

Fall protection solutions for complex environments



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AGENDA

- Design considerations for fall protection systems
- The latest advice and guidance on meeting CE and ANSI/OSHA standards
- Highlights of Fall Protection systems installed in Middle East and their benefits



Introduction



Introducing MSA

- Established in 1914 by two mining engineers
- Headquarters in Cranberry Township, Pennsylvania, USA
- MSA Latchways Fall Protection Engineered systems design centre, Devizes, UK

Our mission: That men and women may work in safety and that they, their families and their communities may live in health throughout the world.



MSA Corporate Center, PA, USA



Devizes, UK



Design considerations for fall protection systems



Facilities Management



HVAC R



Project Management



Technology



Facades



INDUSTRY



Architecture & Design



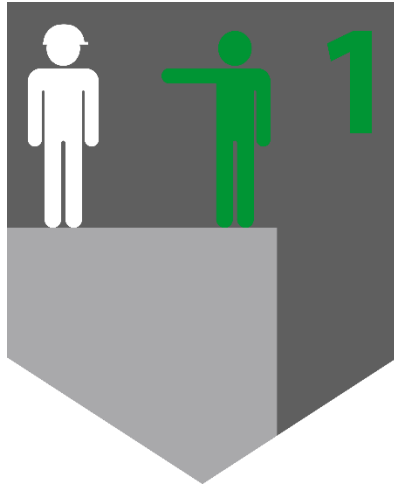
Concrete

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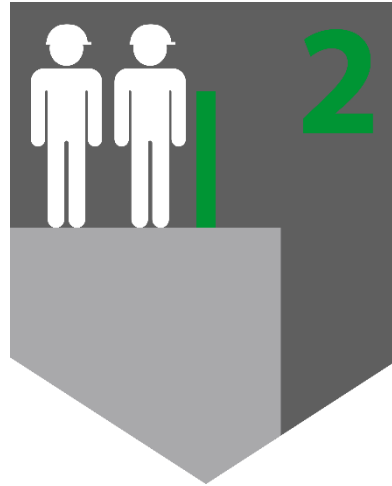
Design Considerations



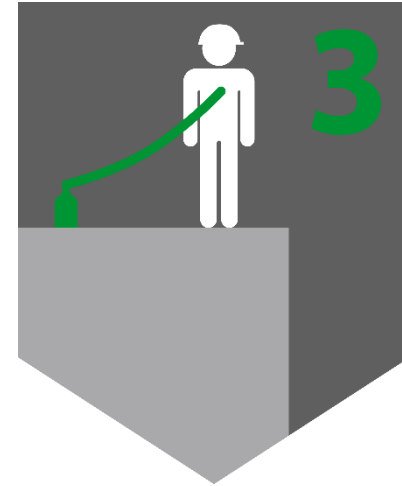
The hierarchy of Fall Protection



Eliminate the risk



Guard the hazard



Protect the worker

Fall protection for complex environments

Design Considerations



System Choice

Collective protection

- Protects more than one person
- Requires no intervention or specialist training
- System choice depends on:
 - Number of workers
 - Frequency of use
 - Time on roof
 - Experience



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Design Considerations



System Choice

Personal protection: Restraint

- Protects user only
- Cable lanyard prevents a worker reaching a hazard
- Controls both number and movement of workers on a roof
- Requires basic training to secure restraint or cable
- Must accommodate up to two workers for potential rescue



