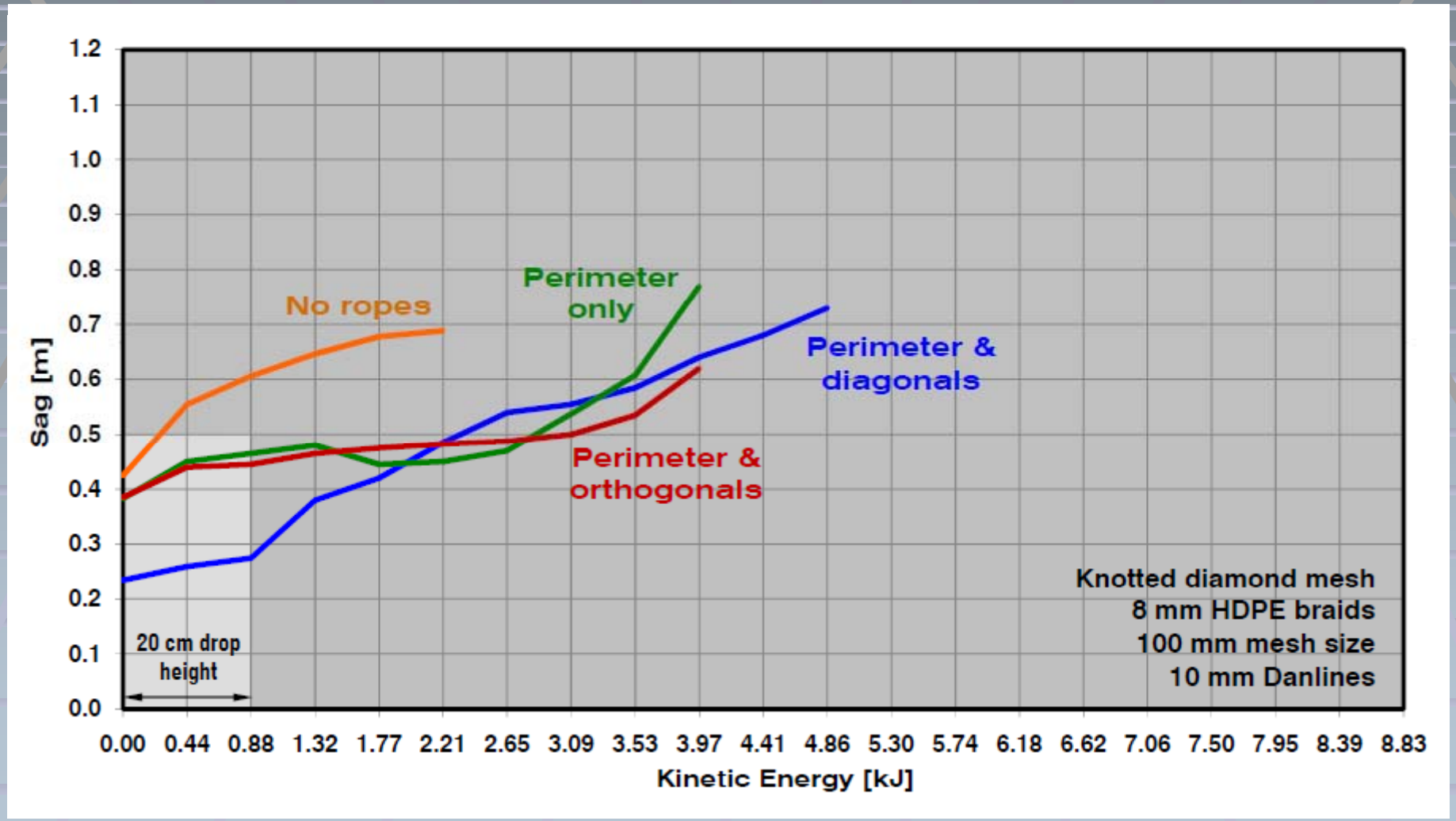
Effect of Reinforcement Ropes



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Additional Net Specification Criteria

- Consider net sag under maximum load
- Consider daily handling of nets, i.e., size and weight of net, ease of installation

