




GOLDEN RULE 10
WORK AT HEIGHT



This document compiles practical sheets
for use by Group employees and contractor
personnel to help them manage work at
height while strictly observing
the musts and must nots
of Golden Rule 10
(designated by pictogram )
and the requirements
stipulated in
Safety Directive DIR-GR-SEC-013
"Prevention of falls from heights".

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GOLDEN RULE 10

WORK AT HEIGHT



YOU MUST NOT:

Work under or near power lines without respecting the minimum safe clearance distance.



Work on building or tank roofs without first checking their integrity and ensuring that the appropriate protective devices have been installed.

Move a deployed mobile elevating work platform (MEWP), unless you are specifically authorized to do so.

YOU MUST:

Put away tools when working at height (above 2 meters).



Use a safety harness that is safely anchored, outside fixed barriers or in an MEWP.

Use scaffolding that is fit for purpose and has been inspected.



*"Work at Height? Respecting the rules saves lives."
VP HSE R&C*

*"Let there be no mistake, this is one of the most frequent causes of fatal accidents."
VP HSE Exploration & Production*

*"Work at height: take time to discuss it now, later is usually too late."
VP HSE Gas, Renewables and Power*

*"This booklet gives you the basic methods for avoiding serious accidents when working at height, right at your fingertips."
VP HSE Marketing & Services*

EDITORIAL

Work at height is a source of risks in all Group activities worldwide.

On a construction site in Exploration & Production, during turnaround for maintenance in Refining & Chemicals, while working on a service station awning in Marketing & Services, installing solar panels on the roof of a building in Gas, Renewables & Power, or during interventions at height on Total Global Services premises: **all the Group's entities are exposed to the risk of an accident at height, and such accidents can often have serious consequences!**

In order to prevent these kinds of incidents related to work at height, we are providing you with teaching aids and tools to ensure that all Total employees and contractor personnel effectively take ownership of **Golden Rule 10** and the requirements of Safety Directive DIR-GR-SEC-013 "Prevention of falls from heights".

Each and every one of us is responsible for **showing exemplary behavior when working at height, and being vigilant when one of our colleagues is performing an activity at height.** If in doubt, speak up about it and make sure you use your Stop Card!

The VP Human And Organizational Factors Safety Division

2016: more than 30 potentially serious incidents* occurred that involved work at height

SOUTH AFRICA

Rooდეplaat •
11/2016
A person fell through a roof when a roof element broke through. 1 person injured.

GERMANY

Anklam •
01/2016
A person fell from the dome of a truck. 1 person injured.
Leuna •
08/2016
An element of scaffolding 6m high fell on a person. 1 person injured.

ANGOLA

Pazifor Training Center •
07/2016
A person fell from the top of a ladder. 1 person injured.
Block 17 •
12/2016
Fall of 10m of an object accidentally dropped during a housekeeping operation on a scaffold.

ARGENTINA

Neuquén •
03/2016
A person fell 2.5m through a missing walkway grating. 1 person injured.
04/2016
A person fell 2 meters in a valve trench when unsuitable protection plates fell through.
05/2016
A person fell when an electrical pole on which s/he was working broke. 1 person injured.

BELGIUM

Antwerp •
02/2016
A flange fell from an installation platform during an operation.
06/2016
Someone on a ladder was carrying a tool that fell 12m near a group of persons.
06/2016
A scaffolding element fell 6.5m when a person was walking on the scaffold.
09/2016
Pipes fell to the ground from a scaffold.
09/2016
During an operation, a scaffolding element fell 30m near a person.

23%
fatal accidents at the workplace*, in the last five years, are related to work at height.

BRUNEI

Lumut •
01/2016
Two planks (10kg) from scaffolding that was being assembled fell from a height of 24m.

CHINA

Tianjin •
05/2016
Two persons could/might have been squashed/crushed against a roof when an elevating platform was inadvertently turned on.

CONGO

Deep offshore Pointe-Noire •
07/2016
A person fell 2m from a structure when guiding a load that was being hoisted. 1 person injured.

