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DIRECCIÓN GENERAL
DE ORDENACIÓN DE
LA SEGURIDAD SOCIAL

Plan General de Actividades Preventivas de la Seguridad Social 2015



Guide to Health and Safety in Construction



FREMAP

*Mutua Colaboradora con la
Seguridad Social nº 61*





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PRESENTATION

Article 18 of the **OCCUPATIONAL RISK PREVENTION ACT** establishes the employer's obligation to inform its workers on the risks that could affect their health and the preventive measures to be implemented to avoid them.



This Guide has been published with this aim, for the purpose of informing workers employed in the Construction sector of the most common risks to which they are exposed and the general preventive measures to be used to prevent them.

The **FREMAP** Prevention Area hopes that this publication will help to improve the safety and health standard in this sector.



1

THE TEN PREVENTION RULES

BEFORE STARTING WORK

1. Find out about the job you have to do.
2. Think about the risks it entails.
3. Ask for the necessary tools and materials.

DURING WORK

4. Respect the safety signals.
5. Use the personal protection elements.
6. Take care of and respect group protection elements.
7. Do not run any unnecessary risks.

AT THE END OF THE DAY

8. Try to leave the work areas properly protected.
9. Consider whether you have been working in safe conditions
10. Remember! Safety starts with you.



The use of Personal Protection Equipment is a useful measure for ensuring one's own safety. It should be used as carefully as possible. Personal Protection Equipment will prevent many accidents to the head, hands, feet, etc.

All workers must keep their personal protection equipment in good condition and ask for it to be changed if it is damaged.

- The use of **SAFETY FOOTWEAR** with reinforced soles and/or toecaps is necessary on the site, to prevent your feet from being cut, injured or knocked. This material must be adapted to the site conditions (e.g.: high rubber boots in the present of water or mud, etc...).

- **THE SAFETY HELMET**

must always be worn on the site. It is for individual and compulsory and should be changed, if damaged by a violent blow. The safety helmet will protect workers from:

- > falling objects.
- > being knocked on the head.
- > the violent projection of objects.
- > electrical contacts.



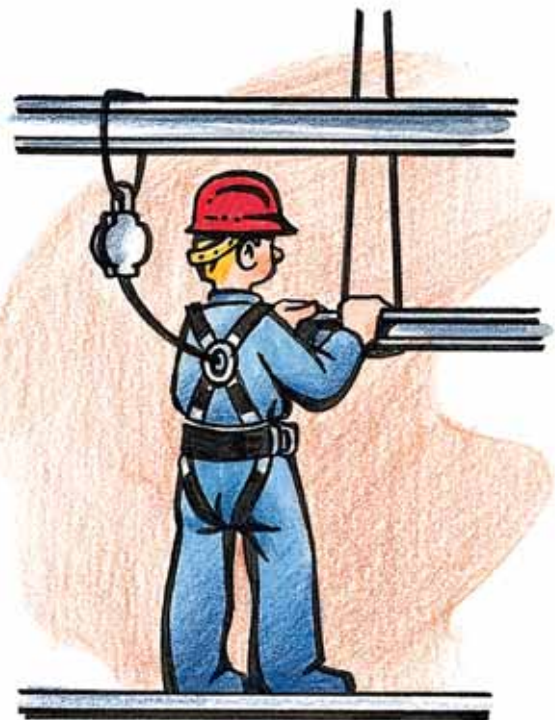
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PERSONAL PROTECTION

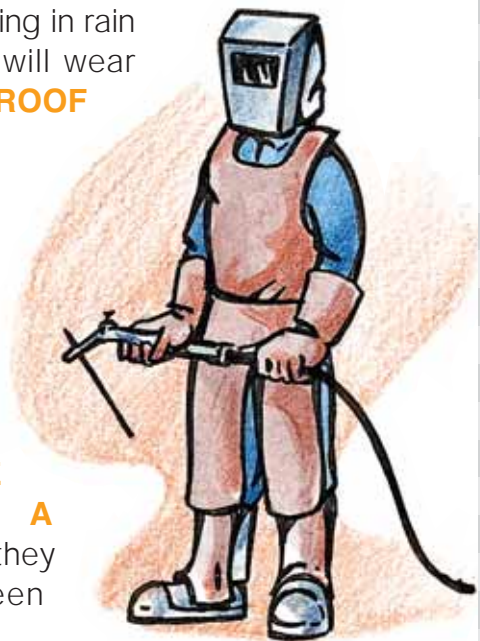
- When you are handling materials and tools, you should wear **SAFETY GLOVES** that are appropriate for preventing knocks, injuries, cuts, etc... When working with chemicals, special gloves should be worn. For electrical work, insulated gloves should be worn, and in all cases this type of work will be carried out by specially trained and authorised staff.
- In work involved risks for the eyes, workers should wear the appropriate **SAFETY GOGGLES** or a **SAFETY SHIELD**.



- When you are working at heights with the risk of falling, workers will use anti-fall systems (**SAFETY HARNESS**), attached to a resistant element, and the anchoring element and hooks must be inspected regularly. Do not start work without complying with this guideline.
- Always use the group protection elements in assembling and dismantling operations.



