



Environment, Health and Safety Requirements for Commissioning

Table of contents

1	Scope of application	1
2	EHS-mission statement Error! Bookmark not defined.	
3	Areas of responsibilities	2
3.1	Compliance	2
3.2	Contractor Supervisor	2
3.3	Plant manager	2
3.4	CA Contact Person	2
3.5	Coordinator	2
3.6	Introduction to site-specific operational conditions	2
3.7	Risk assessment	2
4	General safety instructions for the premises	3
4.1	Registering and deregistering at the premises	3
4.2	Use of personal protective equipment (PPE)	3
4.3	Alcohol and drug policy	3
4.4	Working environment	3
4.5	Disposal of waste	3
4.6	Prohibition of Photography	3
5	Additional safety requirements for maintenance and repair work as well as machine assembly and disassembly	4
5.1	Process	4
5.2	Special works	5
6	Additional safety requirements for construction sites	8
6.1	Definition of construction sites	8
6.2	Coordination of work on construction sites	8
6.3	Special requirements for excavation works	8
7	Cardinal rules	9
7.1	Traffic routes	9
7.2	External transports	9
7.3	Use of cranes, forklift trucks and wheel loaders (mobile equipment)	10
7.4	Electrical safety	10
7.5	Lockout / Tagout	12
7.6	Work at heights	12
7.7	Machine safety	18
7.8	Handling of hazardous materials	18
8	General behavior in case of an emergency	20
8.1	Conduct in the event of an accident/medical emergency	20
8.2	Reporting of accidents and dangerous situations	20

8.3 In case of fire 20

1 Scope of application

These following terms and conditions are a binding component and basis of each order.

The safety regulations apply to all contractors, including their subcontractors, hereinafter referred to as "contractor" (C) who execute orders on the premises of the Ursa Group*, hereinafter referred to as "contracting authority" (CA). For the purposes of this document, "contractor" also includes all subcontractors and suppliers of the contractor. In addition, contracted services that work independently on site are also referred to as "contractors" (e.g. service providers like cleaning company). The safety regulations are to be complied with in all components in a binding manner.

By signing the contract, the contractor further undertakes to observe and comply with the requirements resulting from the relevant laws, ordinances and other applicable regulations, official approvals and other applicable legal environmental, health and safety (EHS) regulations currently in force at the time the services are performed.

Should these requirements deviate from company EHS standards of the Ursa Group, the stricter provisions apply in each case.

In the event of violations of these safety regulations, the client is entitled to demand the immediate cessation of all work and, if necessary, to make use of his domiciliary rights. Furthermore, he is entitled to extraordinarily terminate this contract. In this case, the contractor shall not be entitled to claim performance of the contract and/or compensation for damages.

The contractor shall compensate the customer for any damage resulting from non-compliance with the safety regulations. He shall also indemnify the customer on first request from any claims of third parties resulting from non-compliance with the safety regulations.

The contractor is obliged to inform all of his employees, subcontractors and suppliers about these safety regulations.

With these environmental, health and safety requirements for contractor commissioning of the Ursa Group (hereinafter referred to as "safety regulations"), the Ursa Group expressly draws the attention of all contractors to the possible dangers at our premises. It is therefore essential to observe and comply with the following requirements.

* When we refer to the Ursa Group in the following, this includes all companies in the Building Materials business unit and Insulation Materials business unit (URSA).

2 Areas of responsibilities

2.1 Compliance

The contractor assumes full responsibility for ensuring that all statutory, official and other country-specific occupational health and safety regulations, as well as the CA's company-specific regulations, are complied with in the performance of its services.

2.2 Contractor Supervisor

Prior to executing the order, the contractor shall inform himself as to who has been designated by the CA as the contact person responsible for the order (hereinafter referred to as the CA contact person). In addition, the contractor shall name his person responsible or his representative (hereinafter referred to as the contractor supervisor) for the implementation of the necessary safety measures. During the execution of the order, this person must constantly convince himself of the existence and effectiveness of the protective measures and, if necessary, implement any further necessary protective measures.

2.3 Plant manager

Responsible that a process for CA Contact Person and coordinator is in place. Can assume both roles.

2.4 CA Contact Person

Person designated by CA that is responsible for the order and who is first contact for the contractor.

2.5 Coordinator

In order to avoid a possible hazard, disturbance or nuisance of the operational process, the neighbourhood or, in case of the employment of several contractors, a coordinator shall be appointed by CA in accordance with the currently valid relevant country-specific occupational health and safety regulations.

The coordinator shall coordinate the work so that mutual endangerment can be excluded. The instructions of the coordinator must therefore be followed. The safety and health of all those involved must not be impaired at any time. The companies are obliged to inform each other about the risks associated with the work and to cooperate. (For construction sites: see also section 6.1)

According to 6.1, a safety and health protection coordinator may also be required.

2.6 Introduction to site-specific operational conditions

The CA contact person or the coordinator instructs the contractor supervisor. This is documented in writing. The contractor supervisor is in turn responsible for conveying the contents of the site-specific instruction to the contractor's employees and all other people working under his responsibility deployed at the client. No work must be carried out at Ursa without prior appropriate instruction.

2.7 Risk assessment

The contractor must have specific risk assessments for the activities planned at the CA and must present these to the CA on request. The same shall apply, for example, to operating and work instructions (e.g. assembly or disassembly concepts), safety data sheets for any hazardous substances that may be used and/or proof that the contractor's employees have been instructed.

The Hazard and Risk assessment of the contractor must be adjusted based on the information provided by the coordinator/contact person with regard to Ursa specific hazards. The coordinator must be approached by the contractor.

3 General safety instructions for the premises

3.1 Registering and deregistering at the premises

All workers of the contractor shall register when arriving on site/plant. The location of the registration must be requested in advance..

Before leaving the plant, the CA contact person or his representative must be contacted. All workers of the contractor have to sign out in the attendance book when leaving the site/plant.

The contractor supervisor shall ensure that his subcontractors and service providers also comply with these regulations.

3.2 Use of personal protective equipment (PPE)

A safety vest and S3 safety shoes at least form C (boot half high) according to EN ISO 20345:2012-04 must generally be worn in the premises (exceptions office premises without production). Sales and administration buildings outside the factory premises can be excluded from this requirement. Further general PPE (e. g. bump caps) might be required. Further PPE wearing duties in various areas, (e.g. hearing protection) are indicated by corresponding mandatory signs.

