

# Occupational safety, health protection, and environmental safety

Working alone

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#### **Basic premise**

According to article 8 paragraph 1 of the Swiss Ordinance on the Prevention of Accidents and Occupational Diseases (APO), employers may only assign work associated with particular risks to employees if they have been given appropriate training. In addition, employers must ensure employees performing hazardous work alone are monitored.

Someone is deemed to be working alone if there is no possibility of offering them immediate assistance in the event of an accident or critical situation – as may be the case, for example, when working out of sight or shouting distance of others.

#### 1. Permissibility of places where work is performed alone

As a basic principle, work may not be performed alone if the work concerned may lead to injury requiring immediate assistance from a second person. This applies in particular to any work which requires ongoing monitoring by a second person (regardless of the time of day) (see the ASA Directive FCOS 6508: Involvement of Occupational Doctors and Other Occupational Safety Specialists).

- Work on live electrical installations
- Work with sources of radiation outside of irradiation rooms
- Work in shafts, pits, and channels and when climbing inside silos
- Work inside containers and confined spaces
- Dismantling or demolition work
- Work at accessible thermal installations
- Work when suspended from ropes
- Work involving rope protection (fall-arrest systems)
- Work on pipes
- Forestry work associated with specific risks
- Work on electricity masts
- Work on railway tracks
- Work under pressurised conditions and with respiratory protection



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#### Work which may only be performed within sight and shouting distance of others:

- Forestry work associated with specific risks, e.g. work involving a chainsaw
- Work on steep terrain, transporting logs, climbing trees
- Work on technical systems in special operating modes, such as during set-up, troubleshooting, or maintenance work
- Work involving some risk of being struck by rotating parts or tools
- Work in hazardous areas which are usually inaccessible and therefore not secured

#### 2. Requirements of persons working alone

#### 2.1 General condition of the employee concerned

- People must be mentally suited to working alone (psychosocial factors, anxiety).
- They must be physically suited to working alone (health, medication).
- They must be intelligent enough (awareness of risks!) to be working alone.

#### 2.2 Instruction

## Before someone is allowed to work alone, they need to have received suitable instruction in the task concerned.

- People working alone must be given thorough instructions regarding the specifics of their assignment and how to operate any machinery.
- They must be familiar with the risks at the place where they will be working and any safety measures required (the correct way to behave, wearing of personal protective equipment).
- People working alone must know exactly what they need to do in unusual and emergency situations such as faults involving machinery, any escape of fluids or gases, or fire (e.g. calling for help, escape routes).
- They need to be given instructions regarding options for making contact with a location that is certain to be staffed and the correct use of any personal device for reporting emergencies (e.g. telephone, radio, wired or radio alarm). Before any work begins, these devices for making contact must be checked each time to see if they are working.
- Users themselves are responsible for regular maintenance of emergency call devices (e.g. radio systems, dead man's switch).
- Checks must be performed periodically (at least once a year) to see whether the people concerned have the requisite knowledge and ability to work alone. Instruction must be repeated if necessary.



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#### 3. Identifying hazardous situations

At institutes where work is performed in a laboratory environment, various places may involve some exposure to risk. And since it cannot always be assumed there will be someone else within sight or shouting distance outside of normal working hours, the requirements for places where work is performed alone must be complied with accordingly. This means, in principle, that no work with significant potential for danger and which may only be performed within sight and shouting distance of others may be performed without another person being present or access to some suitable means of raising the alarm. Routine work where the precise process involved is known or work processes involving hazardous materials or devices where personal injury is prevented by means of appropriate technical or design measures may also be performed alone. It is important therefore to set down written guidelines across the board or even in relation to specific workplaces.

#### Requirements of individual workplaces and persons working alone

For all those working alone, there must be some means close to their workplace of requesting assistance in an emergency at any time via, say, telephone, mobile telephone, radio, wired or radio alarm, or any kind of monitoring system that may be in use. It is a case of ensuring there is always someone to hear any call for assistance at a constantly staffed location (e.g. porter's lodge, a general control centre, a control centre for personnel 'on call') or some kind of surveillance facility. An analysis would help determine the measures required for any given individual workplace.

A team of line managers, employees, and people responsible for safety uses an assessment matrix to determine whether work may be performed alone and what measures need to be considered (see the checklist for activities associated with increased danger; this is enclosed as an appendix on page 8).

The idea is to use the assessment matrix to highlight the specific hazardous situation associated with the relevant work to be performed alone. The necessary protective measures may be determined from the probability of an accident and the extent of any damage. Procedure:

- 1. Describe the activity: What work needs to be performed?
- 2. Find out what is required from a technical perspective and ensure this is implemented correctly.
- 3. Realistically, what dangers are to be expected? It is a case of defining the biggest potential danger.
- 4. Define the extent of any damage which might typically be expected with the dangers (columns V to I).
- 5. Estimate the probability of this damage occurring (rows A to E).
- 6. The point of intersection defines the type of monitoring required. Page 4 of 8



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#### Beurteilungsmatrix

Wahrscheinlichkeit	<b>A</b> häufig	4	3a	2	1	1		
	B gelegentlich	4	3a	2	2	1		
	C selten	4	3a	3b	2	2		
	D unwahrscheinlich	4	3a	3b	3b	3b		
	E praktisch unmöglich	4	4	4	4	3b		
		<b>V</b> gering	IV klein	III mittel	II gross	l sehr gross		
Schadenausmass								