- **BREATHING MASKS**, will be used in places where there is a risk of harmful emissions such as gases, dust, fumes..., and the filter adapted to the type of contamination. The mask must fit properly and the filter will be changed if the mask becomes dirty inside or if it is difficult to breathe.
- When you are working in confined spaces (chests, galleries, chambers, etc.) where there may be a risk of toxic gases building up, a check will be made first using the appropriate equipment to verify the absence of risks. While remaining in those places, "continuous" measurements will be taken. The use of autonomous or semi-autonomous breathing equipment using external air and an aspiration hose may be necessary, if it is not technically possible to improve the conditions and it is necessary to enter the zone.
- If operations are being carried out on the site that generate a high noise level (using pneumatic hammers, cutting bricks, etc...) workers will use **HEARING PROTECTION**. Using this protection correctly will reduce the level of noise, thereby reducing the risk of injury.
- In **WELDING JOBS** leather aprons, gaiters, welding gloves, leather boots and face and eye protection will be worn.
- Well-fitting clothes will be worn at all times, especially for cuffs and trouser legs, to prevent them being trapped by the moving parts of machines.
- When you are working in rain or snow, workers will wear **WARM, WATERPROOF CLOTHING**.
- In areas where there are machines, trains or vehicles passing through, workers will wear **REFLECTIVE JACKETS AND A HELMET** so that they can easily be seen and located.



2

PERSONAL PROTECTION

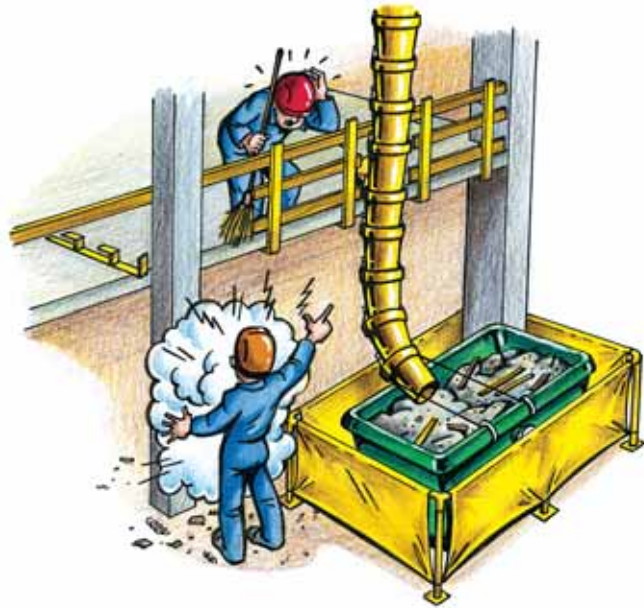
THIS EQUIPMENT HAS BEEN DESIGNED FOR YOUR SAFETY. IT FULFILLS THIS FUNCTION ONLY IF USED AND MAINTAINED CORRECTLY. TAKE CARE OF IT, RESPECT THE GUIDELINE AND YOU WILL BE KEPT SAFE



3

TIDINESS AND CLEANLINESS

- The site will be clean and tidy and all materials properly stacked and stable. A clean, tidy site is a safe site. Tidiness is an essential safety factor.
- Keep the workplace in order, to prevent tripping and falling and work in safer conditions.
- Do not throw rubble or objects from the site.
- Take special care in passageways, and keep them clear of materials. On the site, move, ascend and descend along the marked routes.
- The wood of plank moulding often has a large number of projecting parts which are sharp and could cause stumbling. Keep the site clean, remove nails and clear entrances to make it safer.
- The site office must always be kept clean.
- A first aid kit must be in place on each site, duly equipped with the appropriate materials.



4

DITCHES AND EXCAVATION WORK

- In the presence of ditches, there is always a risk of them caving in on top of the workers. To prevent this, the appropriate measures must be taken to avoid accidents.

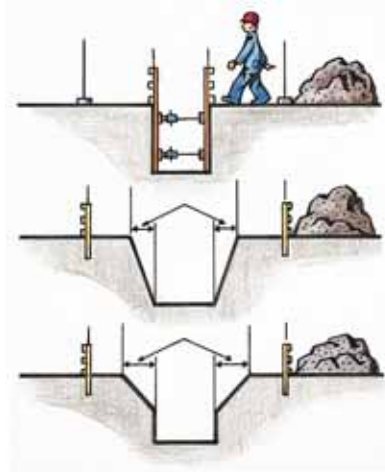
- > The excavation materials must be left far from the edges of the ditch.

- > In shored ditches, the props must be checked after it has rained or if no work has been done in them for some time.

- > Wells, ditches and the edges of excavations must always be protected.

- In entering and leaving the ditches, ladders will be used which are appropriate for the ditch depths.

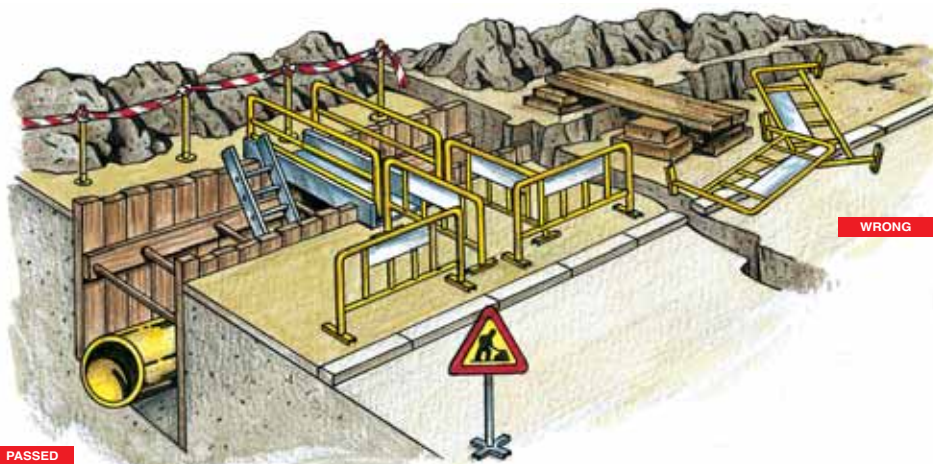
- In crossing ditches, the appropriate walkways will



be made with a minimum width of 60 cm and lateral protection in the form of railings, for height of over 2 m.