The CA has to be contacted in advance to find out about the specific requirements at the site

3.3 Alcohol and drug policy

Consumption of alcohol and drugs, as well as entering Ursa locations under the influence of alcohol or drugs is prohibited. This also applies with regard to the influence of medication that affects the ability to react.

3.4 Working environment

Order and cleanliness at the workplace must always be ensured during work and at the end of work for reasons of safety and health protection. The contractor's workers must keep their working environment clean and tidy. In principle, tools, equipment, machines and materials of all kinds must be stored in a tidy manner so that escape and rescue routes, traffic routes, working areas and the like are not blocked and other working areas are not restricted or employees are hindered. The workplace must be cleaned every working day after leaving it and waste must be disposed of in accordance with the requirements under 4.5.

3.5 Disposal of waste

The contractor is responsible for the disposal of his used working materials and their packaging. He must dispose of them immediately, at the latest after the end of the shift. The use of the client's disposal containers etc. is not permitted without the prior consent of the CA.

3.6 Prohibition of Photography

Filming and photographing is prohibited. For exceptions, permission is required, which must be obtained from the CA contact person or his representative.

4 Additional safety requirements for maintenance and repair work as well as machine assembly and disassembly

This section regulates the additional safety requirements for the preparation, implementation and final measures relating to the operation and clearance of workareas in the CA's premises.

4.1 Process

4.1.1 Definition of scope of work

Before starting the work the scope of it and the relevant hazards associated with the work/work environment must be defined between the contractor and CA. It is therefore necessary to have an appointment prior to the start of works. Depending on the size of the works a meeting prior to the offer is recommended.

4.1.2 Work Preparation

Before the start of work, an introductory safety discussion with the contractor supervisor shall take place. The contractor and the CA contact person are responsible for establishing the meeting. During this discussion the name of the CA's coordinator will be provided to the contractor supervisor if this deviates from the CA contact person.

Safety-relevant points must be agreed with the coordinator. This discussion is recorded on the CA's briefing protocol form.

The Contractor's supervisor must be familiar with the existing safety regulations for the respective part of the premises. CA will inform the contractor about these aspects and supports the contractor in obtaining required documents and/or work permits.

The contractor must ensure that all persons on site working for the contractor including subcontractors receive a safety induction training prior to start work on site by the supervisor of the contractor. On request of CA, the records of these induction trainings must be shown by the contractor to CA.

4.1.3 Inspection of safety measures

The contractor is responsible for carrying out safety inspections within his area of work. Additionally the CA carries out inspections of the work areas. By that the contractor is not released from his supervisory duty and responsibility.

Complained deficiencies are to be remedied immediately. Works that cannot be performed in a safe way must be stopped until the risk has been mitigated or eliminated.

If inspections are carried out by external bodies (e.g. authorities, supervisory offices, insurance companies, etc.), the CA coordinator shall be responsible for coordination. The occupational safety specialist (EHS manager) must be informed immediately.

4.1.4 Coordination of work

The coordinator coordinates the work flow of the working groups involved in such a way that all necessary precautions are taken at all times to avoid mutual endangerment. For this purpose, he will, if necessary, draw up a time-structured work schedule and, if necessary, include this in a work permit. He has the right to request all necessary documents from each working group, in particular a work plan with the following information:

- Planned start of work,
- Expected end of work,
- Staffing numbers
- Planned working method
- Responsible persons

The contractor must also provide the above information for all persons working for him as well as his subcontractors.

If several contractors carry out work in the same area of the site/plant at the same time, each contractor is responsible for his own employees. If other contractors work in the work area contrary to the coordination specifications, works must be stopped and the further execution of work must be agreed with CA.

4.1.5 Cooperation of several contractors

If hazards occur during the work of the contractor for employees and workers of CA or other contractors, the contractor is obliged to inform the CA, the other contractors and also the contractor's own employees about the risks to safety and health associated with the work and to coordinate measures to prevent these risks with the CA and the other contractors.

The instruction which the responsible person of the contractor has received from the CA shall be passed on by the responsible person of the contractor to all his workers. A written record of this must be kept and presented at the request of the CA.

4.1.6 Trial operation

If a facility/installation is put into operation on a trial basis, the safety measures must be observed as in normal operation and agreed with the coordinator. All contractor's and CAs workers involved in the test run must be identified and instructed about any hazards that may arise and the necessary safety measures.

4.1.7 Foreign language speaking persons

All foreign-language speaking persons working for the contractor must be instructed and supervised with particular care by the contractor. The Contractor shall ensure that they are able to communicate properly with him. The person responsible for the contractor's site must at least have a good command of the respective national language.

Foreign-language speaking persons must be informed in an understandable form and language by the person responsible for the contractor on site about the protective measures affecting them.

4.1.8 After completion of work

After completion of work, a final acceptance concerning the executed work has to be conducted. This includes a joint inspection by CA and the contractor's supervisor. This includes safety, order and cleanliness of the workplace.

4.2 Special works

4.2.1 Scaffolding

Scaffolds are to be erected and removed in consultation with the CA in accordance with the assembly instructions. The scaffold is released by posting the test report, the scaffold marking and the usage plan.

Since scaffolding erection can affect the operational interests of CA, e.g. by restricting traffic routes or crane runways, the contractor must consult with the coordinator in advance.

The contractor is responsible for compliance with the safety regulations.

After extraordinary events, such as changes to the scaffolding, storms, heavy rain, snowfall, etc., the contractor must immediately arrange for a renewed inspection of the scaffolding by a competent person and release the scaffolding for reuse. In the meantime, the scaffold must be secured against unauthorized use.

The contractor shall permit the Ursa Group and other companies to share the use of the scaffolding insofar as this is necessary for the execution of the work and does not hinder the proper execution of

the work assigned to him and its timely completion. (More information about scaffolds, see chapter 7.6)

4.2.2 Electrical installations

CA is responsible for the power supply to the main connection points.

The contractor is responsible for the proper manufacture, condition and use of the electrical equipment behind the main connection points. The sub-distribution boards or construction site power distribution boards must be equipped with RCDs in accordance with VDE regulations or with country-specific requirements. The contractor shall only assign work on these installations to suitably trained specialist personnel in accordance with legal requirements.

Mobile connecting lines must be laid in such a way that they are protected against mechanical damage and do not suppose a thread of stumbling. If necessary, cable line bridges must be installed and used for this purpose.