SOUTH KOREA

Daesan •
06/2016
A person lost his balance and fell from 4.5m from a scaffold.
10/2016
A person fell 9.6 m through a hole in a scaffold floor. 1 person injured.

FRANCE

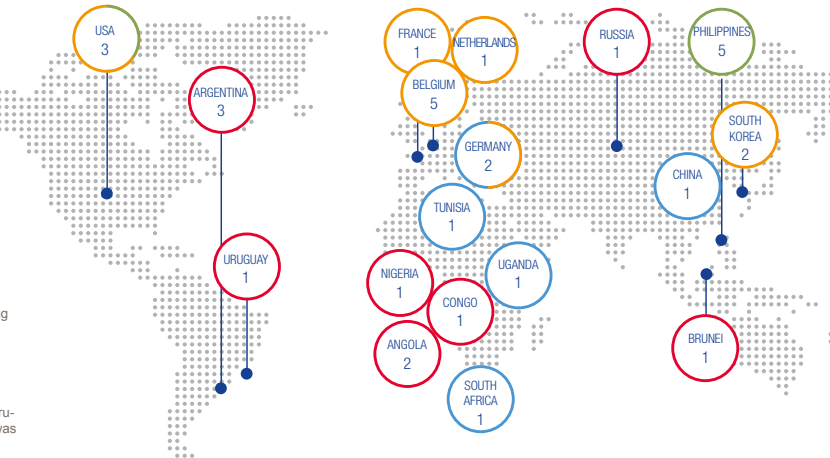
Normandy •
10/2016
During an operation, a scaffold bar fell to the ground near a person.

NIGERIA

Project OML 58 •
04/2016
A scaffolding element fell 12m while it was being assembled.

UGANDA

Uganda •
10/2016
A driver fell when climbing down from the dome of a truck when the ladder railing broke.



● EP ● M&S ● RC ● GRP

NETHERLANDS

Zeeland •
10/2016
An element of scaffolding fell on a person. 1 person injured.

PHILIPPINES

Manila (FAB4)
02/2016 •
A person fell through a suspended ceiling while sprinklers were being installed. 1 person injured.
02/2016 •
A person almost fell through a suspended ceiling during an inspection.
04/2016 •
A person fell through a suspended ceiling when the plywood board broke.
04/2016 •
A person fell from a suspended ceiling.
05/2016 •
A threaded rod was accidentally dropped, falling near another person.

RUSSIA

Kharyaga •
02/2016
An access hatch fell 6m when accidentally bumped by a person climbing a cage ladder, near another person.

TUNISIA

Jedaïda •
03/2016.
A person fell 4.5m from a scaffold when the floor broke through. 1 person injured.

URUGUAY

Block 14 •
03/2016
A platform/manlift almost tipped over, which could have caused 2 persons to fall.

USA

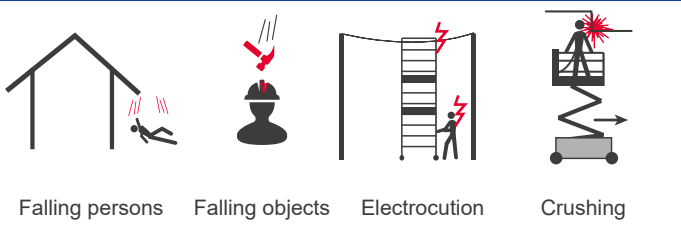
Port-Arthur •
04/2016
A person fell 2.7 m from a scaffold. 1 person injured.
Carville •
08/2016
One lanyard of the operator's harness was not secured; he could have been pulled in by the agitator.
Richmond (client site) •
10/2016
A person fell from a roof. 1 person injured.

WORK AT HEIGHT AND RELATED RISKS

Work at height designates work situations involving the use of special equipment (scaffolds, ropes, etc.) or a work location (roof, edge of a pit, etc.) which can generate the risk of a fall from height.

If the risk of falling cannot be eliminated at source, or managed through work organization measures, or limited through the use of technical collective protective equipment, then special PPE must be used in all work in which a person is exposed to the risk of falling 2 meters or more (unless more restrictive local regulations apply).