- > No part of the shoring will be removed while the ditch is open, and workers need to be inside it.

- > When the work is inside excavations, workers will wear safety boots and a helmet.

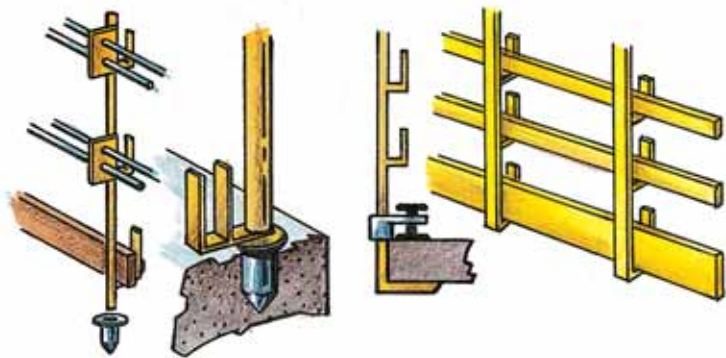


5

WORKING AT HEIGHTS

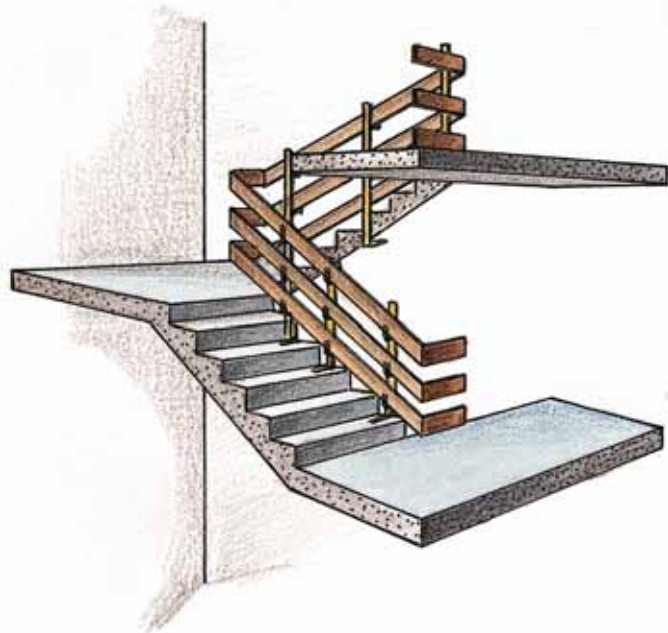
- Many fatal accidents are caused by falling from a height. All group protection equipment to prevent falls will be installed and maintained in good condition.
- In the event of the Group **PROTECTION ELEMENTS** are considered insufficient, they will be reinforced by personal protective equipment.
- If for any reason the protection must be temporarily removed for work reasons, it

will be replaced immediately afterwards. If you do not do it, it will be a risk for people on the construction site.



5.1. Group protection.

- Platforms, scaffolding and walkways, and differences in level, opening and gaps on the floors of constructions that entail a risk of workers falling from a height of more than 2 m will be protected by bannisters or any other equivalent group safety system.

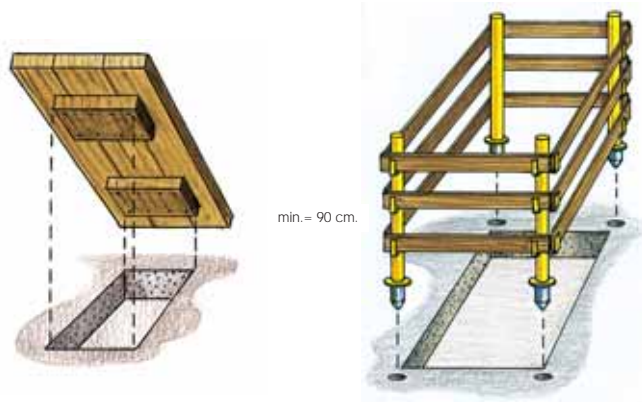
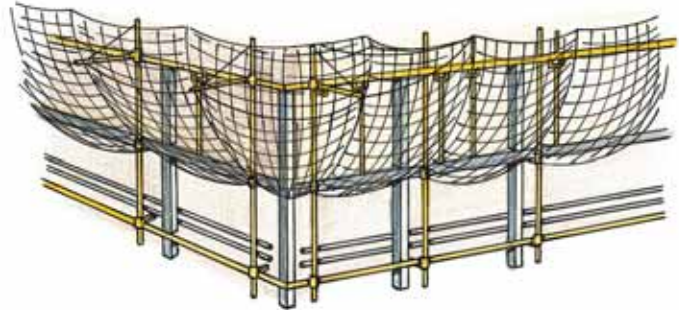


5

WORKING AT HEIGHTS

5.1.2. Bannisters.

- They will be resistant, with a minimum height of 90 cm and have a protective ledge, handrail and intermediate protection.
- All openings in slabs or platforms will be covered with boards or protected with bannisters.



5.2. Scaffolding. General guidelines.

During works on Scaffolding, in general, the following guidelines will be observed:

- The scaffolding will be built strongly.
 - > Platforms placed more than 2 m above the ground will have bannisters. They will be 90 cm high at least with a handrail, intermediate bar and 15 cm-high skirting along all their length, except for sides that are less than 20 cm from the front.



NO!

- > The minimum width of the working platform on the scaffolding will be 0.60 m.



5

WORKING AT HEIGHTS

- Workers must:

- > Inspect the equipment before using it, and at regular intervals.
- > Level and ensure that the scaffolding is flush while you are assembling it, so that the crosspieces can be adjusted without having to be forced.
- > The crosspieces must be properly anchored.
- > Workers should not climb on the crossbars.
- > The front scaffolding must be anchored to the structure or an adequate fixed point if the height of the

same is equal to or more than four times the smallest side of the base.