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Design Considerations



System Choice

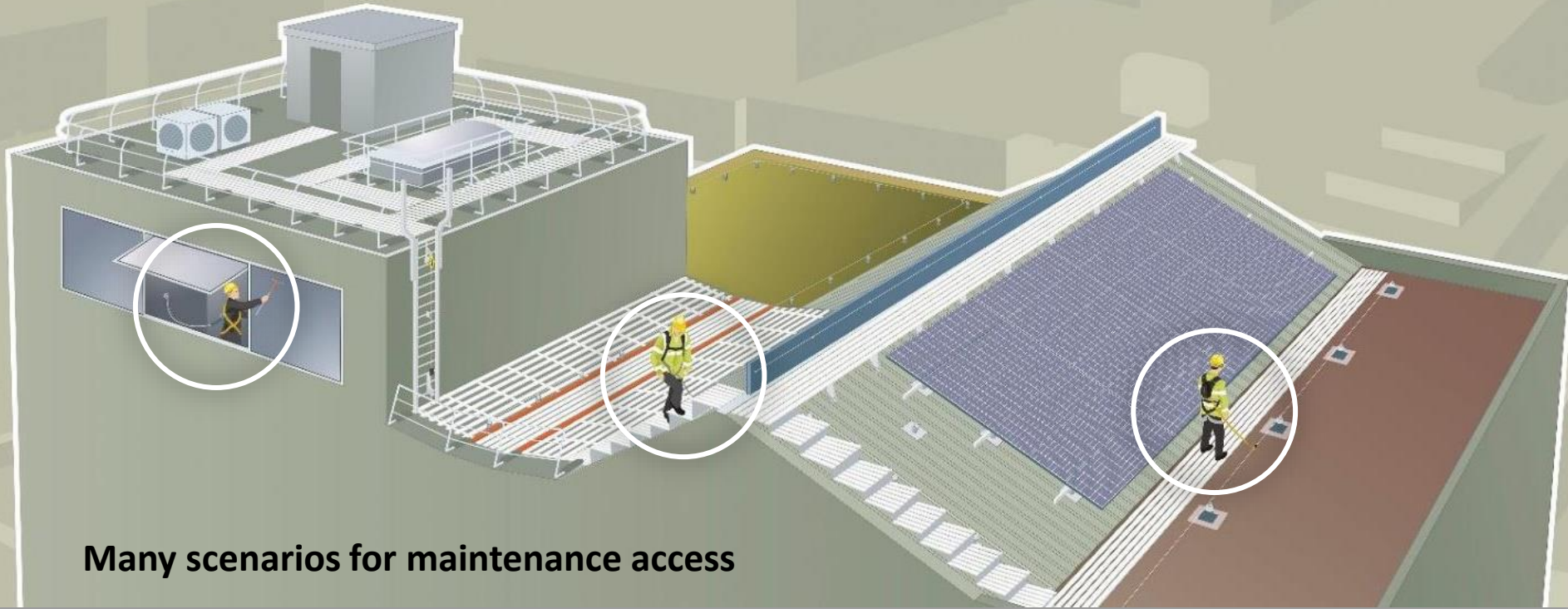
Personal protection: Arrest

- Protects user only
- Cable or rail system arrests an accidental fall
- Requires advanced training to safely secure and adjust lanyard
- Must accommodate up to two workers for potential rescue