4.2.3 Service and maintenance work on cranes

All work on cranes and in the crane operating area requires the prior approval of the CA. Prior to the commencement of such work, the contractor shall, in consultation with the coordinator, order and monitor the following safety measures:

- Cranes may only be operated by competent, instructed and commissioned crane operators.
- The qualification must meet the country-specific requirements.
- If there is a danger of objects falling, the danger area under the crane must be secured by means of barriers or warning posts.
- The crane is to be secured against adjacent moving cranes by rail barriers or warning posts.
- The crane drivers of neighbouring cranes, if necessary also those on adjacent tracks, must be informed about the type and location of the work. This also applies to removers at shift changes.

Cranes may only be put into operation after completion of the work if the contractor has approved this with the coordinator of the plant. Prior to this approval, the contractor must verify that

- the work on the crane is finally completed,
- the entire crane is again in a safe operating condition,
- all persons involved in the work have left the crane.

During the work, the passage area of the track gangway and the access ladder to the track gangway must be kept clear.

4.2.4 Working with cranes and hoists

When using cranes and hoists, the contractor must obtain precise information about the size and weight of the loads to be moved and the conditions of use, such as supports, outreaches, etc., and select the cranes and hoists accordingly. The stability of the cranes must be ensured in any case. The use of larger lifting equipment (mobile cranes) must be agreed with CA.

4.2.5 Working in the area of rail track systems

Prior to the start and also in the case of short-term work in the track system or in its immediate vicinity, the operator (local railroad manager) of the track system must be informed by the coordinator and must have approved the work. After approval of the operator, the necessary safety measures (e.g. security guards) must be initiated.

The contractor shall inform the persons working for him about the safety measures before work begins.

Areas adjacent to the track systems, e.g. for the storage of building materials or the erection of scaffolding, may only be used in such a way that the shunting route and the standard clearance gauge are kept clear and visibility is not obstructed. Details are to be agreed with the operator of the track system.

Construction sites on tracks, especially pits, must be secured in such a way that railroad personnel are not endangered even in darkness.

It is forbidden to attach anchors to rails or sleepers.

When electric welding, the ground cable must never be connected to the rails.

If track installations outside of level crossings have to be crossed, this must be agreed in good time with the operator and the CA management of plant/site.

If the safety of the employees cannot be guaranteed due to poor visibility (e.g. darkness, fog, snowfall), CA must either block the tracks or interrupt the work.

4.2.6 Work in gas endangered areas

The protective measures for this work must be defined and laid down in a written work permit before the start of the work.

Before starting work in gas-hazardous areas, the coordinator shall arrange for a measurement of any gas concentrations present.

Based on the results of the measurement, it will be decided which respiratory protection devices must be issued and worn and to what extent a safety guard must be present or continuously measuring gas detection devices must be used.

Such work may only be carried out by persons who have proven that they have passed a suitability test in accordance with the currently valid, relevant country-specific occupational health and safety regulations and have taken part in respiratory protection training.

4.2.7 Welding, soldering and angle grinder work

For welding, cutting, soldering, thawing and cutting-off work outside of workshops designated for this purpose, the contractor must obtain written permission for work involving a fire hazard from the coordinator for fire safety reasons. In this written permit, the CA shall specify the necessary protective measures. (e.g. fire watch)

4.2.8 Presence in explosion hazard areas

- Explosion hazard areas must be marked with the explosion hazard warning sign [.
- Entering explosion hazard areas is generally prohibited.
- The posted operating instructions must be followed.
- The instructions of the CA's specialist personnel must always be followed.
- Smoking is strictly prohibited in the explosion hazard areas.
- Ignition sources of any kind must be kept away.
- Any abnormalities in the explosion hazard areas must be reported immediately to the works management.

5 Additional safety requirements for construction sites

This section specifies and adds safety requirements for construction sites in the plants and sites of CA.

5.1 Definition of construction sites

In accordance with this safety guideline, construction sites are places where one or more structural facilities are erected, modified or demolished and the associated preparatory and finishing work is carried out. Mere assembling/disassembling of machinery or mechanical installations does not meet the criteria for a construction site.

5.2 Coordination of work on construction sites

In the event that several companies are present on a construction site, one or more coordinator for health and safety matters shall be appointed by CA. The H & S coordinator needs to possess the knowledge/training/certificate according to local legislation. The H&S coordinator coordinates the work flow of the working groups involved in such a way that all necessary precautions are taken at all times to avoid mutual hazards. To this end, he shall, if necessary, draw up a time-structured work schedule and, if necessary, include this in a work permit. He has the right to request all necessary documents from each working group, in particular a work plan with the following information:

- Planned start of work
- Expected end of work
- Personnel strength
- Planned working method
- Responsible persons.

All contractors must provide the above information for all persons working for him directly and indirectly.

Additionally a safety and health protection plan must be drawn up if a construction site meets at least one of the following criteria:

- 1) Where the expected duration of the work is more than 30 working days and where more than 20 workers are employed simultaneously,
- 2) Whose expected volume exceeds 500 man-days,

The safety and health protection plan must be visibly displayed on the construction site. The contractor is obliged to implement the measures defined therein.

Changes to the safety and health protection plan may only be carried out by the H&S coordinator. The amended safety and health protection plan shall be handed over to the Contractor immediately. The H&S coordinator shall inform the Contractor of the measures specified and/or changed in the plan. Old versions displayed on the construction site must be replaced by the amended version. Old versions must be disposed.

If other contractors work in the work area contrary to the coordination carried out, the further procedure must be agreed with CA.

5.3 Special requirements for excavation works

Written permission is required for excavation works at the CA's premises. This permit must be obtained from the respective plant management or coordinator.

6 Cardinal rules

A large proportion of serious occupational accidents are related to specific activities, processes and concepts. Ursa has established cardinal rules for these in order to prevent injuries and damage. They apply to every employee of the CA, as well as to all employees of the contractor who work in the CA's plants/sites. In the following sections, the main aspects relevant to contractors are presented. Whenever local rules/regulations contain stricter requirements, these local requirements must be observed.

6.1 Traffic routes

In order to minimize the risk of collision between persons and mobile equipment as well as other moving and non-moving work equipment/machines and the danger of slip-trip-fall, each plant has an internal traffic route concept for indoor and outdoor use. The use of the specified paths and movement areas as well as the adherence to the posted rules is mandatory. In areas without designated footpaths, pedestrians must walk along the roadside one after the other and give priority to vehicles. Visual contact must be established with the driver to ensure that you are noticed by him. It is forbidden to enter restricted areas and use shortcuts.

