

IKON - INSTALLATION SAFETY AND RAMS

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Agenda

- Introduction
- RAMS – Risk assessment and method statement
- Roles and responsibilities
- Safety training

Normal Operation				Construction, Maintenance, Decommissioning							
Consequence Severity	Level_of_Risk:		Hazard treatment type	Hazard treatment	Likelihood	Consequence Severity	Level_of_Risk:		Hazard treatment type	Hazard treatment	Treatment Responsible
requiring treatment	1X2	Acceptable	Mitigate	Avoid use of flammable shielding material	1 - Most unlikely to occur during construction	1 - Minor injuries or discomfort	1X1	Acceptable	Mitigate	Avoid use of flammable shielding material	ISS-0004732
equivalence	-	-	Non Applicable		Select Frequency	Select Consequence	-	-	Eliminate	Design of optical assemblies shall include endstops and rigging locks	
equivalence	-	-			1 - Most unlikely to occur during construction	1 - Minor injuries or discomfort	1X1	Acceptable	Mitigate	Vacuum windows shall be protected during maintenance Vacuum should be vented for longer procedures	GOIN
requiring treatment	1X2	Acceptable	Mitigate	Window shall be protected against accidental puncture	1 - Most unlikely to occur during construction	2 - Injuries requiring professional treatment	1X2	Acceptable	Eliminate	Vacuum windows shall be protected and vacuum be vented during maintenance	GOIN
equivalence	-	-	Non Applicable		1 - Most unlikely to occur during construction	2 - Injuries requiring professional treatment	1X2	Acceptable	Eliminate	Burst disks shall be installed in all vacuum circuits	ISS-Vacuum
equivalence	-	-	Non Applicable		Select Frequency	Select Consequence	-	-	Observe		
equivalence	-	-	Eliminate	Chopper and guide design redesigned to prevent injuries	Select Frequency	Select Consequence	-	-	Non Applicable	Windows protections shall be installed in case of operations outside the chopper pit	
equivalence	-	-	Non Applicable		1 - Most unlikely to occur during construction	1 - Minor injuries or discomfort	1X1	Acceptable	Eliminate	Actuator shall be disconnected from control system during maintenance, LOTO procedures	
injuries or	2X1	Acceptable	Mitigate	Additional shield surrounding window coaxially OR eliminate: use He w. slight overpressure	Select Frequency	Select Consequence	-	-	Non Applicable	Vacuum windows shall be protected during maintenance	
requiring treatment	2X2	Acceptable	Mitigate	s. above	Select Frequency	Select Consequence	-	-	Non Applicable	Vacuum windows shall be protected during maintenance.	
requiring treatment	1X2	Acceptable	Mitigate	Use proper pressure manifolds, valves and burst disks	Select Frequency	Select Consequence	-	-	Non Applicable	Burst disks shall be installed in all vacuum circuits	
equivalence	-	-	Non Applicable		1 - Most unlikely to occur during construction	3 - injuries leading to more than three days of absence	1X3	Acceptable	Eliminate	Actuator shall be disconnected from control system during maintenance, LOTO	GOIN
equivalence	-	-	Non Applicable		1 - Most unlikely to occur during construction	5 - Fatal outcome	1X5	Tolerable	Eliminate	system shall be designed for safe suspended transportation	ISS-Safety (Dnring)
equivalence	-	-	Non Applicable		1 - Most unlikely to occur during construction	2 - Injuries requiring professional treatment	1X2	Acceptable	Eliminate	System shall be designed for safe maintenance operation	Shutter Designer
equivalence	-	-	Non Applicable		1 - Most unlikely to occur during construction	3 - injuries leading to more than three days of absence	1X3	Acceptable	Eliminate	safe temporary protections shall be available for the chopper pit	GOIN/ISS-Safety
not injuries	1X4	Tolerable	Eliminate	Protections shall be installed on walkable high surfaces	2 - Unlikely to occur during construction	5 - Fatal outcome	2X5	Unacceptable	Eliminate	Personnel protection system have to be in place	ISS-Safety
										Maintenance on robots shall not	

- 00 List of Documents
- 01 Scope of work
- 02 Organisation
- 03 Time Schedule
- 04 RAMS Risk Assessment Method Statement**
- 05 Temporary services
- 06 Drawings
- 07 Installation Procedures
- 08 Work Permits
- 09 Daily Diary
- 10 NCR Non Conformity Report
- 11 QC - Installation & Test Documentation
- 12 List of Components & Material
- 13 Reference Documents
- 14 TRR Test Readiness Review

04. Risk Assessment and Method Statement (**RAMS**)

- Installation sequence
- Equipment & resources
- Training & permits
- Etc.