MAIN RISKS OF WORK AT HEIGHT



USE OF SPECIAL EQUIPMENT, SUCH AS:



Scaffolds



Mobile Elevating Work Platform (MEWP)



Ropes

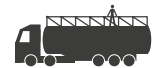
ACTIVITIES FROM AN ELEVATED PLACE, SUCH AS ON:



Roofs of buildings and tanks



Installation floors



Dome of a truck or railway car

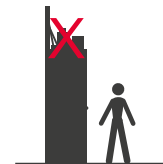
AND ALSO

In-the-office routine.

Maintenance work



Storing things at height



SCAFFOLDS

YOU MUST NOT:



Assemble, disassemble or modify scaffolding if you are not trained or qualified/authorized to do so.

Store material on the scaffold except if authorized by the risk assessment.

Throw tools or equipment from the scaffold floor.

YOU MUST:



Use scaffolding that is fit for purpose and has been inspected.

Wear a safety harness with a double lanyard if I assemble or disassemble scaffolds.

Place a clearly visible label indicating the condition of the scaffold (green label when accepted, otherwise a red label).

Make sure scaffolds are checked on a regular basis by a person trained to do so.



BEST PRACTICES

Do not climb onto a scaffold **unless your activities require you to do so.**

Do not climb on the toe boards or guard rails in order to work.

Install a safety perimeter around the scaffolds when they are being assembled and disassembled.

Use the access points provided and do not climb up the sides of a scaffold.

Stabilize a mobile scaffold before using it (brakes on all four wheels and stabilizers deployed, etc.).

Never move a mobile scaffold when there are people or equipment on it.

ADVANCED VIGILANCE

IMPORTANT INFORMATION:

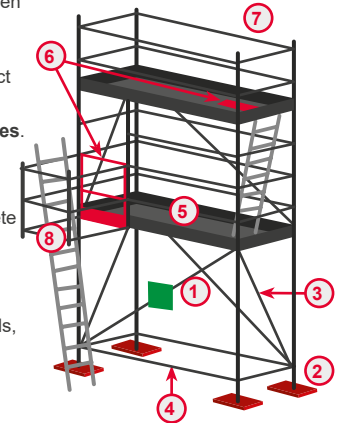
If you have to temporarily modify a scaffold (without compromising its integrity, for example by removing a guard rail or part of the floor):

- Indicate the modified condition of the scaffold using a label of a different color than red or green.
- Wear a safety harness.



Check the general condition of a scaffold:

- 1 The presence of a **safety label** (green if the scaffold is compliant).
- 2 Scaffold legs are **properly braced** (load distribution plates in full contact with the ground).
- 3 The structure comprises **crossbraces**.
- 4 The horizontal braces are **properly fixed to the base plates**.
- 5 The **working platforms** are complete and unobstructed.
- 6 The **access gates or traps** are closed.
- 7 **Full guard rails** (top and middle rails, and toe boards) are installed on all working platforms.
- 8 All **ladders** are secured.



SERIOUS INCIDENT THAT OCCURRED IN THE GROUP

1 fatality.

A person drowned after falling into water from a scaffold that was being disassembled.

MOBILE ELEVATING WORK PLATFORM (MEWP)

YOU MUST NOT:



Move a deployed mobile elevating work platform (MEWP), unless you are specifically authorized to do so.

Never climb out of the MEWP when it is deployed (unless you are specifically authorized to do so).



YOU MUST:

Use a safety harness that is safely anchored [...] in an MEWP.

Be trained and authorized by your employer to use an MEWP.

Have a second authorized person on the ground who is qualified to operate an MEWP.

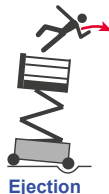
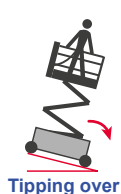
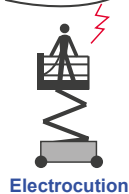
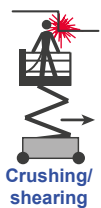
Make sure that the MEWP has a certificate of compliance issued by an approved agency.