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Design Considerations



Many scenarios for maintenance access

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Design Considerations



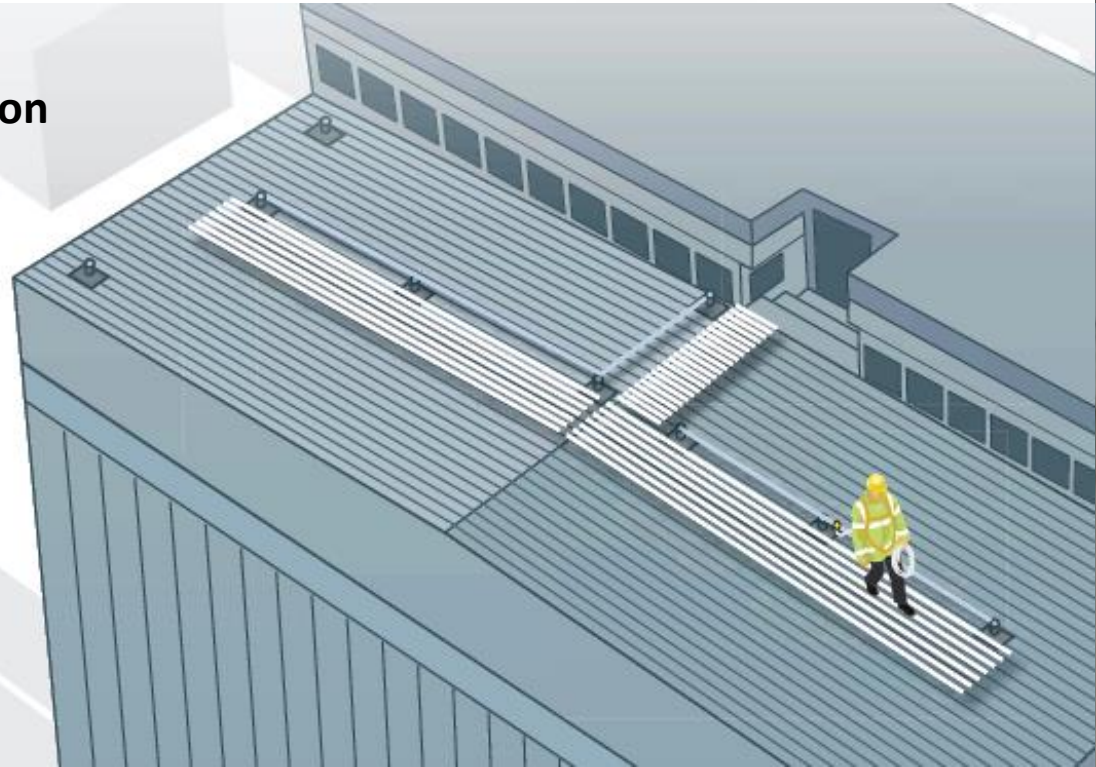
Design options for personal protection

Perimeter system:

- Minimal training
- Fall restraint solution

Ridge system:

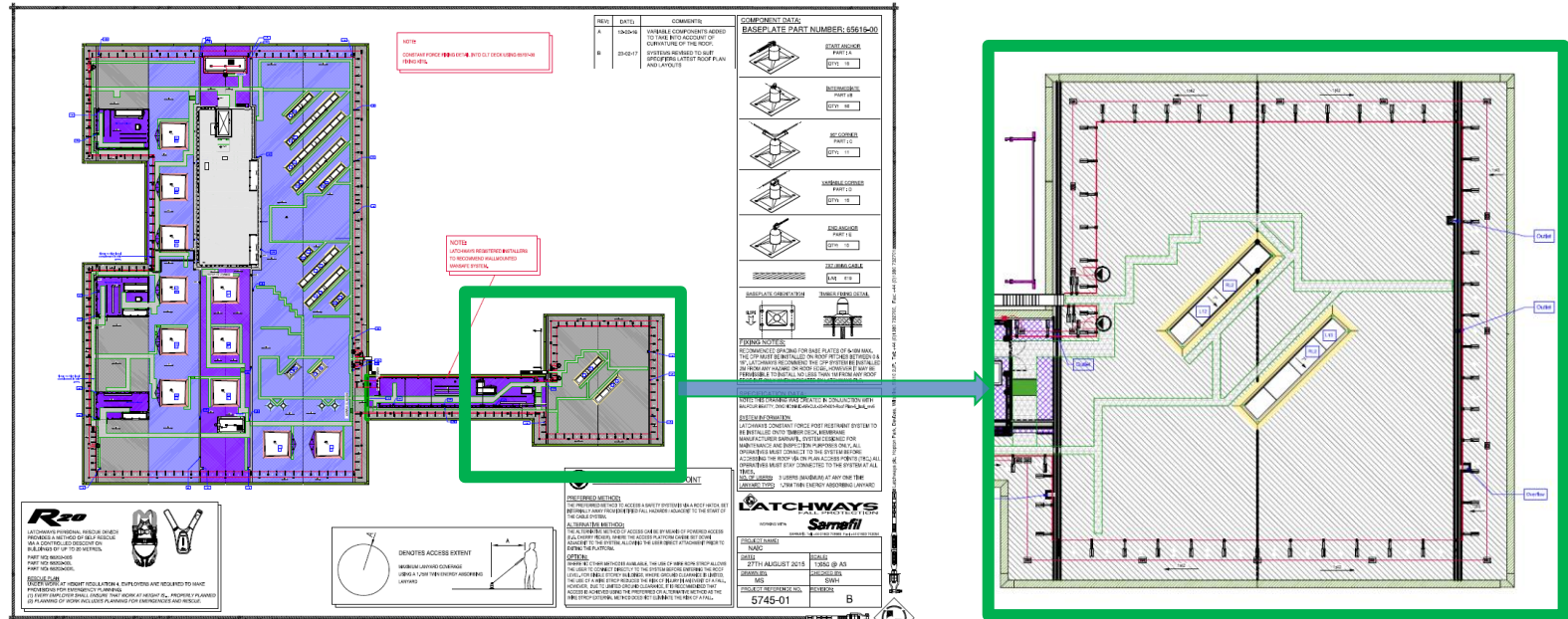
- Comprehensive training
- Fall restraint or arrest solution