Template available (more details in the specific section)

What is a RAMS?

What does RAMS stand for?

- Risk Assessment and Method Statement

What does a RAMS consist of?

The RAMS consists of two parts:

- A method statement, i.e. a detailed break down/description of the work to be carried out and material to be used to perform this task
- A risk assessment, i.e. identify the risks associated to the work steps detailed in the method statement.

What's the purpose with a RAMS?

- Systematically identify hazards and associated risks for an activity and determine if sufficient controls are in place (to reduce the risks to an acceptable level). For all workers/staff and fellow colleagues to take ownership and be more aware of their risks associated to their activities.

Who is responsible for preparing the RAMS?

- Supervisor for preparing it. In-Kind/ESS staff wishing to perform task onsite
- Instrument Installation Lead for making sure it's prepared.

Who is a RAMS for?

- Instrument Installation leader
- Area Co-ordinator
- Those working on the installation package
- Everyone in the area



What do I need to complete?

Section 1: Method statement

- Description of task – may already be covered by section 01 (scope of work) of the Installation binder
- Sequence of work and duration – link to section 3 (time schedule) of the binder



RAMS - content

- Temporary services eg scaffold, site logistics
- Who is carrying out the work & appropriate training
- Any specific personal protective equipment
- Work permits required – eg hot works, crane, fork lift etc
- What equipment is being used
- Changes to escape routes, isolation of services during the works

- Chemicals – why being used and form
 - Need to consider if any medical surveillance also required; for certain allergenic chemicals it is required under Swedish law to offer medical surveillance
eg epoxy.

Is there an alternative available?



Section 2 – Risk Assessment

N o.	Activity (A)	Hazard (B)	Who might be harmed and how? (C)	Initial Risk Rating			D Action to Mitigate Risk- Controls (G)	Residual Risk Rating		
				S (D)	L (E)	Risk H,M,L (F)		S (H)	L (I)	Risk H,M, L (J)
1.										
2.										

Example risk assessment for TTC workshop

N o.	Activity	Hazard(s)	Person(s) at risk	Initial Risk			Mitigation/Controls	Residual Risk		
				Rating				Rating		
				S	L	Risk		S	L	Risk
1.	Access into TTC by unauthorized person(s). Unauthorized person(s) unaware of hazards and/or increase risk of hazards such as distractions or unauthorized machine use.	Lack of specific safety awareness, lack of knowledge of TTC safety procedures	Unauthorized person(s), other occupants of the TTC.	5	4	H	Secure boundary and entry points to TTC with key/card access, and physical barrier. Grant access only after person(s) have read the general safety rules and procedures in ESS-0338596 and signed the authorization form. Access controlled by Area Co-ordinator.	3	1	L
3.	Tripping hazard at top of stairs due to last step being shorter in height.	Tripping hazard.	Any person(s) entering the welding cabin roof space.	4	2	M	Install reflective anti-slip strip around top edge of step and lower edge for increased visual awareness. Anti-slip trip will minimize chance of fall.	3	1	L

How do I approve the RAMS

- The RAMS should be part of the Installation binder and submitted in time for the installation readiness review (IRR)
- Review of RAMS should (minimum) involve Project ES&H and Area Coordinator
- There may be comments / queries to resolve so don't assume that work can start as soon as your RAMS has been submitted

What do I do with the RAMS once approved?

Communicate the RAMS with those working in the area.

Usually through daily briefings / tool box talks

Update if things are found to be wrong or things change, communicate this with the Installation Co-ordinator / Area co-ordinator