Always inspect the MEWP before use to make sure it is in good working order.

Respect the usage conditions specific to each MEWP.



WHAT ARE THE RISKS?



BEST PRACTICES

Check the platform before use - crucial points:

- The presence of the **certificate of compliance**
- Verification of **conditions for use**



The aerial lift is clear of objects



Presence of an **anchor point for the harness**

Absence of leaks on the hydraulic system



Good working order of:

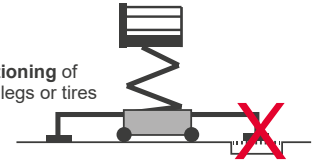
- Operating control commands
- Battery arrestor
- Emergency shut-down function



Aerial lifts with tires: **tire condition**



Proper positioning of the stabilizer legs or tires



How should you attach your harness? See page 28.

SERIOUS INCIDENT THAT OCCURRED IN THE GROUP

1 fatality.

Driver of an MEWP crushed against a beam when moving while the platform was deployed.

INDIVIDUAL MOBILE PLATFORMS / LADDERS

Mobile ladders are a means of accessing the work area.

They should not be used as a work station or only exceptionally for simple tasks, when no other means can be implemented and only after a risk assessment has been conducted.

YOU MUST:

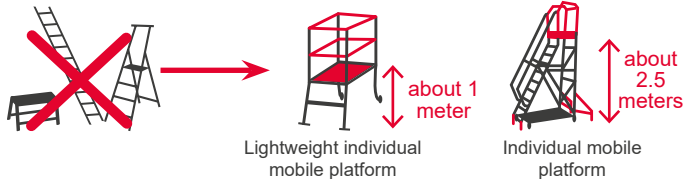


Respect certain basic rules when using a mobile ladder. Set up systems to check that the ladders are in good working order and used correctly.

BEST PRACTICES

Crucial points when using a mobile ladder as a means of access: **First make sure that there is no safer alternative** (e.g. scaffold with secured ladders, staircase, etc.)

For work at low or medium heights: replace the footstools, stepladders and mobile ladders **by secured work platforms**.



ADVANCED VIGILANCE

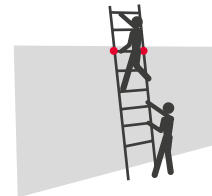
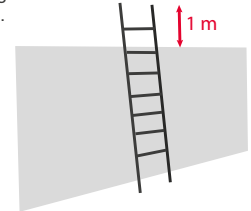
Crucial points when using a mobile ladder as a means of access:



Check the condition of the ladder before using it, in particular:

- The presence of **anti-slip foot pads**.
- **All the rungs** are present and in good condition.
- The condition of the **vertical rails**.

Install the ladder so that it is around 1 meter higher than the landing floor (secure the passage between the ladder and the floor).

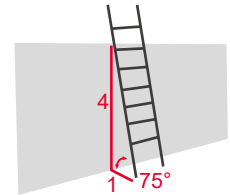


Properly secure or brace the ladder on the ground.

If this is not possible make sure someone holds it firmly in place at the base.



Incline the ladder correctly: $\sim 75^\circ$, i.e. a ratio of 1 in 4.



Climb up and down facing the ladder, never with your back to it.

Always keep **three points of contact** with the ladder (both hands and a foot or one hand and both feet).

SERIOUS INCIDENT THAT OCCURRED IN THE GROUP

1 person injured (28 days of lost time).

Fall from 3 meters when a ladder without anti-skid pads tipped over because it was too inclined.