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Design Considerations

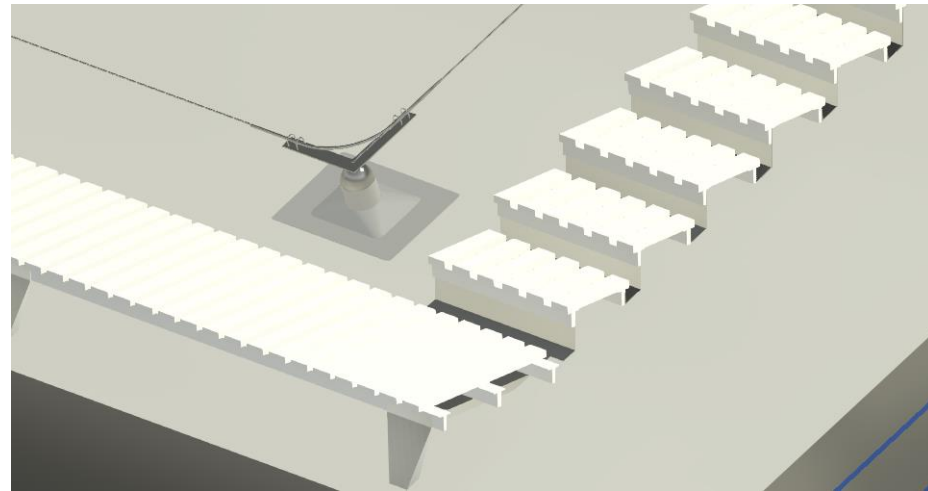
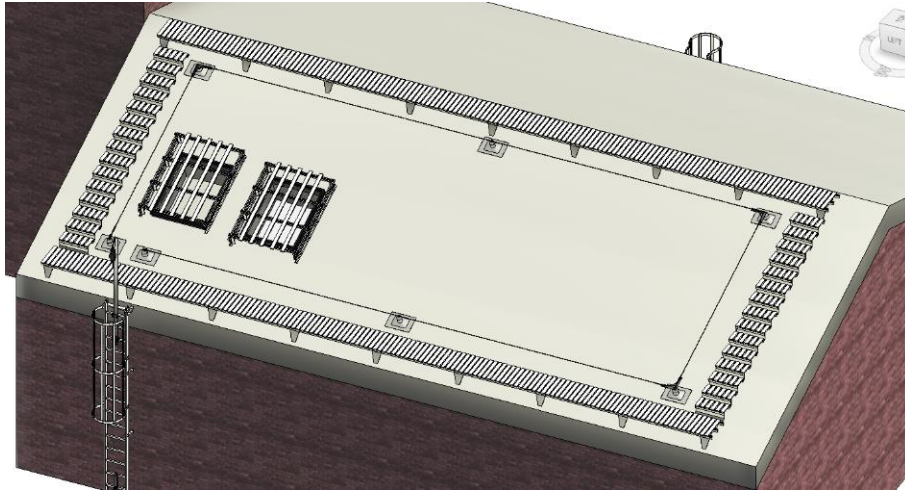
System design – specialist service