- > Do not overload the scaffolding.
- > Do not use ladders or improvised elements on the scaffolding to increase its height.

5.3. Trestle scaffolding.

- > Do not use them for heights of more than 6 m.
- > For heights of more than 3 m, they must be braced.
- > The maximum separation between support points is 3.50 m



5.4. Tubular scaffolding.

- > The scaffolding supports will rest on levelling spindles, fitted with support bases.
- > They will be installed so that the whole unit is completely stable.
- > They will be resistant enough to bear the maximum loads to which they will be subjected.
- > The work platforms will be made of metal preferably.

In the event of being wooden, the planks will be joined together and anchored to the tubular structure.

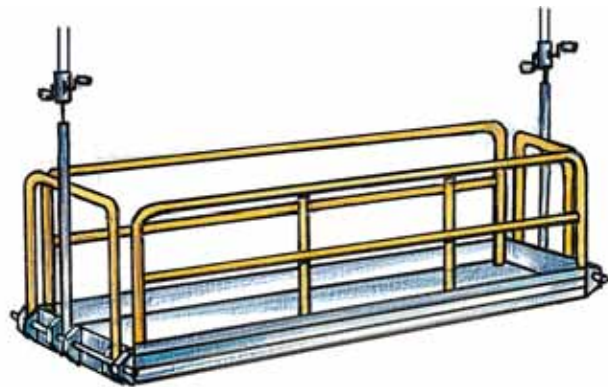
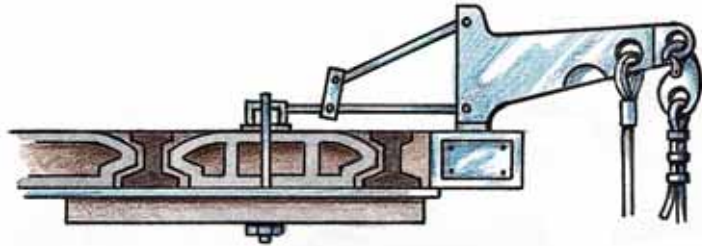


5.5. Hanging scaffolding.

- > When the components of hanging scaffolding are received on the site, they will be inspected to ensure they are in perfect condition and stored (if they are not going to be used immediately) in a dry, and ventilated place.
- > Assembly will be done by specialised staff.
- > The joists to be used will be made of metal preferably and designed specially for this function. If the support is to be made by drilling the frame, it will be ensure that the unit does not topple over by laying a perpendicular piece crosswise, over at least two girders. If the support is created using counterweights, it will be made using blocks that have been specially designed by the manufacturer in sufficient quantity to guarantee stability, based on the calculation. No counterweights made using sacks or drums should be used.
- > The hanging scaffolding will have a regulatory handrail around its perimeter. In addition, the necessary

individual protection equipment will be provided to prevent falling from heights.

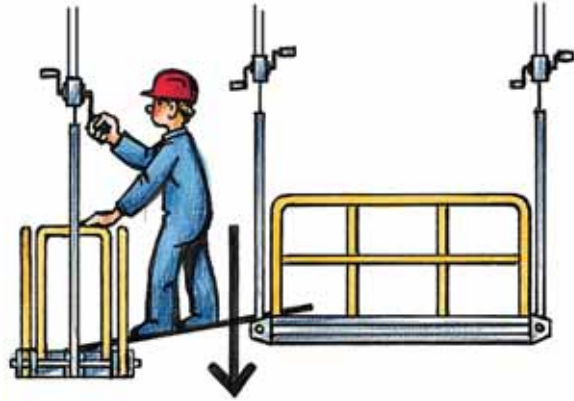
- > The scaffolding cables will be fastened to the joist using a hanging hook fitted with a safety latch, a hitch made using 3 chains or a welded sleeve and in all cases, with a lined interior, to avoid the direct friction of the cable with the joist.



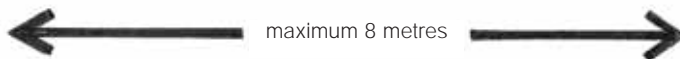
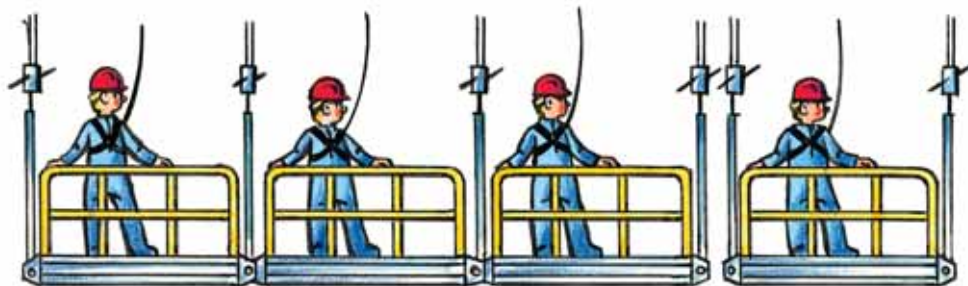
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WORKING AT HEIGHTS

- > The distribution of the hanging scaffolding will be such that it covers the whole working surface, to avoid having to improvise walkways between the scaffolding.
- > The baskets which are forming the hanging scaffolding will be joined to others by joints with a safety lock, without exceeding lengths of 8 m. for safety reasons.



NO!