ROPE ACCESS WORK

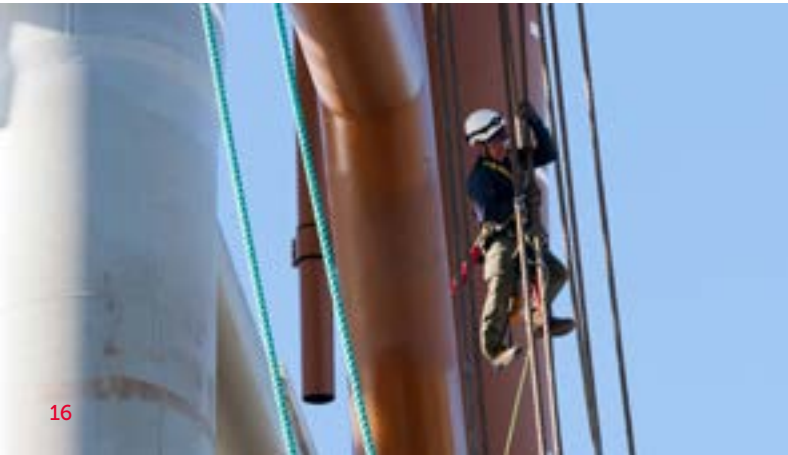
Rope access can only be used when the risk assessment has concluded that in the current circumstances the work in question can be executed safely and that use of any safer work equipment is not justified (due to a technical impossibility or to potential additional risks).

YOU MUST:



Have rope access work done by specialized companies with qualified personnel.

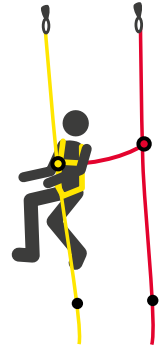
Have at least two persons per work team, one of them with supervisor competencies.



IMPORTANT INFORMATION

General conditions

- Consider **the work environment** in the area where rope access technicians will be working (risks for personnel, ropes, anchor points).
- Check out the **weather conditions**.
- Mark out, if possible, **the perimeter below the area where the rope access technicians will be working**.
- Plan for **emergency response and rescue means**.



Equipment

- Use a **dual rope system with two independent anchorage points**. The first is a means of access, descent and support (work rope), and the second a safety mechanism (safety rope).
- Have a secure **descender and ascender system**, with a self-locking system to prevent the user from falling if s/he should lose control of his/her movements.
- Install a **mobile fall-arrestor** to secure the rope access technician as he moves.
- Wear a **safety harness suited** (specific) to rope access work, attached to the safety rope.
- Secure **the tools and other accessories**.

No incidents to date in the Group.

SERIOUS INCIDENT

However let us be vigilant.
One example outside of the Group:
1 fatality.
Fall from 20 meters when two ropes were cut by a sharp edge.

ROOFS (BUILDINGS AND TANKS)

YOU MUST NOT:



Work on building or tank roofs without first checking their integrity and ensuring that the appropriate protective devices have been installed.

Access roofs of buildings or tanks outside of secure walkways, and without special authorization, except where authorized by local regulations.



YOU MUST:



Conduct an inspection of the area to check the integrity before the risk assessment (check both sides if possible, inner side and outer side).



WHAT ARE THE RISKS?

Fall from a roof
or fall through a roof

ADVANCED VIGILANCE

Priority should always be given to collective protective equipment over personal protective equipment.

Operations on the roof of a tank or building

- Always use the **secure walkways** to move around a roof.



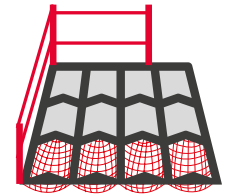
- If there are no secure walkways, implement the following according to the work situation:

- Collective protective equipment:

For example:

Temporary guard rails.

Safety nets below the work surface.



- Personal protective equipment:

Safety harness attached using a suitable system to a **validated** anchor point.



How should you attach your harness? See page 28.

SERIOUS INCIDENT THAT OCCURRED IN THE GROUP

1 fatality.

A person fell from a height of 10 meters, through a translucent panel on a roof.

INSTALLATION FLOORS

YOU MUST NOT:



Remove collective protective equipment from the installations (guard rails, floors, etc.) without explicit authorization.

Move outside the collective protective equipment, except when specific authorization has been given, and in that case you must wear a safety harness.

YOU MUST:



Implement a periodical program for the inspection of floors and guard rails by qualified personnel.

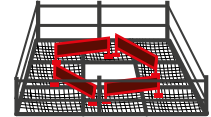
Flag up any non-conformities observed on installations.

