

Basic Rules of Operation and Work on Electrical Equipment according to ČSN EN 50110-1 3rd edition

An electrical risk assessment must be conducted before any work is undertaken on or near electrical equipment, including electrical equipment operating at voltage levels from low voltage up to and including high voltage. It must determine how these work activities will be performed and what safety measures must be implemented to ensure safety.

Persons

Responsibility for the safety of persons involved in work activities and those who are or may be affected by those activities must be in accordance with national legislation.

All persons working on, with or near electrical equipment must be instructed on safety requirements, safety regulations and local operating and working rules applicable to their work. If the work is long-term or complex, the instructions must be repeated. The persons concerned are obliged to comply with these regulations and instructions.

They must wear clothing appropriate to the place and conditions of their work. This includes the use of close-fitting clothing and the use of PPE (personal protective equipment).

Before and during work activities, the supervisor must ensure that all relevant safety requirements and regulations are followed.

The supervisor must instruct all persons engaged in the work activity on all reasonably foreseeable hazards not immediately apparent to them.

Work activities where technical knowledge or experience is required to prevent electrical hazards or injury must not be performed by anyone other than those persons who have such knowledge and experience, or must be performed under such supervision as is necessary to perform the work.

National legislation may set minimum age and qualification criteria.

Where national legislation does not specify qualification requirements, the following criteria for assessing competence must be met:

- electrical engineering education;
- knowledge of the equipment to be worked on and practical experience of such work;
- knowledge of accidental hazards that may occur during the course of work;
- experience in working on electrical equipment;
- the ability to assess at all times whether it is safe to continue the work.

Before starting a work activity, an analysis of its complexity must be conducted in order to select a suitable person, knowledgeable, instructed or familiar with the activity.

Organisation

For each piece of the electrical equipment, a person responsible for the electrical equipment must be designated. In the absence of national regulations, the following requirements shall apply:

The person responsible for the electrical equipment may be an individual from one's own organisation or from a third-party organisation. In the case of a person from another organisation, this delegation shall be suitably documented in writing, including the scope of the equipment for which the person is

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responsible and the time limits.

The person responsible for the electrical equipment may delegate some of their duties to other persons. This shall be documented in writing.

The person in charge of checking the electrical equipment during work activities must give permission to the supervisor to start the work activity. They may also delegate responsibility to other persons as necessary.

The person in charge of the electrical equipment, the person responsible for checking the electrical equipment during work activities and the work supervisor may be one and the same person.

Where two or more pieces of equipment are co-located, it is essential that measures to ensure cooperation and consultation between those responsible for each piece of equipment are demonstrably in place in order to ensure safety.

Access to all areas where there is an electrical hazard must be restricted to persons familiar with the area. The person responsible for the electrical equipment shall be responsible for the method of access restriction. These measures must comply with national legislation.

The work supervisor shall be responsible for each activity performed. If this activity is divided, additional work supervisors may be designated to be responsible for the safety of individual work groups, under the direction of a single coordinator.

Before making changes to the layout of electrical equipment or before starting work, the supervisor and the person responsible for checking electrical equipment during the work activity must check the layout of the electrical equipment to ensure that the specified work can be performed on, with or near the electrical equipment.

In the case of complex work activities, the preparation must be done in writing.

For simple equipment or parts of equipment, any experienced person may specify the procedure to be followed for the work to be performed under clearly understood and simple conditions, that is:

- where simple work is to be performed;
- or during maintenance which is performed in accordance with approved procedures.

Arrangements shall be made at the workplace to ensure that any worker who objects to conduct any instruction or work activity contrary to the safety regulations is given the opportunity to report this fact immediately to the supervisor. The work supervisor shall investigate the discrepancy and, if necessary, refer it to the manager for a decision.

Communication (provision of instructions)

Communication includes all the ways in which information is provided or exchanged between persons, i.e. orally (e.g. by telephone, personal radio, face-to-face contact), in writing (by e-mail) and visually (e.g. by display unit, signal panel, lights, etc.).

Before starting any work activity, the person in charge of checking the electrical equipment during the work activity must be informed of the work to be performed.

All necessary information, such as the layout of the network, the status of the switching devices (on, off, earthed) and the arrangement of protective equipment to ensure safe working on the electrical equipment, must be communicated at the handover.

If other means, such as radio signals, computers, lights, etc., must be used for the transmission of information, they may be used only if appropriate precautions are taken and if they are placed so that the transmission of information is reliable and no misunderstanding or false signals can be given.