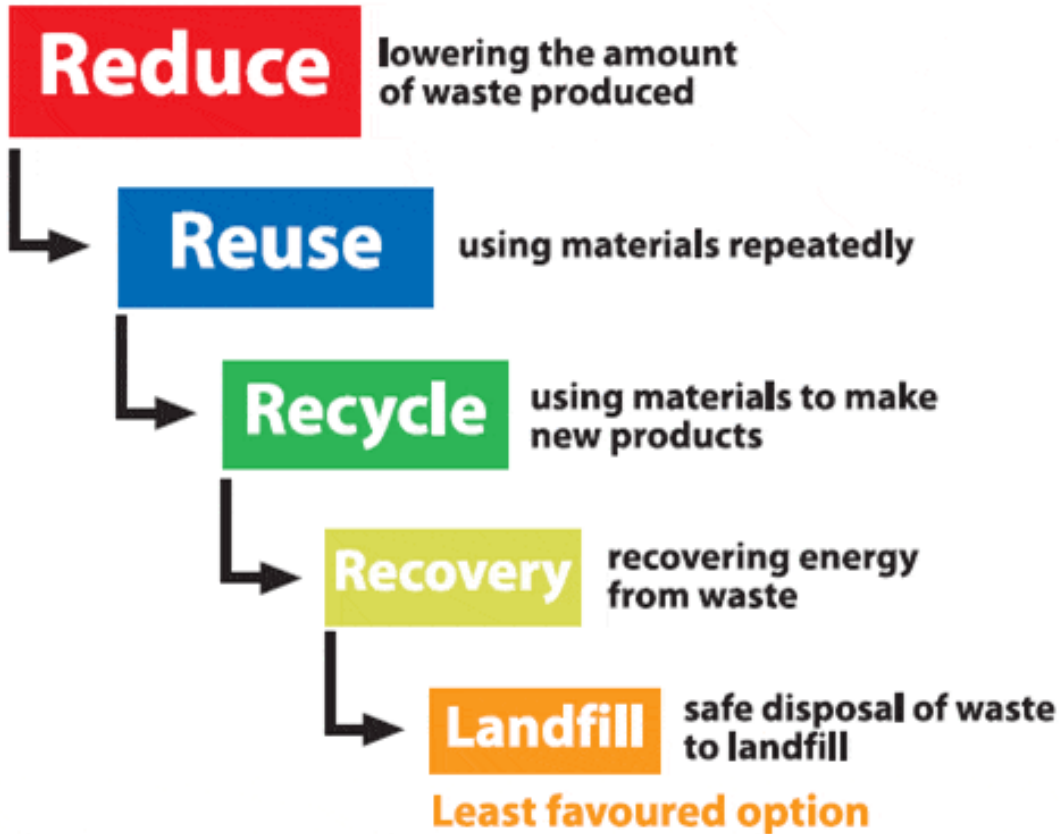
Other issues – waste

- Prevent waste
- All waste shall be sorted
 - No waste to landfill
 - No mixed waste
 - No concrete waste



Waste hierarchy

Most favoured option



An “**Electrical contractor**” is a person who has been authorized by **The Swedish National Electrical Safety Board** to perform electrical installation work within the scope of The Act on Electrical Contractors (SFS [1990:806](#)).

- To get authorization as “**Electrical Contractor**” you need qualification e.g. right education and experience to work with electrical installations in Sweden (High or Low Voltage)
- “**Electrical contractor**” may perform electrical installation work relating to the execution, alteration or repair of electrical installations and installations of electrical devices, where such a voltage, current or frequency that can be dangerous to persons or property.

Electrical safety: Need of Authorization and Authorization types



An authorization is needed to:

- perform fixed connection/disconnection of devices to and from an electrical installation that could be dangerous to people or property.

An authorization is not needed to:

- perform electrical installations for machinery and vehicles such as cars & aircrafts are excluded from the electrical installation regulations.
- perform electrical installations and works within machinery considered as a non-fixed electrical installation.

There are 2 types of authorization

General authorization- High and Low Voltage (AB)

Can perform all types of electrical installation work

General authorization – Low Voltage (ABL)

Can perform all types of electrical installation work on facilities for nominal voltage up to 1 000 Volt AC or 1500 Volt DC.

Electrical safety: In-Kind Contributors



- An Electrical contractor with qualifications from an EES country other than Sweden may temporarily perform electrical installation work.
- Must submit an application to get a temporary authorization.



1 (4)

Company registration

What type of company registration is to be completed?

- New company registration Change previously registered data

The personal data supplied in connection with registration is processed in accordance with the Swedish Personal Data Act (1998:204). More information can be found on the National Electrical Safety Board website, www.elsakerhetsverket.se.

Electrical installation companies carrying out work on third-party systems must be registered with the National Electrical Safety Board. To be able to register, the following requirements must be met:

- **The electrical installation company is active**
A company counts as active if it has a F-tax certificate, is VAT registered or pays employer contributions.
- **There is at least one electrical contractor responsible for compliance at the company**
Electrical contractor's responsible for compliance are to be stated in the company's self-audit scheme. They must also be registered in the National Electrical Safety Board register of companies, for which the electrical contractor must give their permission. This is done by submitting the "Consent of electrical contractor" form that shall also be included in the company registration. The electrical contractor's authorisation must cover the activity types to which the registration refers.

1. Company data

The following company is to be registered in the National Electrical Safety Board's register of companies

Company name		Company registration number	
Address		Postcode	City
Country			
Type of company		Web site	

2. Additional details to be completed by companies outside of Sweden

NB! National ID number is mandatory.