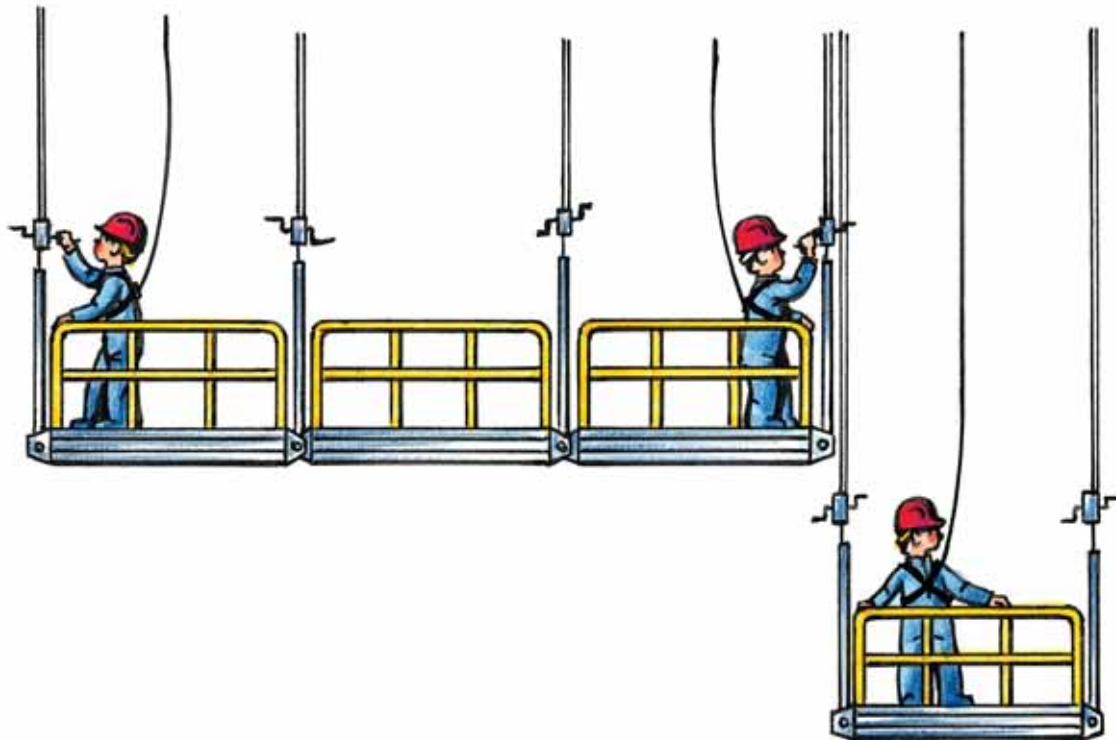
NO!



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WORKING AT HEIGHTS

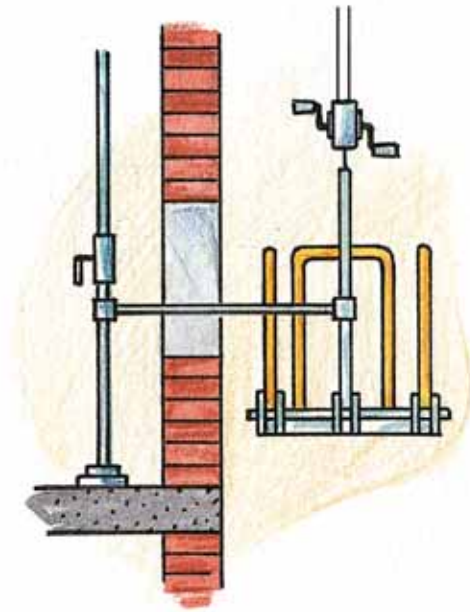
- > Load tests will be made before use, close to the ground, to check the proper working of all its elements.
- > The ascent and descent of the scaffolding will be done activating the elevation means simultaneously, keeping the unit horizontally at all the time both as the time of the vertical movement and as the work on the scaffolding.



5

WORKING AT HEIGHTS

- > Work will not be done on hanging scaffolding until all horizontal movements have been prevented, using the pertinent braces.
- > Scaffolding will not be overloaded, and the load must be distributed evenly to prevent it from overturning.
- > On the ground, the area which is underneath the scaffolding and nearby areas will be closed off to stop people walking under it, in order to prevent objects and materials falling onto people.
- > If it is necessary to work in the same vertical height, canopies will be put in the place to collect materials.
- > During the use of the hanging scaffolding, is necessary to check all its elements.



5.6. Ladders and Stepladders.

- The following precautions will be adopted in using ladders:
 - > The ladders must always be robust, stable and safe enough and if it is necessary, insulated or combustion resistant.



5

WORKING AT HEIGHTS

- > If it is made of wood the side rails will consist of one piece and the rungs will be assembled properly and not just nailed on.
- > Wooden ladders should not be painted, but with clear varnished, to avoid concealing any hidden defects.
- > To gain access to high places, they will be 1 m longer than the top support points.
- > Ladders that are more than 5 m in length that are not resistant enough will not be used.
- > The base of the ladder will be firmly seated and its stability will be guaranteed before its use.
- > In single ladders, the upper part will be anchored to the support surface if it is necessary and if this is not stable, it will be fastened to the same using a clamp or other equivalent device.
- > It is forbidden to transport and handle heavy objects when you are working on ladders, or when their weight or size can jeopardise the worker's stability.



NO!



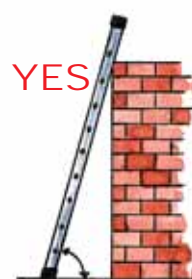
YES



NO!



NO!



YES

5

WORKING AT HEIGHTS

- > The ladder will be placed forming an angle of about 75° with the floor.
- > Ascending, descending and working on the ladder must always be done facing the front.
- > Works which are carried out at more than 3.5 m above ground that require dangerous movements or efforts for stability, will be done wearing a safety belt.
- > When they are supported on posts, anchoring clamps will be used.
- > Ladders must not be used by two workers at the same time.
- > Ladders will be checked regularly.
- > Stepladders or ladders with double rungs will be fitted with chains or cables to prevent them from opening up in excess when they are being used, and they will have stops at the top end.
- > The area around the ladder or stepladder base will be clear of materials and slippery substances.
- > When they are not in use, the ladders and stepladders, will be stored away from the sun and rain. They should never be left lying on the ground.