Installation at Platinum Mine

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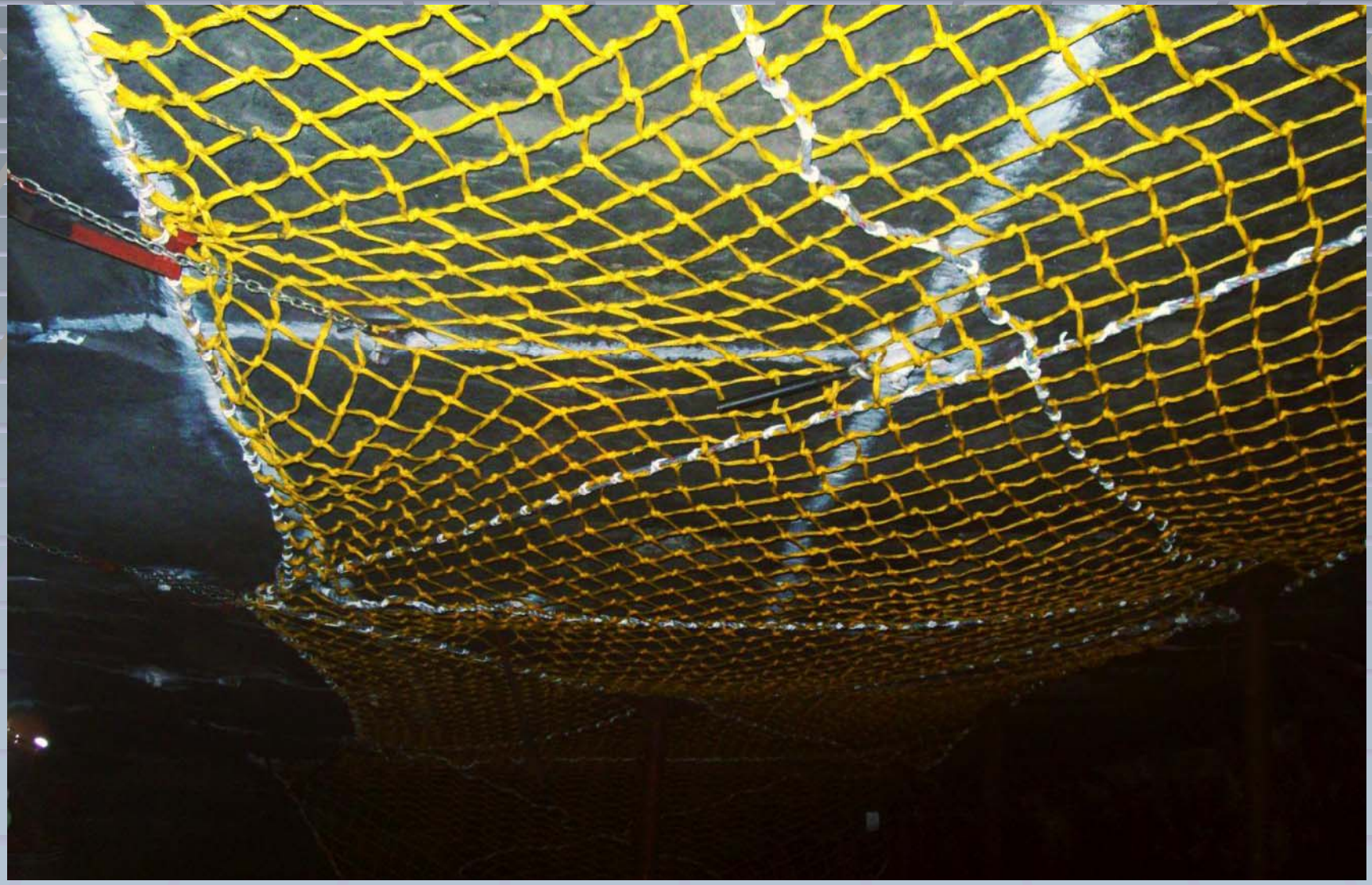