6.2 External transports

External transports include all transports in which goods are transported by the driver of an external company in plants/sites of the CA.

As soon as an external transporter reaches the premises, he is guided to the relevant locations by the signs. At the first point of contact with employees of the CA, he is handed out the applicable rules and regulations in the form of a multilingual safety brochure and receives a site plan as a handout.

The employees of the CA:

- instruct the drivers of external transports to position their vehicles in the designated places if the vehicles block emergency exits and traffic routes.
- instruct the drivers of external transports, who do not wear the prescribed PPE when leaving the driver's cab, to put it on immediately. Loading / unloading shall not be carried out until the driver is wearing the prescribed PPE.
- make sure that drivers of external transports do not use any factory-owned industrial trucks, such as forklifts, cranes, walkie pallet truck, etc., unless the operator has been expressly given and handed over the CA's approval.
- load only if the loading bridges used are suitable for the intended purpose, have sufficient load-bearing capacity and are of adequate size and rest on the vehicle loading area.
- load only such vehicles whose loading area is clean and dry.
- stop loading/unloading immediately if the driver is on the loading area or in the danger zone of the forklift truck during loading/unloading (safety distance >5m around the forklift truck) Exceptions to this are only permitted on the basis of a properly conducted risk assessment.
- only allow those vehicles to leave the factory premises on which adequate load securing has been carried out (at least compliance with the legal requirements):
 - hence, vehicles which do not exceed the maximum permissible load weight
 - which have an appropriate axle load distribution
 - where the lashing material is used properly and for the intended purpose and only standardized, faultless, tested and approved lashing material is used
 - where the load and driving, lifting and carrying aids are secured on the loading area.
- allow unloading only if a suitable (even) unloading point has been selected and the stability of the vehicle during unloading has been ensured.

Employees of the CA, especially those in the loading/unloading and raw materials areas, are entitled to give instructions to drivers of external transports on the plant premises. This means that employees of the Principal may refuse/deny loading/unloading if the drivers do not meet the aforementioned requirements. In the absence of an agreement, they shall inform the supervisor and/or the plant manager. If no agreement can be reached with the plant manager/supervisor either, the driver will be sent back and the contractual partner will be informed accordingly.

6.3 Use of cranes, forklift trucks and wheel loaders (mobile equipment)

For employees of the CA the following aspects must be followed when handling mobile equipment:

- Employees of the contractor are prohibited from using mobile equipment that belongs to CA or has been leased by CA. Exceptions are only possible with the written consent of the plant management. The following options are possible:
 - Assignment of an employee of a contractor
In this case, the contractor's employee shall be commissioned to manage the mobile equipment leased by CA or in his possession. For this purpose, he must prove to CA by presenting a corresponding certificate (driver's license) that he is authorized to drive this type of mobile emergency equipment. In addition, he must prove that he is suitable for this type of activity in terms of health.
 - Temporary provision of mobile equipment
In this case, CA temporarily leaves the mobile equipment to the contractor. This temporary transfer must be documented in writing. The technical condition is recorded and the risk is transferred to the external company. At the end of the assignment, the technical condition must be recorded and CA shall take back the mobile emergency equipment.
 - A contractually stipulated maintenance provider must operate the machinery in order to assess function or perform maintenance.
- The employee of the contractor who operates this equipment must be in possession of a valid driver's license and must be able to show this licence at any time on request. Only persons with required health suitability according to local legislation can be assigned.

6.4 Electrical safety

For workers of the contractor, the following aspects must be followed with regard to the performance of electrical works with low voltage (voltages between 50 and 1,000 volts) and high voltage (> 1,000 volts):

- Electrical work may generally only be performed by trained electricians who have been expressly ordered to perform electrical work.
- It must be specified before work begins that the contractor's employees work in accordance with local regulations and, in the case of more stringent requirements, in accordance with the requirements described in this program.
- All electrical work shall be coordinated and approved by the local coordinator, maintenance manager and/or site management.
- Prior to commencing any earthworks, the site management must ensure that the person carrying out the work is aware of where cables are routed. If earthworks are carried out by the contractor, it must be specified in writing where work may be carried out and under what conditions.

General safety rules for electrical works

- The place of work must be clearly defined and marked.
- Suitable precautions must be taken to prevent injury to persons from non-electrical hazards, such as mechanical obstacles or pressure systems, or from falls.
- Accesses, escape routes and the space required for operating and working with switchgear, switchgear devices and other equipment must be kept free of obstructive objects and highly flammable materials. Highly flammable materials must be kept away from sources of arcing.
- If during work live or moving parts are exposed which are normally protected, danger signs must be attached. Appropriate barriers must be erected to prevent other employees from entering the area.
 - The working area is to be cordoned off with a barrier tape at distance of 0,5 m.
 - The color of barrier tape for electrical hazards must be red/white.
- Non-instructed persons must not work or stay near live parts.
- Once the affected working area has been determined, the following five safety rules are to be observed in the order given, unless there are important reasons for deviating from them.
 - (1) Disconnect from the mains
 - (2) Secure against reconnection
 - (3) Verify that there is no voltage

- (4) Carry out earthing and short circuiting
- (5) Cover or block off adjacent live parts

Work on high-voltage systems

Maintenance and repair work on high-voltage systems/installations is carried out exclusively by qualified specialist companies or by the energy supplier.

All work on high-voltage systems must be instructed or commissioned in writing by the plant management.

Work with increased electrical hazard

Increased electrical hazards are present whenever electrical machinery or devices are operated in small enclosed spaces and/or are surrounded by materials capable of conducting electrical currents. When working with increased electrical hazards, the local regulations for the use of stationary and mobile electrical equipment must be applied.

Live work

- Live work is generally prohibited at plant/site of CA.
- An exception to this rule is the switching of electrical systems to establish a voltage-free state.
- If maintenance work and installation work must nevertheless be carried under live conditions, this requires special technical and organizational measures, depending on the type, scope and degree of difficulty of the work.
- Any live work must be approved in writing by the responsible CA manager before work begins.