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Design Considerations

System design – using BIM (Building Information Modelling)





The latest advice and guidance on meeting CE and ANSI/OSHA standards



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The latest advice and guidance on meeting CE and ANSI/OSHA standards



Definitions

CE



A regulatory directive that verifies products are safe for sale and use in the European Economic Area

ANSI



Non-profit coordinating and approval agency for voluntary national consensus standards in the United States

OSHA



Regulatory agency of the United States Department of Labor that promulgates & enforces workplace safety and health standards

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US Regulatory Environment

Horizontal lifelines

OSHA requirements **1910.140(c)(11)** to **1910.140(c)(22)** in **CFR1910.140**.

No product standard available from ANSI. A qualified person (as per **ANSI Z359.6.**) is responsible of the design.

Vertical lifelines

ANSI Z359.16: Standard for Vertical lifelines with multiple attachment points

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European Regulatory Environment

Horizontal lifelines

Fixed lifelines* considered **Construction solutions**

Additional testing as per **EN 795:2012** (1 user) + **CEN/TS 16415:2013** (multiple users) might show their suitability as safety solutions

*Type B,E **Type A,C, D as per EN 795

Vertical lifelines

Under the **PPE Regulation 2016/425**

EN 353-1:2014 + A1/2017:
Guided type fall arresters including an anchor line

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Beware of assumptions that can put lives at risk

System compatibility

- Current standards only require fall protection anchors to be tested on rigid structures
- Anchors will perform differently on different roofing materials and fragile structures

Ask yourself

- Has the fall protection system been directly tested on the structure type it will be attached onto?
- Have you ensured that the quality of the fall protection system you have specified is the same as the one installed?

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System testing and standards – Energy Absorption in focus



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System testing and standards – Energy Absorption in focus



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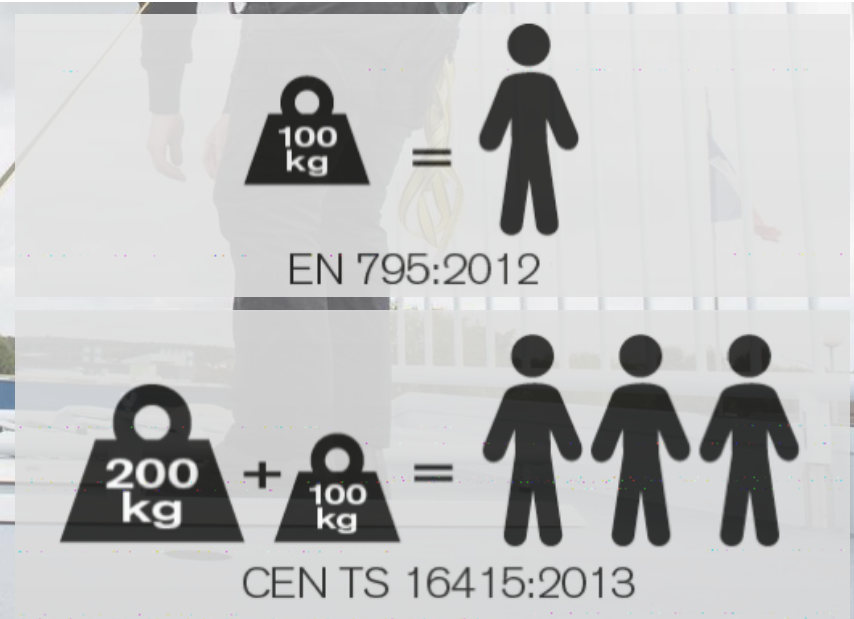
The latest advice and guidance on meeting CE and ANSI/OSHA standards



Personal protection: know what's changed!