#### **Probability**

A frequent greater than once a month

B occasional between once a year and once a month
C rare between once every 5 years and once a year

C unlikely between once every 20 years and once every 5 years
E practically impossible between once every 100 years and once every 20 years

#### **Extent of damage**

V slight mild injury with no absence from work

IV low injury with absence from work but no lasting damage to health medium moderately severe injury with some lasting damage to health

II high severe injury with some lasting damage to health very high injuries would be fatal without immediate first aid



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#### Protective measures

The relevant protective measure – based on the potential risk (as per the assessment matrix) – is delivered through one of the following measures:

Fields marked '1' in the assessment matrix Working alone is forbidden. The work in question must not be performed alone.

A rescue concept needs to be devised for critical work in consultation with occupational safety specialists (occupational doctors and other occupational safety specialists). Any rescue equipment required must be in place before work starts at the location in question.

Fields marked '2' in the assessment matrix
Continuous, automatic monitoring

At any given time, it is vital that any critical situation is 'spotted' – either by a second person monitoring the employee or some kind of automatic monitoring system.

A monitoring system (personal device for reporting emergencies) automatically reports any critical situation to a permanently staffed location such as the porter's lodge, a general control centre, a control centre for personnel 'on call', or some kind of surveillance facility commissioned for this purpose. It is a case of ensuring the necessary assistance is available immediately.

Fields marked '3' in the assessment matrix
Periodic monitoring
(3a max. 8 hours, 3b max. 4 hours)

## Monitoring is performed periodically by one person:

- · Patrols, telephone calls, radio calls
- · Checks via surveillance camera
- Person working alone expected to get in touch at, say, midday and in the evening
- Continuous assessment of time-recording or access-control systems

### Monitoring is arranged via a monitoring system:

This periodically checks up on the person working alone and automatically triggers an alarm in an emergency.

Fields marked '4' in the assessment matrix Working alone is permitted.

The person working alone does not need to be monitored, since it can be assumed they will still be sufficiently mobile and capable of action in the event of injury or in a critical situation to call for immediate assistance themselves in accordance with the emergency concept in place.



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#### 4. Options for raising the alarm

Options for reviewing the situation at places where work is performed alone are listed below. Those responsible for safety (safety officers) consult with the Risk Management Office when assessing and selecting the relevant protective measure.

Measure: device for getting in touch	Suitable for danger level		
	Fields marked '4'	Fields marked '3'	Fields marked '2'
Patrols by a second person		Х	
Check-up calls by a second person via telephone (landline, mobile, radio)		Х	
Person working alone expected to get in touch at, say, midday and in the evening with the second person		Х	
Video equipment in constant use providing constant			X *)
Personal device for reporting emergencies (e.g. emergency pager) with dead-man function activated			X *)

<sup>\*)</sup> Continuous, automatic monitoring is mandatory

#### 5. Additional information

Ordinance on the Prevention of Accidents, APO: http://www.admin.ch/ch/d/sr/c832\_30.html

Checklist for people working alone - identification of risks and planning of measures SUVA 67023.d

SUVA method for assessing risks associated with workplaces and work processes: SUVA order no. 66099.d

Working alone can be dangerous. Guide for employees and safety officers (SUVA 44094.D)

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**Appendix** 

The following checklist serves as a decision-making tool. It should make it possible to judge, regardless of the activity involved, whether people working alone need to use a personal device for reporting emergencies or whether working alone should basically be prohibited.

Activities associated with increased danger: personal device for reporting emergencies is mandatory

People may work alone on the following activities if they are within sight and shouting distance of others. A risk analysis (see the assessment matrix) can help determine whether the use of a personal device for reporting emergencies can be factored in – taking into account all the necessary safety precautions. The personal device for reporting emergencies – with its safety feature (dead-man function) activated – must be worn at all times.

- Possibility of cuts to the upper arm, thigh, or neck? e.g. slaughter of animals
- Possibility of blows to the head with subsequent concussion or brain injury? e.g. work involving large animals such as horses, cattle
- Risk of suffocation due to pressure applied to chest? e.g. spilling, tilting of loads, work involving large animals
- Forestry work involving specific risks? e.g. working with chainsaws (using the prescribed personal protective equipment), work on steep terrain, transporting logs, climbing trees
- Work on technical systems in special operating modes? e.g. set-up, troubleshooting, maintenance work
   (such as maintenance work on buildings, patrols, maintenance work on HVAC systems)
- Work involving some risk of being struck by rotating parts or tools? e.g. work in mechanical, carpentry, metalwork, or glass-blowing workshops
- Work in hazardous areas which are usually inaccessible and therefore not secured? e.g. construction sites, fieldwork, roofs
- Climbing more than 3 m above the ground? e.g. gardening, fieldwork, work involving ladders or on roofs
- Decanting of asphyxiating gases? e.g. decanting of inert gases such as liquid nitrogen or helium where no technical, organisational, or personal measures are in place
- Work where injuries which might lead to a critical or life-threatening situation are probable? Risk analysis with the involvement of the Risk Management Office.