Note:

Leading to use voltage testers and phase comparators, test work for fault isolation in auxiliary circuits, function tests on devices and circuits, commissioning and testing are not considered "Live work" and therefore do not require the written approval from the location management. This work may only be carried out by electricians with the aid of suitable two-pole voltage testers (in accordance with EN 61243-3) and appropriate protective equipment. Multimeters may not be used!

Reactivation after completed work:

Any tools and work equipment no longer required must be removed from the work area, and all no longer active personnel must likewise leave the area. Only then can remaining essential personnel begin to remove the protective measures. These protective measures must be removed in such a way that no hazard presents itself. The short-circuit connection must always be removed before the earthing connection is removed.

After the short-circuit and then the earthing connection have been removed, the machine, device, or part must be treated as live. Existing protective measures and warning signs must be reapplied appropriately.

The machine, device, or part may be fully reactivated only once all involved personnel have left the hazard area and removed their personal LoTo-devices (locks, tags). (see 7.5)

Tools, Personal Protective Equipment (PPE), and other materials

- Appropriate protective equipment and protective devices/auxiliary means adapted to the respective conditions shall be worn/used.
- All tools, equipment, protective devices and auxiliary means intended for safe operation and work on, with or in the vicinity of electrical installations shall be suitable for the job, maintained in proper condition and used in accordance with their intended purpose.

- When working on electrical parts/installations, only insulated tools may be used. All employees must use insulated tools if there is a possibility that these tools and devices may come into contact with conductors or parts of the electric circuit which have not yet been made safe by earthing.
- Protective clothing should have an insulating effect and thus prevent dangerous current transfer from live parts to the human body.

6.5 Lockout / Tagout

Depending on the works, In principle, a system, part of a system or machine can still be dangerous even if it is switched off. Unintentional or unauthorized commissioning may also cause danger to persons in the danger area of the system, plant part or machine. To prevent this the LoTo following LoTo steps might be required when working on or around machines/systems:

- safely shut down a system, plant or machine,
- to shut off and label the hazardous energies and
- to personally secure oneself against unintentional and unauthorized start-up by locking it.

Workers from contractors are being instructed on LoTo prior to their works. Depending on the defined scope and content of the work, the CA coordinator defines if the instruction is to become an authorized person (actively working with LoTo system with provided personal locks) or only an involved person (not working on machines/systems or operating them and not working in a safety area). No works must be performed unless the worker received an instruction on LoTo.

The working areas shall be released for work by the CA to the Contractor in a secured, locked condition. The contractor's employees secure themselves with their lock, only those provided by Ursa, to the LoTo lock point, so that the secured area can only be put back into operation after the contractor's locks have been removed. The contractor's workers only remove the locks together with the tags and only after completion of the activities. The area is then returned to the company.

Exceptions from securing by CA are only possible with the permit of the plant manager and if the contractor is permanently contracted at Ursa or the work itself requires that the securing is done by the contractor. Deviations and reasons must be kept in written.

6.6 Work at heights

Definition of work at heights

Work involving work at heights has to be identified as such before the start of work. A task or workplace that matches one or more of the following criteria shall be regarded as work at height:

- Any workplaces at a height >1.00 m
- Any workplace at or above water or other substances with the risk of sinking into (with danger of falling >0.00 m)
- A workplace in the vicinity (<2.00 m) of wall openings, floor openings, stair openings, pits, shafts, ducts and other dangerous cavities or openings (with danger of falling >1,00m)
- Work in or on top of vessels with the risk of sinking into substances
- Work on non-load-bearing roofs and work in adjacent areas of glazed units in roofs
- Work involving ladders
- Work involving scaffolds
- Work involving mobile working platforms

Risk Assessment

The contractor is responsible to instruct workers an Ursa requirements and to conduct a risk assessment prior to work at heights, defining and organizing necessary measures. Technical solutions shall be preferred to organizational or personal solutions. Work involving a risk of falling is only to be performed if an appropriate measure has been taken to eliminate or at least mitigate the risk to an appropriate level. The effectiveness of the implemented measures must be checked prior to the start of work and then regularly, however, at least once a year.

A meeting in advance with the coordinator is recommended to verify and check surrounding circumstances.

In case that works at height are performed by contractors, the coordinator, plant manager or his/her representative has to support the contractor in conducting the hazard and risk assessment. Whenever the workplace is changed or if a new workplace is created which meets the criteria for a workplace at height, the process of hazard and risk assessment needs to be performed again.

Up-to-date documentation in writing of the hazard and risk assessment must be available on site.

In case that local laws and regulations require a higher standard this standard shall be applied.

Emergency and rescue concept

The risk of a suspension trauma present if a person hangs in the PPE for more than 20 minutes must be prevented as a matter of priority. Therefore, before the start of work at heights with the risk of falling, an emergency and rescue concept needs to be prepared, which shall specify the measures and behavior in the event of a rescue.

The emergency and rescue concept must be drawn up by the supervisor of the contractor and is part of the meeting with the coordinator. The emergency and rescue concept differs depending on the workplace and its surrounding, e.g. general access to the working area (design of routes, pipes, and cables), rescue from a manhole, rescue from a fall arrest system with a fixed guide, or rescue of a hanging person.

- The emergency and rescue concept must contain information about:
 - Securing of the rescuer
 - Definition of rescue devices for the workplace and the PPEaF used in each case
 - Information about correct usage of rescue devices
 - Correct actions and steps for rescuing the injured person including first aid

The emergency and rescue concept needs to be included in the operating instructions and all employees must be instructed in theory and practice in this plan. It must be accessible to the employees at the workplace.

Technical measures

Railings do not allow a fall at all, as this type of securing eliminates a possible fall edge. It is to be used preferably as a technical measure for fall protection. A three-part side guard (knee rail banister), a filler banister or a closed side guard (parapet) are possible types of side guards.

Floor openings must be secured against unintentional lifting by fixed or removable guards or covers:

- Covers must be designed and installed in such a way that there is no risk of tripping, and that they are sufficiently load-bearing for the intended type of use.
- They must be safe to handle and secured against unintentional movement (opening and closing, displacing). This requirement is met, for example, if:
 - Covers can be opened from secured stands
 - Covers can be locked in the open position
 - Covers weighing more than 25 kg are fitted with appropriate auxiliaries, such as additional weight compensation, hydraulic lifting devices or gas springs.
- If a hole is not fully secured or the cover is temporarily removed, a barrier must be put up, which shall be 2m away from the falling edge.
- Wall openings must have fixed or movable railings, if:
 - The height of the parapet is less than 1.00 m (or 1.10 m at a height of >12.00 m)
 - The width is greater than 0.18 m and the height is greater than 1.00 m

Railings must be equipped with a safeguard against unintentional opening or lifting. It must not be possible to open the railings to the lower side.