- EN 795:2012
- CEN/TS 16415:2013

Note: Products must be tested for all fall arrest conditions –
(Foreseeable misuse)



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The latest advice and guidance on meeting CE and ANSI/OSHA standards



Personal protection: standards and beyond

Anchor devices must meet today's standard EN 795:2012

- Both fall arrest and fall restraint
- Tests to include fixings and materials
- Multi-user devices must support two users falling simultaneously

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Personal protection: standards and beyond

Leave nothing to chance

- **Which standard**
has it been tested to?
- **Which materials**
has it been tested with?
- **Multiple users**
are they covered (CEN/TS 16415)?

Be sure all your PPE choices satisfy the new test requirements

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System guarantees and assurances

Is the fall protection approved for the roof?

- Beware of invalidating the roof warranty or guarantee
- Check with roof manufacturer
- Seek professional specification guidance



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Ladders

In the USA, as of November 19th, 2018, cages are no longer considered compliant fall protection. To meet OSHA 1910 standards, a personal fall arrest system or a ladder safety system must be installed/used on all fixed ladders over 24ft according to the following timetable

- Existing installations (before November 19, 2018) must have a PFAS, ladder safety system, cage, or well.
- New installations (after November 19, 2018) must have a PFAS or ladder safety system. Cages and wells will no longer be acceptable.
- Final deadline – after November 18, 2036 all fixed ladders must be equipped with a PFAS or ladder safety system.





Highlights of Fall Protection systems installed in Middle East and their benefits

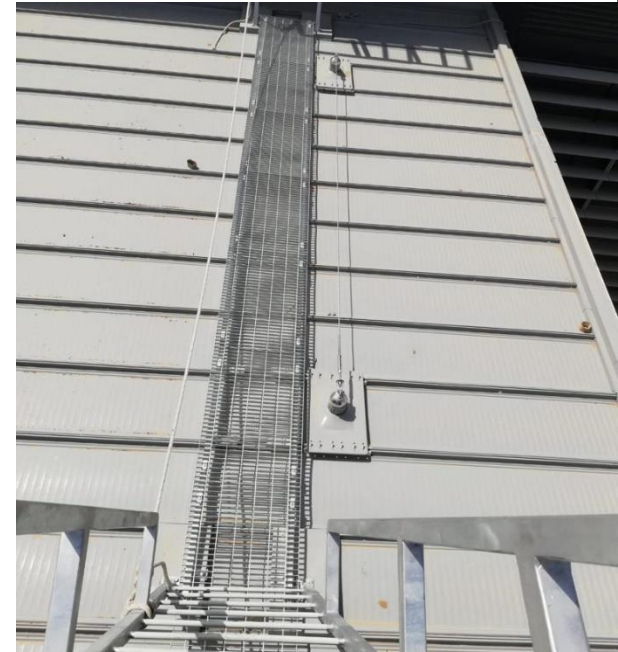


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Highlights of systems installed in Middle East



Riyadh Metro

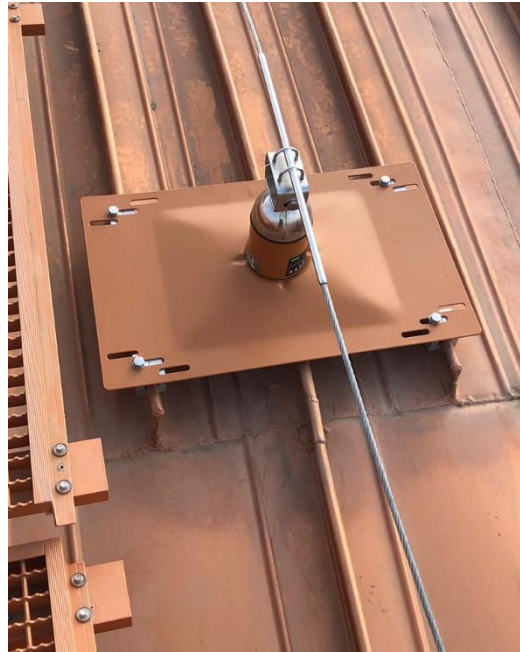


Fall protection for complex environments

Highlights of systems installed in Middle East



King Abdulaziz International Airport - Jeddah



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Highlights of systems installed in Middle East