National ID number	Swedish ID number (optional)	VAT number (optional)
Is the company's work in Sweden temporary? ("Temporary" refers to individual projects for a limited period)		
<input type="checkbox"/> Yes, and date for the work (YY/MM/DD):		
<input type="checkbox"/> No		

If yes, the company can be registered as a temporary service provider. The company must have access to an electrical contractor with relevant professional qualifications in an EUM/EEA country as required in section 22 of the Swedish Electrical Safety Act. Otherwise the company's electrical contractor responsible for compliance must be authorised in Sweden.

Provide the addresses where the company will be operating in Sweden

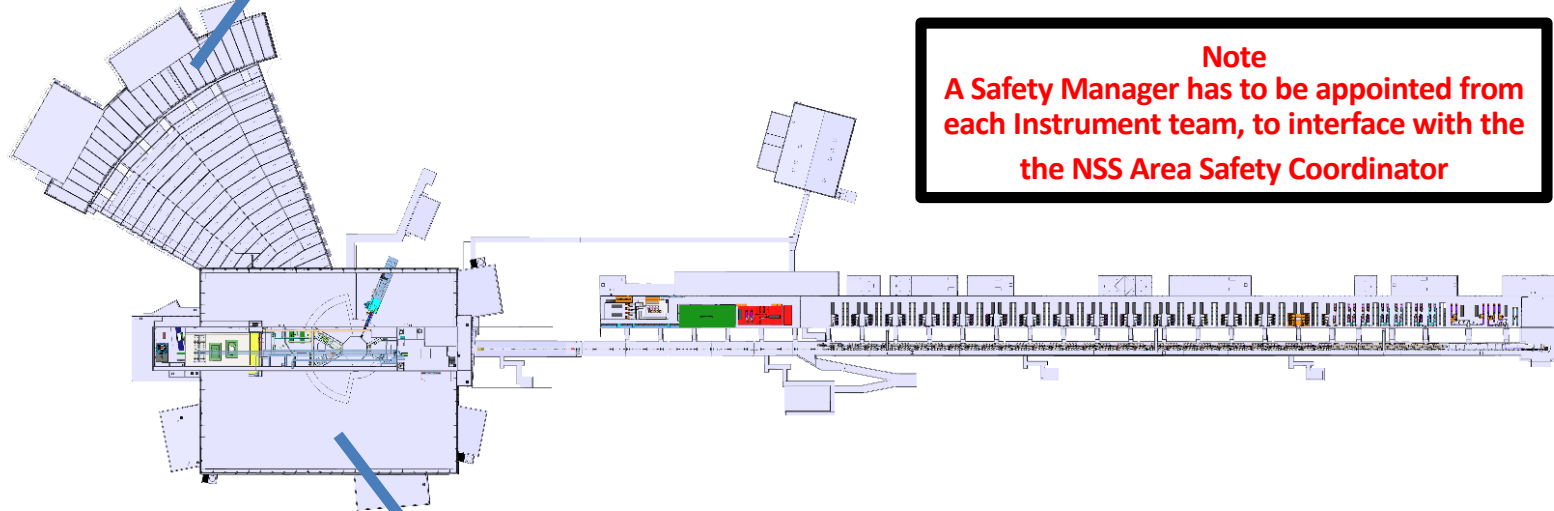
Address	Postcode	City

Installation safety: NSS Area Safety Coordinator

Site Responsible BAS-U (construction safety)