If an opening is not fully secured or the cover is temporarily removed, a barrier must be put up, which shall be 2.00 m away from the falling edge.

If **safety nets** are used, they must be certified for the intended use. Furthermore, the following needs to be applied:

- To assess the aging of nets, they must be tested regularly by an authorized inspection body, at the latest after one year of use. Each safety net shall be used only within the warranty period,

which needs to be documented, e.g. on a special label, and in accordance with the instructions provided by the manufacturer/distributor. Each net must have a valid CE-label and a declaration of conformity.

- Damaged nets (broken meshes, damaged peripheral rope) must only be repaired by qualified personnel. If defects have been identified, protective nets can be used despite the defect only after the approval has been issued by an expert (manufacturer) or must be re-paired properly.
- Nets need to be stored in a dry and cool storage room. The nets must be stored in a way that they are protected from acids, alkalis, oils, direct exposure to UV rays and away from heat sources (e.g. radiators).

Portable ladders must only be used for moving between successive levels of scaffolding or for accessing to temporary workplaces, and shall only be used in case other, more secure work equipment is not available. Their use as an elevated workstation is generally not allowed. The use of a ladder as elevated workstation is only allowed in circumstances, in which the use of other, safer work equipment is not justified because of the low risk and the short duration of use, or because of the existing structural conditions, that cannot be change changed. If this is the case and the following applies, working from a ladder is allowed if:

- The position on the ladder is not higher than 5.00 m above the installation surface
- The object-related work to be carried out from the ladder does not exceed two hours and the stand is not higher than 2.00 m
- The weight of the tool and material to be carried does not exceed 10 kg
- No objects are carried whose surface exposed to wind is larger than 1 sqm
- No substances or equipment are used which are likely to further hazards
- Only work is performed which requires less effort than the effort adequately required to tilt the ladder, and
- The employee stands with both feet on a rung/step.

When using portable ladders, the following general requirements shall apply:

- The terms of use of the ladders from the operating instruction and standard operating procedure (e.g. max. height, additional safety measures) must be observed.
- Ladders shall be checked visually by the user before use and at a minimum base annually by a qualified person (ladders exposed to conditions causing deterioration of their technical condition should be subject to more frequent regular inspection).
- Defect ladders need to be reported and removed immediately.
- Safe holding and standing must be possible when working on ladders
- Ladders shall be placed on a stable, solid surface and in a way that moving or tipping is not possible, and they must be secured against accidental tipping onto traffic routes (e.g. by attaching warning signs).
- The use of ladders must not result in any additional fall hazards, e.g. positioning the ladder next to unsecured openings or electrical devices, collision with internal traffic or installation next to handrails or fall edges to lower levels, or working under conditions, which may cause additional risk (e.g. storm).
- The safe use of ladders and steps shall not be significantly restricted by the transport of work equipment and materials:
 - Use of bags or belts for tools
 - Maximum weight of 10kg and/or max. 1 sqm wind surface, respectively
 - No substances and equipment must be used which cause additional hazards (e.g. equipment with significant load/stress for the user, hazardous substances).
- Ladders and steps must only be loaded with max. 150 kg.
- The feet of ladders and steps must only be accessed by one person.
- Ladders and steps must only be climbed with suitable footwear.
- The user shall not lean outwards when using the ladder.
- Ladders must be secured against unintentional movement.
- The use of a ladder to access workplaces is only permitted if the height difference to overcome is not higher than 5 m.

In addition, there are requirements to be met depending on the design:

- All ladders with a length of 3 m and more, which can be used as single ladder, must be used with a permanently attached stand extension.

- Ladders for leaning, extending and multipurpose ladders shall only be used on safe surfaces to lean on (not against glass windows, doors, etc.).
- Ladders for leaning, extending and multipurpose ladders must be positioned with the rungs at an angle between 65° and 75° to the horizontal plane.
- It is not allowed to step on the top three rungs of a single and/or extending ladder, or in case of a step ladder with an extension ladder attached, the top 4 rungs of the sliding ladder must not be stepped on.
- Ladders for leaning, extending and multipurpose use are only suitable for climbing over if they protrude at least 1 m or if there are on-site retaining options.
- The locking pins of height-adjustable ladders ("telescopic ladders") must be fully inserted into the rung holes and the swivel hook safety devices must be inserted
- Stepladders may only be used with tensioned spreader safety devices.
- Stepladders must not be used as single ladders.
- Transition to higher levels from ladders used as stepladders is not permitted.
- Hanging ladders must be mounted, fastened and secured against unintended hanging out in such a manner that they cannot get out of place or into oscillating movements
- Only use one-piece multi-purpose ladders with joints, if all joints are in the secure position.

Scaffolds: assembly and disassembly:

- Assembly and disassembly of scaffolds shall be carried out in accordance with the manufacturer's instructions and shall only be carried out by personnel with appropriate qualification.
- When erecting the scaffold, adequate fall protection measures are to be implemented.
- A hazard zone with an appropriate width shall be established around the scaffold, or an equivalent protection from falling material shall be guaranteed by the use of nets.
- A sign containing the following information shall be attached to the scaffold: assembler, type of scaffold, load class, width class, general safety instructions.
- Scaffolds shall be placed on a stable and dry surface.
- Scaffold feet shall be placed on sleepers located perpendicular to the building wall.
- Scaffolds which are not stable when standing free must be fixed.
- Scaffolds must be reinforced, e.g. by diagonals, frame structures or equivalent measures. Diagonals shall be connected to the vertical and horizontal main structural members at the junctions.
- The distance between the fall edge and the inner side of the scaffold must not exceed 0.30 m. If the gap exceeds 0.30 m, an additional three-part side guard must be installed from the inside.
- Planks and all other components of the scaffold decking must be mounted completely and shall not be removed after assembly. Wooden planks must be placed in such a way that they are close to each other and cannot bounce or move.
- Openings in scaffold decks (entries and exits between levels) must be equipped with tightly closing hatches.
- The minimum width of the scaffold decking and the area-related working weight in accordance with the scaffold class must be observed.
- Scaffolds must be equipped with a three-part side guard consisting of a handrail at a height of 1.00 m, a knee board and a toe board at a height of 0.15 m. The distance between the boards shall not exceed 0.47 m. Other equivalent protection systems (e.g. fully closed side protection) may be used in accordance with manufacturer's instructions.
- Railings must be mounted from the inside and must be secured against unintentional loosening.
- The distance from the toe board to the installation surface and from the toe board to laterally adjoining structural components must be less than 0.20 m.
- For work on pitched roofs, additional fall protection nets or roof protection walls must be installed in accordance with the legal requirements and manufacturer's specifications.
- Access ladders placed at the inside of the scaffold must not connect more than two scaffold levels. Access ladders placed at the outside of the scaffold shall not exceed a scaffold level of 5.00 m.