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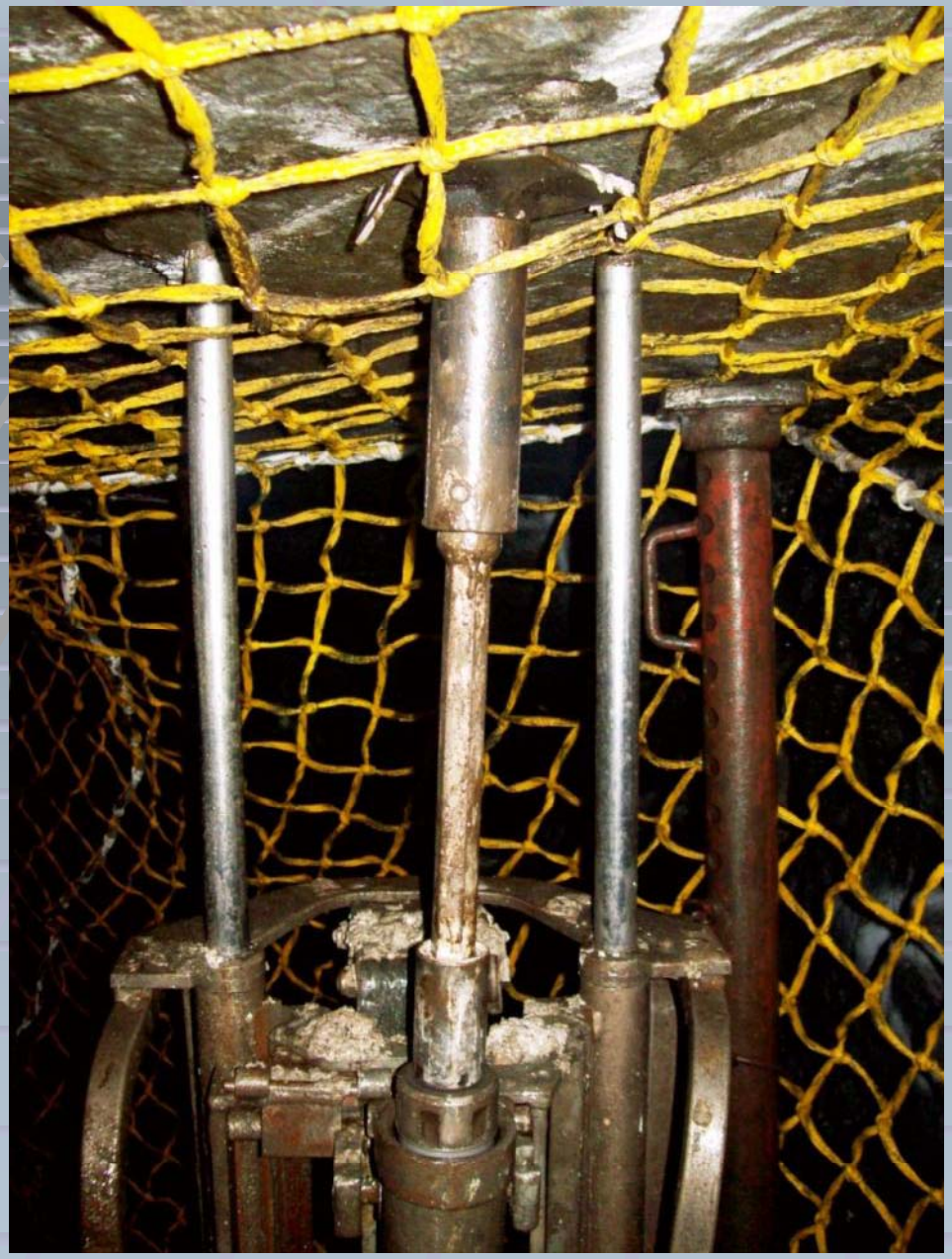
Additional Net Specification Criteria

- Consider net sag under maximum load
- Consider daily handling of nets, i.e., size and weight of net, ease of installation
- Mesh size, if roofbolts need to be installed through the net



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Drilling Through a Safety Net

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Additional Net Specification Criteria

- Consider net sag under maximum load
- Consider daily handling of nets, i.e., size and weight of net, ease of installation
- Mesh size, if roofbolts need to be installed through the net
- Accessories needed for effective installation, i.e., tensioners, hooks, spiralinks

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Safety Net Accessories

Tensioners

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Safety Net Accessories

Spiralinks

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Additional Net Specification Criteria

- Consider net sag under maximum load
- Consider daily handling of nets, i.e., size and weight of net, ease of installation
- Mesh size, if roofbolts need to be installed through the net
- Accessories needed for effective installation, i.e., tensioners, hooks, spiralinks
- Establish installation procedures and maintenance routines

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We Thank You for Your Attention !

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