NO!



YES



- > Stepladders and Ladders should not be used as windbreaks, props or for any other purpose for which they are not intended.
- > Stepladders and Ladders are not designed as a workplace but as a mean of access. If they are used to work on them, all the necessary precautions for working at heights will be taken.

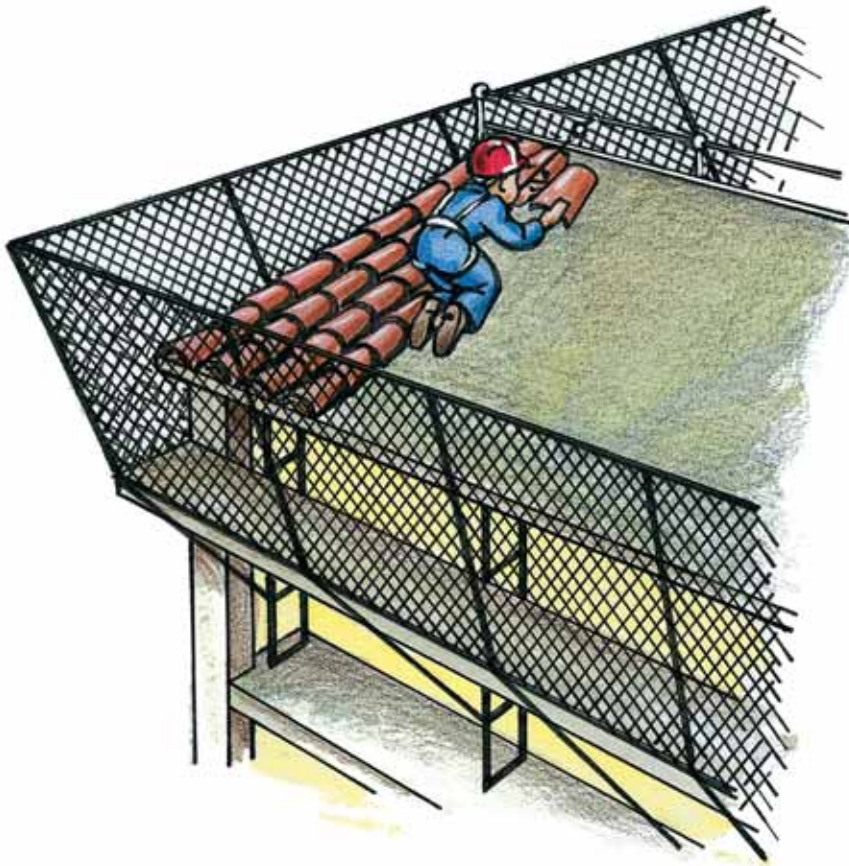


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WORKING AT HEIGHTS

5.7. Other recommendations.

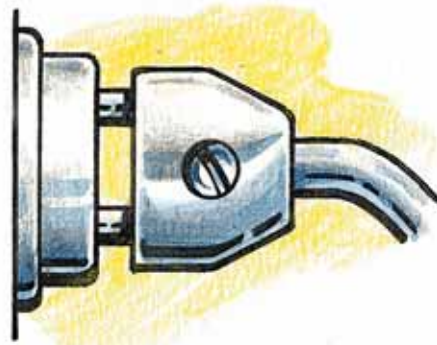
- When you are working on roofs, rails or protection elements will be laid around the perimeter, with anti-fall systems (safety harness), when you are working on steep slopes.
- > Workers should never tread on roofs or roofs with fragile materials (glass, plastic, fibrocement, etc...).



6

ELECTRICAL INSTALLATIONS

- The installation, maintenance and repairing of electrical equipment on the site should only be done by a **QUALIFIED ELECTRICIAN**, taking into account:
 - > The repair work must be done with the facility disconnected and not with voltage.
 - > Any improvisation or intervention made by non-qualified persons could lead to serious electrical accidents.
 - > The doors of electrical panels will also be kept locked, and the state of the cables, connections and switches will be checked.
 - > Machinery and electrical equipments will always be connected with plugs and not directly with cables.
 - > Grounded cables must always be connected, ensure continuity and have a good contact.
 - > Differential circuit breakers must never be bridged.
 - > The state of portable electrical tools will be checked (drills, sanders, etc.), as well as their cables, sockets, etc.
- > Cables will not be laid along sharp edges or in passageways.
- > Regulatory portable lighting systems will be used, and not “homemade” ones.



7

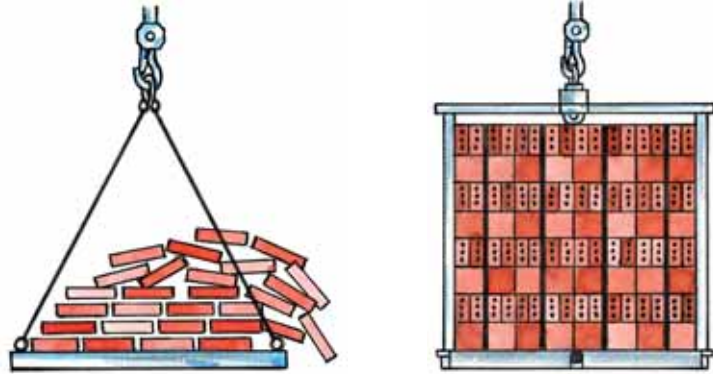
MACHINERY AND VEHICLES

- The equipments on the site (welding equipments, cutting equipments, excavators, concrete mixers, cranes and other hoisting equipment, etc...), will only be used by qualified staff who are properly trained and instructed on how to use them.
- Do not try to repair or use them if you are not authorised to do it.
- Use the work equipment respecting the operating and maintenance guidelines indicated by the manufacturer.
- Never cancel the safety devices on the machines.
- Repair and maintenance works and cleaning must always be done when the machine is stopped.
- Only machines that are in a correct state of repair will be used, in the correct use, and without using them to carry out any dangerous work.