All messages shall include the name and surname and, if necessary, the location of the person providing the information.

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To avoid confusion in the oral transmission of information, the receiver shall repeat the information back to the sender, who shall confirm that it has been correctly received and understood.

The commencement of work and the commissioning of electrical equipment after completion of work shall not be permitted by signals or by agreed communication after agreed time intervals.

If there are persons at the workplace speaking different languages, the language understood by the persons concerned must be determined in advance.

Workplace

The workplace must be clearly identified and marked. Adequate working space, means of access and lighting must be provided for all parts of the electrical equipment on which, with which or near which work is performed. Where necessary, safe access to the workplace must be clearly marked.

Appropriate precautions must be taken to prevent injury to persons as a result of other hazards that may occur at the workplace and during work activities, such as injuries from mechanical or pressure systems or falls.

Objects preventing access and/or combustible materials present at workplaces must not be placed at entrances, on access routes, near electrical switching devices and controls, in the equipment operating area. Flammable materials stored next to or near electrical equipment must be secured so that they cannot ignite.

Tools, equipment and devices

Tools, equipment and devices shall comply with the requirements of the relevant European, national or international standards, if any. Examples of tools, equipment and devices are:

- insulating boots, overshoes and gloves;
- eye or face protection;
- head protection;
- suitable protective clothing;
- insulating carpets, platforms and ladders;
- insulating portable and fixed barriers;
- insulated and insulating tools;
- operating bars and rods;
- locks, tables, signs;
- voltage testers and voltage detection systems;
- cable tracing devices;
- earthing and short-circuit kits;
- partitions, flags, warning signs, etc.

Tools, equipment and devices must be used in accordance with the instructions and/or directions provided by the manufacturer or supplier. These instructions and/or directions must be in the language or languages of the country in which they are used.

All tools, equipment and devices used for the safe operation or work on or near electrical equipment must be suitable for such use, maintained in a condition suitable for such use and used properly. 'Maintaining in a condition suitable for use' means conducting the prescribed periodic inspections and tests and, after repair and/or modification, conducting electrical tests to verify the electrical and mechanical properties of tools, equipment and devices.

All special tools, equipment and devices used when working on or near electrical equipment must be properly stored.

Documentation and records

Up-to-date documentation and condition records must be available for each piece of electrical equipment.

Signage

If necessary, warning of possible risks must be given during any work or operation. The method of signage must comply with the relevant European, international or national standards, if any.

Emergency measures

The person responsible for electrical equipment must draw up and implement emergency measures to ensure safety in the event of an emergency or electric shock.

- Establish a procedure for notifying and reporting all accidents and/or malfunctions on electrical equipment to the person responsible for checking the electrical equipment during work activities and to the supervisor. If necessary, the person responsible for the electrical equipment shall be included in the procedure;
- Provide up-to-date diagrams of electrical equipment;
- Report all serious incidents involving work on electrical equipment. Reports shall be made during working and non-working hours;
- In case of serious incidents, third party workers shall also be allowed to report systemic measures to their own company;
- Ensure that the person in charge of the electrical equipment, depending on the scale of the equipment, works closely with the Integrated Rescue System (IRS);
- If the person in charge of the electrical equipment uses a control room (including communication) to perform the activity, then appropriate emergency measures may be made between the person in charge of checking the electrical equipment during the work activity and the work supervisor and the control room;
- Immediately report the fatality to the emergency services and the person responsible for the electrical equipment. The site of the accident is to be left undisturbed unless it poses an additional hazard to the employees, contractors or third parties;
- Emergency measures may include the operation of emergency squads to contact third party persons who are at the scene of the accident and to secure the relevant area from electrical hazards, ensuring that persons do not enter the hazardous area during the rescue and/or to make arrangements for their safety;
- After an accident, the person in charge of checking the electrical equipment during the work activity must take appropriate measures to ensure safety and maintain, as far as possible, undisturbed conditions at the workplace. This is to ensure good conditions for the investigation of the accident by internal authorities or, in exceptional cases, by public authorities such as the police or the security office;
- To provide first aid and fire-fighting equipment;
- To provide appropriate personal protective equipment.

Sufficient persons required to work on, with or near electrical equipment must be provided with training and information so that they are able to provide correct first aid for electric shock and/or burns. It is recommended that first aid instructions be available at the workplace on posters or diagrams or given to persons as part of the safety measures to ensure safety at work.