Ferrari World in Abu Dhabi



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Highlights of systems installed in Middle East



Red Sea Global

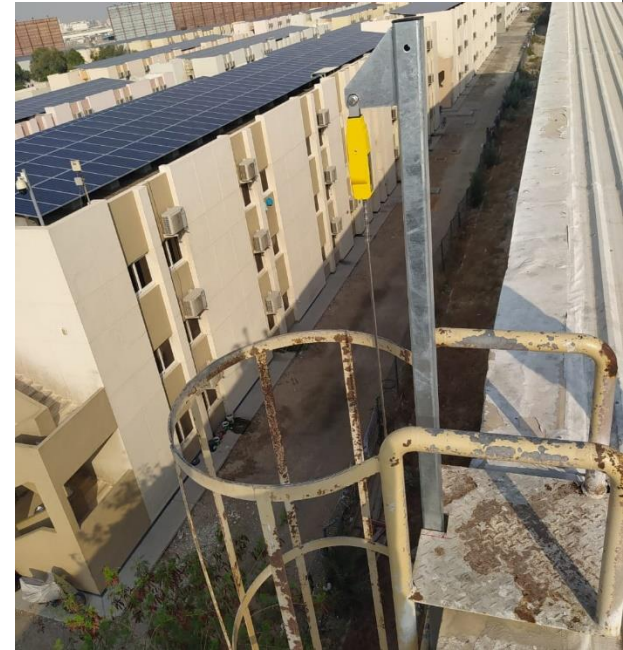
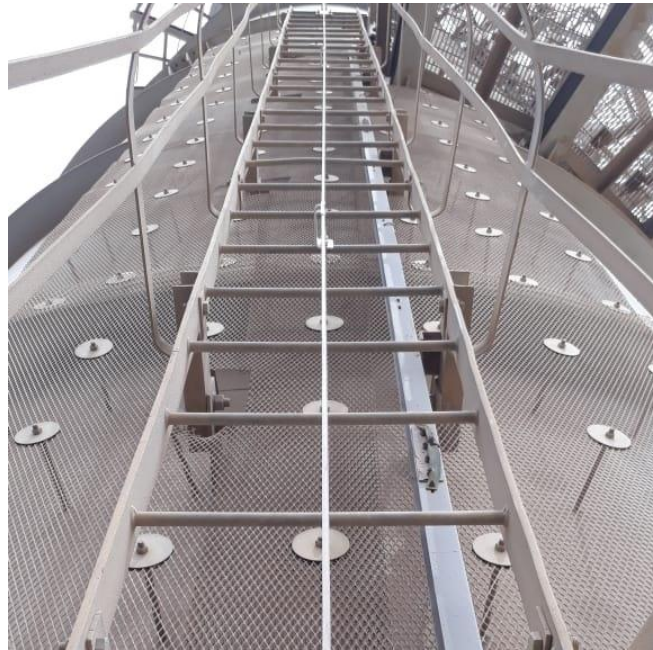


Fall protection for complex environments

Highlights of systems installed in Middle East



Vertical Systems





Final thoughts



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Final Thoughts



Design and Installation through non-professionals

- The design and installation of a fall protection system is a critical part of forming a safe solution
- The installer is held liable for the installation

What you need to do

- Make sure the installer of the fall protection equipment has gone through training at manufacturer and owns valid certificates
- Make sure that the installation is carried out as per the design and O&M manual (documentation) is signed and handed-over to you.



THANK YOU

Any question?