NO!

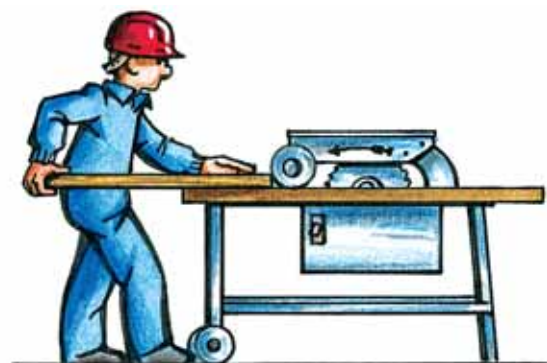


- In machinery cleaning or repair works, all the necessary precautions will be taken to ensure that they are not started up accidentally.
- Do not exceed the maximum load limit for cranes.
- In stowing cargo, operations respect the instructions, check the proper anchoring of the load so that it cannot be shifted or fall, and never move the loads above other operators.
- If the crane driver is unable to see the total distance travelled by the load he must be assisted by a signaller.
- When you are lifting materials in bulk the appropriate accessories will be used:
 - > All loads will be properly anchored (long, pointed loads, pipes, metals, props, boards, etc.) so that they do not separate during transport, and guided with ropes at the ends, if necessary.
 - > Check that bricks, vaults, etc. are placed correctly on the pallets.
 - > Machines with mobile parts will always be well protected, and in all cases workers will wear the suitable



ble clothing when they are handling them.

- > Do not remain within the radius of action of earth-works machinery.
- > Machines are not made to transport people or for racing. Respect the guidelines for its use.



- Machine drivers:

- > Will watch the load every-time.
- > Will respect the maximum capacity of the machine.
- > Will pay attention while they are manoeuvring.
- > Will always warn other people when the manoeuvre is taking place in case anyone is near.
- > If the noise level rises above the permitted safety level, workers will use earmuffs or earplugs.
- > It is advisable to wear an abdominal anti-vibration belt to remain protected from the effects of vibrations.
- > When you are driving along a public road, respect the traffic code.
- > When you are working with earth that gives off dust, use protection masks.
- > Drivers will always check the condition of the acoustic and luminous signals on their machines.



- > Ascending and descending with the machine will be done in the indicated places for that purpose, and without jumping from the cabin to the ground.
- > When you are working with machines near high voltage power lines, respect the safety distances.



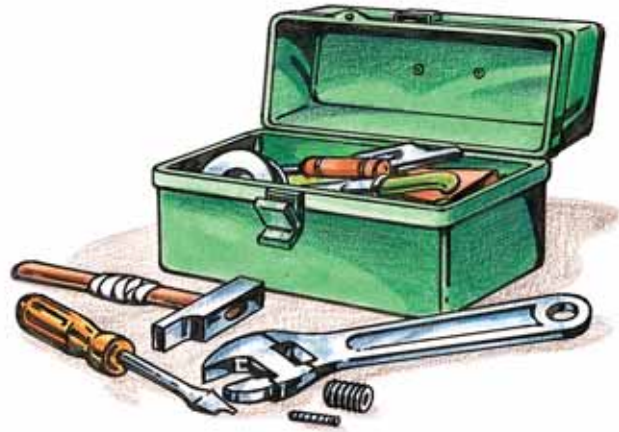
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TOOLS AND MANUAL HANDLING OF HEAVY OBJECTS

- Handling tools appears to be simple but you should always take into account the following aspects:

- > Select the right tool for the work to be done.
- > Keep the tools in good conditions.
- > Use them properly.
- > Must know with how to use them.
- > Keep them in a safe place after using them.
- > Check them regularly.
- > Know their risks.

- When **USING PNEUMATIC DRILL**, check the state of the punch and the compressed air hose connections.



Manual handling of heavy objects.

- Use as little human force as possible to **LIFT WEIGHTS** and if you have to lift one, do it with your back as straight as possible. The effort must be made with the legs and not with the back.



- Wear goggles or a shield to prevent any splash into your eyes. If the tar is hot and is thrown into your eyes, cool it down immediately with cold water for at least 5 minutes.
- If the tar is cold, wash with water, and in both cases seek medical advice.
- To avoid contact with the skin, wear gloves and the appropriated insulated clothing. In the event of contact with the skin, never try to remove the tar. What should you do? Immerse the affected part in cold water for 15 minutes at least.
- If a limb or finger is coated in tar, the tar must be cut to prevent the tourniquet effect. Then seek medical advice.
- Avoid any contact of these products with the skin, eyes and mucous membrane using the appropriated protective material.
- If the product is sprayed (asphalt risks) find a position that will prevent you from being "sprayed" with the product (stand with your back to the wind) or your colleagues from being sprayed.
- If the product is hot, wear loose clothing with a closed



neck and long sleeves to prevent burns.

- If you accidentally come into contact with the tar, wash the affected area with water. Do not use organic solvents or similar products (acid / grease) that could harm the skin.