Use of scaffolds:

- Persons must be instructed before working on a scaffold, at least once a year.
- Access is only permitted if an up-to-date permit is placed at the scaffold.
- Visual checking before accessing the scaffold is mandatory.
- In case that defects are identified, the scaffold must not be used. The responsible person has to be informed about the defect. Works cannot continue unless the defect has been rectified.

- The scaffold can only be entered from the specially designed ladders. Climbing the railing to enter the scaffold is not permitted.
- Jumping on scaffold decks is not permitted.
- Employees should not work simultaneously on several scaffold levels on one another due to the risk of accidents caused by falling objects.
- Working on scaffolds after nightfall without proper artificial lighting, with dense fog, rainfall, snow and black ice present, during a storm or strong wind is not permitted.
- Materials on the platforms have to be removed after work is completed.
- On the scaffold decks, only as much material may be stored as is permitted by the respective load class.

Special requirements for **mobile scaffolds**:

- Mobile scaffolds may only be used on an even, load-bearing surface.
- When mobile scaffolds are used, the assembly and usage instructions of the manufacturer must be observed. It must be available on site.
- Scaffolds shall only be entered once they have been secured against unintentional movements.
- The stability of mobile scaffolds made of tubular steel coupling scaffold components is guaranteed without proof, if the specified lateral/height ratios are adhered to. In all other cases, a proof of stability must be provided.
- Mobile scaffolds must be secured against tipping over in the event of an impending storm and at the end of work.
- Scaffolds must only be moved in the direction of the diagonal or in the longitudinal direction.
- When the scaffold is being moved, no persons must be on it.
- Loose parts must be removed before moving the scaffold.

The following requirements must be met when using a **mobile elevating work platform (MEWP)**:

- An operating instruction for the MEWP must be available and employees working on a MEWP must be instructed before the first use, and afterwards at least once a year. Workers of the contractor using the MEWP must be authorized in writing to operate the system.
- A factory plate stating information about the weight of the operating equipment, load bearing capacity of the cage/platform including the maximum number of persons and weight of work equipment (nominal load), maximum permitted wind speed before work must be stopped, maximum permissible manual force, maximum permissible inclination of the chassis must be attached to the platform. The instructions on the plate must be observed.
- Mobile elevating work platforms must be inspected on a regularly basis, at least every 12 months. The responsibility for this remains with the owner of the platform.
- Visual checking before accessing the platform is mandatory.
- Defect or non-inspected MEWP's must not be used and work must be stopped immediately. Work may only be continued after the defect has been rectified and the platform has been inspected and authorized by a qualified person.
- Depending on the condition of the ground, suitable support plates must be used and an appropriate load distribution must be carried out.
- PPEaF shall be used in accordance with the platform requirements. The choice of means of connection must be such that they are adjustable in length up to max. 1.80 m and have an energy-absorbing element (shock absorber) integrated, e.g. length-adjustable means of connection with shock absorber, a guided fall arrester including movable guide or fall arrester (tested for edge stress with 180° deflection). An emergency and rescue concept must be established (including instruction of personnel) before the use.
- The platform shall only be accessed in the descended position through the designated entrance (no climbing and/or entering and stepping out from higher levels).
- Driving over material on the ground or driving into cavities in the traffic route as well as generating swinging movements must be avoided.
- Transport of large-scale materials or material with heavy surface pressure (high weight with small size) shall be avoided.
- Distribution of loads in the platform is mandatory and overloading the MEWP is not permitted.
- Loads must not be placed outside the platform.
- Excessive installation forces or the use of tools that considerably extend the leverage arm when working shall not be applied.
- The permissible manual force specified by the manufacturer shall not be exceeded by pushing or pulling of several people in the same direction,

- The information of the working diagram shall be monitored and used as a source of information for operating the MEWP.
- The authorization to move the working platform during work is only permitted according to the manufacturer's instructions. The operator must be able to observe the route sufficiently and, if necessary, must be instructed. The movement must be carried out at low speed.
- MEWP must not be used as an assembly tool, e.g. for pushing in construction components
- MEWP must not be used as a crane (special loads which the manufacturer must expressly permit in the operating manual).
- Before the start of work, the framework conditions, such as electrical lines, clearance heights, condition of the surface, must be checked and appropriate protective measures derived.
- For use on live electrical systems or installations, the mobile elevating work platform must be insulated (reference on factory plate and in operating manual required).
- In the event of contact with grounded parts, an antistatic strap must be used to discharge electrostatic charges from the working platform.

Working platforms on forklifts must not be used as a device for lifting persons.

Baskets hanging on crane hooks must not be used as a device for lifting persons.

Organizational measures

Workplaces and traffic routes that are more than 2.0 m from the edge of the fall are outside the danger zone of the fall. The dangerous area must be protected against unauthorized access by suitable measures, e.g. chains or ropes, and clearly visible marking (prohibition sign "no access for unauthorized persons"). In the case of traffic routes, a protective measure is also sufficient if the demarcation is clearly visible.

Personal protective equipment against fall from height (PPEaF)

PPEaF protects the user from fall either by preventing a fall (Restraint System) or catching a free fall (Fall Arrest System).

Selection of PPEaF

The PPEaF to be used must comply with local health and safety regulations.

Only PPEaF with the CE marking may be selected. The CE marking consists of the abbreviation "CE" (= conformité européenne) and a four-digit identification number (supervisory body).

Where increased exposure to dirt or UV radiation is to be expected, core-sheathed ropes are to be preferred as lanyards.

PPEaF instruction

Before using PPEaF for the first time and as required, but at least once a year, persons forseen to use PPEaF must be instructed in the use of PPEaF.

Use of PPEaF

The PPEaF must be used in accordance with the manufacturer's instructions for use.