Use compensatory measures to secure any area where collective protective equipment has been removed (guard rails, floors, etc.).



BEST PRACTICES

Install permanent safety barriers if the collective protective equipment has been removed (marker tape is not enough) and signal the danger.



Never climb on the guard rail to reach a higher point.

Do not obstruct walkways in the installations.



SERIOUS INCIDENT THAT OCCURRED IN THE GROUP

1 potential fatality.

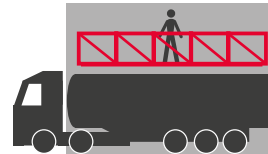
Fall through a grating that broke due to rust; fall was arrested after 2 meters by equipment below.

DOMES OF TRUCKS AND RAILWAY CARS

Access to domes only when strictly necessary.

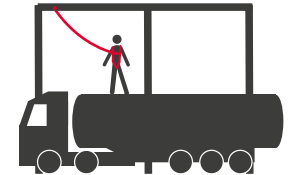


BEST PRACTICES

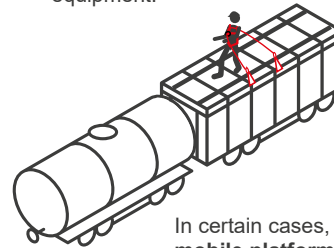


Use available **collective protective equipment**.

If there is no collective protective equipment, or otherwise if required, use a **safety harness secured to a lifeline** or any other anchoring equipment.



When moving on the dome of a railway car, use a **harness with a double lanyard**.



In certain cases, think of using **mobile platforms** to secure the access to domes.



SERIOUS INCIDENT THAT OCCURRED IN THE GROUP

1 seriously injured person - Multiple fractures.

Fall from the dome of a tank truck.

WORK ENVIRONMENT

YOU MUST NOT:



Work under or near power lines without respecting the minimum safe clearance distance.



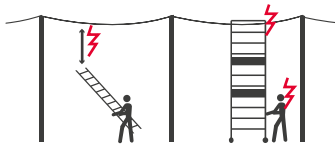
BEST PRACTICES

Power lines:

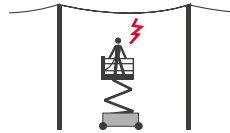
Maintain a minimum distance of
5 meters from power lines

(any shorter distance must be approved by a qualified person).

WHAT ARE THE RISKS?



A metal ladder or scaffold
conducts electricity.

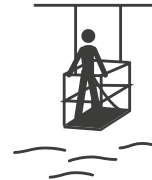


Electrical arcs can be
created **even without**
touching a power
line.

ADVANCED VIGILANCE

When working at height, the risk assessment must take into consideration all dangerous situations present in the work environment.

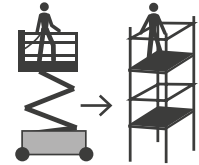
This is particularly true for:



Work above or
near a **water**
body

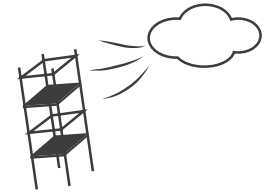


Work at height in a
confined space



Work with
co-activities

Take into account the **weather conditions** (high winds, snow, lightning, etc.) when working at heights.



**SERIOUS
INCIDENT THAT
OCCURRED IN
THE GROUP**

1 person died and 1 person was seriously injured (*forearm amputated*).

Electrocution when moving a mobile scaffold in the vicinity of a power line.

FALLING OBJECTS

YOU MUST:



Put away tools when working at height (above 2 meters).



BEST PRACTICES

Include the risk of falling objects in the risk assessment.

Always tidy the work area, whether at the end of the day or the end of the work.



ADVANCED VIGILANCE

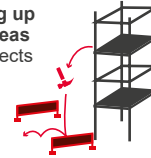
WHAT ARE THE RISKS?

Risks for persons and for the installations.



Preventive measures:

Mark out / flag up dangerous areas (beware of objects bouncing off a surface).



Carry tools and small equipment in a safe way.



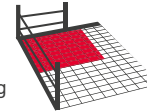
Secure your tools if possible.