9

RISKS IN HANDLING TAR

- After working and before eating, drinking or smoking, wash your hand and other areas of contact.
- Do not wash your work clothes with other garments. Protective clothing must be kept clean, with no trace of the product.
- Never put hot tar in cisterns or drums that might contain water, because vapour can be formed and the quick projection of the product could cause burns.
- Overheated tar may release flammable vapours that could, under certain conditions, form explosive gaseous mixtures.
- In the event of fire, use foam, sand, chemical powder or carbon dioxide and not water. Wear protective masks and keep all unnecessary persons away from the site.



PROHIBITION



It is prohibited to smoke Entry prohibited to unauthorised persons It is prohibited to smoke and light fires Water not suitable for drinking Access by pedestrians is prohibited

COMPULSORY



It is compulsory to protect the airways It is compulsory to protect the head It is compulsory to protect the ears It is compulsory to protect the eyes It is compulsory to protect the hands It is compulsory to protect the feet



It is compulsory to wear insulated gloves It is compulsory to wear insulated boots It is compulsory to wear a safety belt

DANGER WARNINGS



Constant Danger

INFORMATION



First Aid Equipment

EVACUATION



Emergency exit direction



Emergency direction



Fire Extinguisher

GENERAL GUIDELINES ON FIRST AID

ACTIONS TO BE TAKEN IN THE EVENT
OF AN ACCIDENT

ACTIONS TO BE TAKEN IN THE EVENT
OF AN ACCIDENT

- 1 PROTECT
 - 2 REPORT THE ACCIDENT
 - 3 GIVE HELP
- CHECK FOR SIGNS OF LIFE
- A CONSCIOUSNESS
 - B BREATHING
 - C PULSE
-

REMEMBER THAT THE VICTIM NEEDS
TO BE TREATED URGENT
NOT MOVED URGENTLY



GENERAL GUIDELINES ON FIRST AID

CARDIOPULMONARY RESUSCITATION

MOUTH-TO-MOUTH BREATHING CARDIAC MASSAGE

The rate of mouth-to-mouth respiration to cardiac massage is:

30 CHEST COMPRESSIONS AND 2 INSUFFLATIONS (100 COMPRESSIONS PER MINUTE)



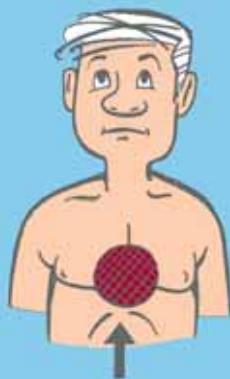
- Check that the airway is not blocked.
- Pull the victim's head back.
- Keep the victim's jaw upwards.



- Put your lips over the victim's mouth and blow air in, pinching the victim's nose.



- If the victim's mouth is closed and his/her teeth clenched, cover his lips with your thumb to prevent the air from escaping when air blows in through the nose.



- Cardiac massage point.



- Position of the heels when applying cardiac massage.

GENERAL GUIDELINES ON FIRST AID

BLEEDINGS



- Apply clean gauze or clean cloths at the source of the bleeding point.
- If the bleeding does not stop, put more gauze on top and press down harder.



- Press down on the bleeding artery with your fingers.



- The victim is then taken to a medical centre.

WOUNDS AND BURNS



- Do not touch the wound.
- Wash it with soap and water.
- Do not apply ointments to the wound.
- Cover the wound with sterile gauze.
- Rinse out the burned area for at least 15 minutes
- Remove clothing, rings, bracelets, etc. impregnated with hot liquids.
- Do not apply ointments.
- Cover the burn with sterile gauze.
- Take the victim to a medical centre.



GENERAL GUIDELINES ON FIRST AID

FAINTING



- Lie the victim down with his/her head at a lower level than the rest of his/her body.

CONVULSIONS



- Do not try to stop his or her movements.
- Place the person lying down where he or she can not get hurt.
- Roll the person carefully onto their side to help him or her breathe.

TOXIC SUBSTANCES



IN ALL CASES:

- Obtain information about the substance (safety data sheet and label). If this information is not available or more information is required, call the National Toxicological Service to the telephone number 91 562 04 20.
- If there are signs of choking, apply artificial mouth to mouth breathing.
- Place the victim in the safety position (see figure) and cover with a blanket to keep him/her warm.
- Take the victim to a medical centre.



IN THE EVENT OF INGESTION:

- If the victim is conscious, induce vomiting, unless the product information makes this inadvisable (corrosives, hydrocarbons).

IN THE EVENT OF INHALING:

- If this is due to remaining in confined spaces (wells, drains, tanks, silos) do not enter without your autonomous breathing equipment.
- Take the victim outside.
- Loosen his/her clothing.



Article 29 of the Occupational Risk Prevention Acts assigns to workers the obligation to **keep watch over their own safety and health in the workplace and those of other persons that could be affected by their professional activities.**

In particular, based on their training and the instructions of their employers, workers must:

- Make **proper** use of machines, appliances, tools, hazardous substances, transportation equipments and in general, any other methods used to carry out their activities.
- Use the protection resources and equipment provided by their employers and **maintain them correctly**

and if damaged, request them to be replaced.

- Not disenable the safety devices in place and **use them correctly.**
- **Immediately inform** their immediate superiors of any situation which, in their opinion, entails a risk to workers' safety and health.
- Cooperate with their employers so that they can guarantee safe working conditions that pose no risks to the safety and health of their workers.
- Breach of the risk prevention obligations referred to in the foregoing paragraphs will be considered labour breaches, for the effects foreseen in article 58.1 of the Workers' Statute.



SAFETY AND HEALTH
GUIDE FOR THE
CONSTRUCTION SECTOR

I have received the Occupational Safety and Health Guide which includes the risks and basic prevention measures applicable in the Construction Sector, and a summary of the obligations of workers set forth in Article 29 of the Occupational Risk Prevention Act.

I.D. Number:

Date:

Name and signature of the worker:





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Profesionales de la Seguridad Social Número 61

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