The PPEaF may only be used to secure persons, but not for other purposes, e.g. as a sling for loads. If the PPEaF is used in conjunction with other PPE equipment, there must be no mutual impairment of the respective protection. During use, care must be taken to ensure that lanyards, movable guides and retractable lanyards of fall arrester blocks are not passed over sharp edges. These must also not be fastened, shortened or extended by knots and must be kept taut in order to avoid slack ropes and to reduce the fall distance. Lanyards for workplace positioning must be kept taut to prevent falls. This can be achieved by using lanyards with length adjusters. In restraint systems, only lanyards with a maximum length that does not reach the nearest falling edge may be used.

Attachment is only permitted to sufficiently load-bearing anchor points (standard value: 7.5kN=750kg).

Cranes are generally not designed for securing people against falling. Under special conditions and strict adherence to the following safety measures, this can nevertheless be taken into consideration in justified individual cases if the crane is intended for this purpose by the manufacturer:

- The load capacity on the crane hook must be at least 7.5 kN ≈ 750 kg in every possible position according to the load diagram (take crane pulley into consideration).
- Load transport and personal safety must not be carried out at the same time. Riding on the load is always forbidden.
- The crane must always be secured against movements, including unintentional ones, while persons are being secured.
- A written risk assessment and work instructions must be available, including the determination of the anchor points and the rescue concept for the specific application.
- The person secured to the crane must not be transported to and from the workplace except in case of rescue. Operation of the crane by the person secured to it is prohibited.
- Personnel safety on the crane is only permitted if redundant attachment to the load-bearing equipment is possible using two separate lanyards.
- The person may only be secured with a fall arrest block in accordance with EN 360 in conjunction with a safety harness in accordance with EN 361. The lanyards must be suitable for the expected edge stress (see instructions for use or equipment labeling).
- At least 1 m of lanyard of the max. possible extension length of the fall arrester, should remain in the box.
- The crane must be positioned so that the fall arrest block is at least 5 m above the person to be secured and as perpendicular as possible.
- When attaching to the crane hook, the crane hook must be equipped with a hook safety device.
- The crane operator and the person to be secured must be suitable, competent, trained/familiarized and instructed.
- Contractor's supervisor, the crane operator and the number of rescuers required according to the rescue concept must be present at the site of operation.
- The supervisor shall supervise the safe execution of the work. He must not be involved in the work.
- Effective communication must be ensured between the crane operator and the secured person.

Modification of the PPEaF (e.g. combination of components from different manufacturers) is not permitted.

PPEaF should be cleaned and maintained as required. The manufacturer's instructions must be observed.

Inspection of PPEaF

Before each use, the PPEaF must be visually inspected by the user to ensure that it is in proper condition and functioning correctly.

In addition, the PPEaF must be inspected by an expert to ensure that it is in proper condition in accordance with the conditions of use and operating conditions as required, but at least every 12 months.

Damaged PPEaF or PPEaF which has been stressed by a fall must be withdrawn from use until it has been inspected and approved for further use by an expert.

If parts are defective, they must only be replaced by spare parts which correspond to the original part and are approved by the manufacturer.

6.7 Machine safety

The use of damaged or defective machines, devices and tools is prohibited. Machines are to be used in accordance with their intended purpose. Machines that do not have the generally mounted securing devices or with defect or only partial securing devices may not be used. Machine securings (light barriers, fences, ...) must be checked for their function prior to working in that area. LoTo must be applied when working with/around machines. Demounted securings must be placed after work finished. Machines must not be manipulated.

6.8 Handling of hazardous materials

Prior to the use of classified and labelled hazardous substances by workers of the contractor, the contractor shall inform the coordinator/works manager of CA on site in good time of their use by submitting the relevant current safety data sheets and agreeing the necessary measures.

Prior to commencing work in work areas exposed to hazardous substances, the coordinator/works manager on site shall inform the contractor whether hazards due to hazardous substances are to be expected when carrying out his work. If necessary, necessary protective measures shall be determined together with the coordinator/works manager.

Any application and use of carcinogenic, mutagenic or reprotoxic substances is strictly prohibited. Should it be necessary to use these substances, this must be expressly agreed with the CA and justified before work begins. Only in justified exceptional cases and in compliance with all relevant safety regulations and protective measures is the use of these substances permitted.

Handling and storage of the hazardous material must be carried out in accordance with the safety data sheet.

The contractor's employees must be instructed in the handling of these hazardous substances.

Containers or packaging with hazardous substances must be suitable, intact and labelled according to GHS.

In the event of irregularities in the handling of hazardous substances or emergencies, the contact person of the CA or his representative must be informed immediately.

The contractor has to ensure that waste of hazardous materials (inkl. container) are being disposed according to applicable local law and MSDS.

7 General behavior in case of an emergency

Before starting work, it is the responsibility of the contractor's employees to familiarize themselves with their working environment and, in case of an emergency, to clarify the following questions (see also on-site emergency plans):

- Where are escape doors and escape routes?
- Where is the assembly point?
- Where are first aid facilities (e.g. first aid kit)?
- Where is fire extinguishing equipment (e.g. fire extinguisher)?
- Where can I set off an alarm (telephone, company contact person)?

In addition, the local instructions and regulations of the respective plant/location must be viewed and followed. The supervisor of the contractor is being instructed by CA.

Check if additional measures are required due to hazardous works (welding, hazardous substances like alu powder ...)

7.1 Conduct in the event of an accident/medical emergency

Make an emergency call and then inform the CA's contact person or his representative, as well as persons in the vicinity. If necessary, secure the area and provide first aid.

7.2 Reporting of accidents and dangerous situations

Should accidents or dangerous situations occur during the execution of work on CA's plants/sites in which employees of the contractor are involved or are affected, the supervisor of the contractor is obliged to report these to the CA's contact person or his representative. This applies in particular to:

- Incidents of all kinds (unsafe situations, near-misses, first aid cases, medical treatment, accidents with lost time and worse outcome)
- Fires of any kind
- Damage to our operating equipment
- Dangerous situations, which are to be assigned to the cardinal rules
- Malfunctions

7.3 In case of fire

Make an emergency call and then inform the CA's contact person or his representative, as well as persons in the vicinity.

- Follow escape and rescue routes.
- Warn/carry off endangered/needyy persons.
- Close windows and doors.
- Do not use elevators.
- Assemble at muster area.
- Wait for further instructions