Tidy away tools and small items of equipment in toolboxes or buckets etc.



Cover the grating with a tarpaulin if there is a risk of small objects falling through.



Install protections against the guard rails if necessary.



Respect built-in protection elements such as toe boards.



SERIOUS INCIDENT THAT OCCURRED IN THE GROUP

1 potential fatality.

An object fell near a person working 25 meters below.

FALL ARRESTORS

YOU MUST:

Use a safety harness that is safely anchored, outside fixed barriers or in a Mobile Elevating Work Platform.



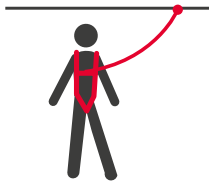
Check the condition of the Personal Protective Equipment (PPE) specific to work at height during formal inspection programs.

Train personnel who are likely to be wearing safety harnesses to their use and related risks.



BEST PRACTICES

In most cases, you have to **secure the safety harness above you** to limit the height of a fall and therefore the impact on your body.



To prevent suspension trauma when falling with a harness, use self-rescue devices (controlled descent or ascent).

In the specific case of **Mobile Elevating Work Platforms (MEWP)**: secure the safety harness to a low point using a short retainer lanyard to make sure you are restrained in the secure platform.

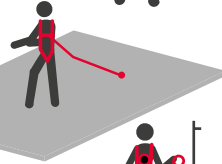


ADVANCED VIGILANCE

Complete fall arresting system = safety harness + attachment system + anchoring device

1. Safety harness

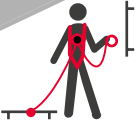
- Use the **most suitable harness** for the task to be performed: (with front and dorsal or shoulder attachment points) and adapted to the shape and body of the wearer.
- Check the condition** of the harness before and after each use (condition of stitching, beginnings of a tear, etc.).
- If any anomalies are identified**, the harness must be **rendered unusable, and thrown away**.



2. The attachment device

There are several types of harness attachments depending on the type of protection you are looking for:

- Short retainer lanyard**: to avoid exposing yourself to danger.
- Double lanyard**: to be used when moving at height and one anchor point needs to be disconnected in order to move to the next.
- Fall arrestor system with automatic rappelling**: does not prevent exposure to danger but will rapidly stop the person from falling.
- Energy absorbing system integrated in the lanyard**: does not prevent exposure to danger nor arrest the fall, but reduces the impact.



3. Anchoring device

The anchoring device can be **temporary** (tripods, dead weight, etc.) or **permanent** (structural anchor, lifeline, guard rail, etc.)

These devices must be approved by an accredited person or organization.



SERIOUS INCIDENT THAT OCCURRED IN THE GROUP

1 fatality.

22-meter fall during an operation to dismantle a scaffold. The operator was wearing a safety harness, but it was not attached to the available lifeline.

OFFICES



BEST PRACTICES

To prevent falls from height in buildings:

- Falling persons:



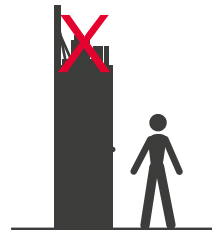
Never use office furniture (chair, table, etc.) as a means of access or for working at height.



Use suitable means, such as **individual mobile platforms**.

Best individual mobile platform practices? See page 14.

- Falling objects



Do not store objects at height, e.g. on top of filing cabinets.

Risk of falling objects.



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Supplying affordable energy to a growing population, addressing climate change and meeting new customer expectations are the three main challenges Total must meet as an energy major.

That is what guides what we do. With operations in more than 130 countries, we are a top-tier international oil and gas company. We are also a world-class natural gas operator and a global leader in solar energy through our affiliate SunPower. Our activities span oil and gas production, refining, petrochemicals and marketing. Demonstrating their commitment to better energy, our 100,000 employees help supply our customers worldwide with safer, cleaner, more efficient and more innovative products and services that are accessible to as many people as possible. Our ambition is to become the responsible energy major.



TOTAL

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Capital stock: 6,646,286,507.50 €

Nanterre Trade Register 542 051 180

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