Up to the end of
SKANSKA
construction works

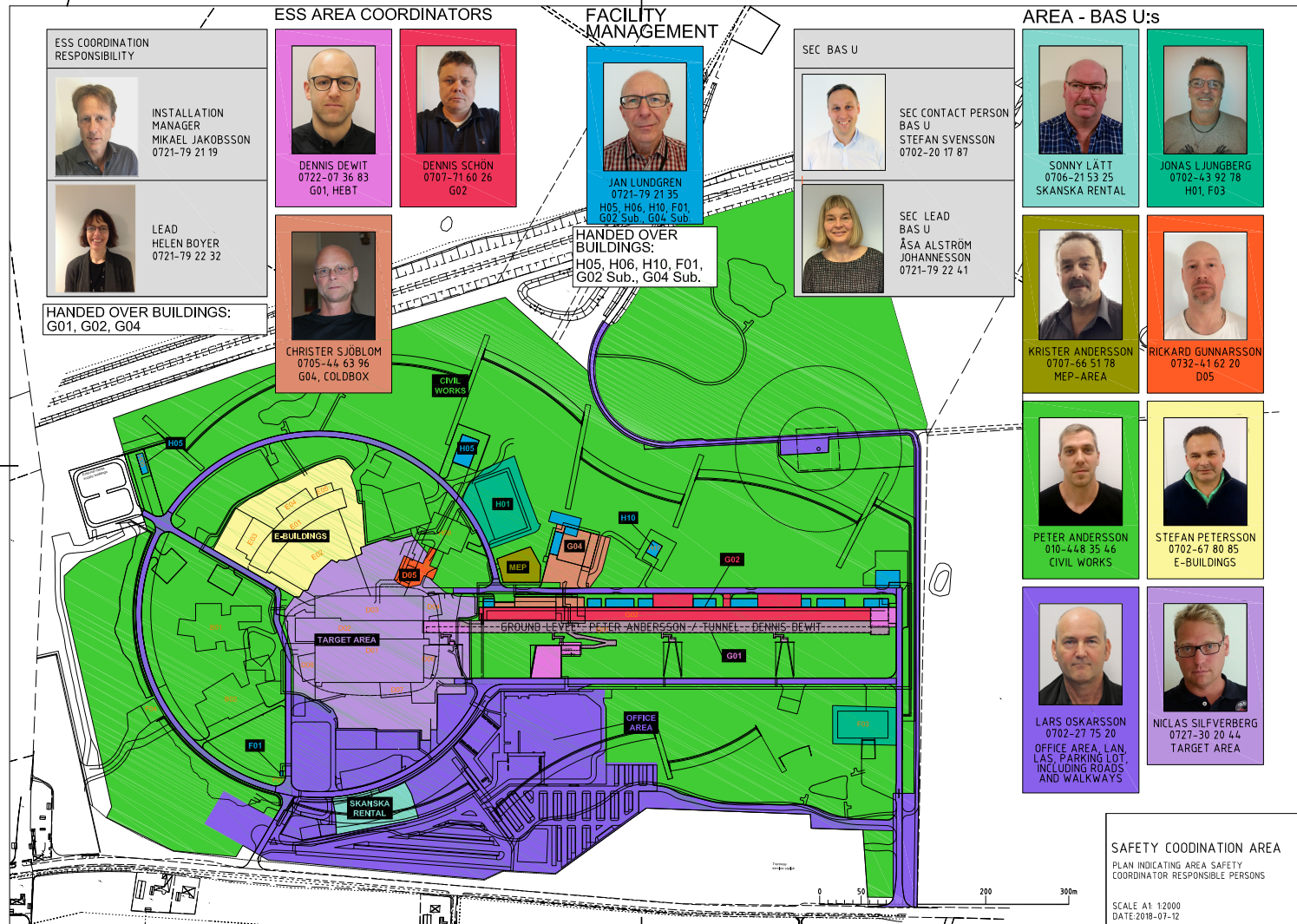
NSS Area safety coordinator (E buildings)



Note
A Safety Manager has to be appointed from
each Instrument team, to interface with the
the NSS Area Safety Coordinator

NSS Area safety coordinator (D buildings)

Safety Co-ordination areas



Roles and responsibilities

- **Instrument safety coordinator**

Responsible for safety documentation and updating the area coordinator of changes that might affect safety.

- **Area coordinator**

Responsible for coordinating the work within one special area, such as guide hall, bunker or instrument hall, with respect to scheduling, equipment and safety. They are also responsible for set-up and maintenance of general safety equipment and issuing general safety regulations for the area.

- **Installation coordinator**

Has the overview of all NSS areas and the ongoing work in all those areas.

Roles and responsibilities

- **BAS-U/BAS-P**

Legal requirement for civil construction. The building work environment coordinator, BAS, takes part in planning and makes sure that work environment viewpoints are taken into account when selecting working methods and equipment as well as jointly planned work and scheduling. Will be provided by ESS or SEC.

- **Safety delegate (SW. skyddsombud)**

Union selected employees who represent other employees and contractors in safety issues.

- **OHS engineers**

Overviews procedures, assists in hazard analysis and risk assessment. Technical expert on health and safety related issues.

- **Everyone**

Have the responsibility of following rules and procedures on site, reporting incidents and occurrences and help maintain a good safety culture

Regulatory Requirements

- Certifications – External
- Risk assessments
- Permits and authorizations
- ESS training- ESS Safety code
- QA requirements
- Site Access teams – forms and formalities
- Emergency procedures
- Personal protective equipment PPE
- Monitoring and compliances
- Handling waste
- Safety training, matrix,
- Electrical safety
- Crane operator
- Swedish regulation for work environment



- [Safety Requirements for working at ESS](#)
- This Confluence page tells you how to get into ESS as a worker. What work you can do depends on your level of safety training.
- Best way of getting information on safety training required?
- Foreign certificates (EES-country) will be reviewed for validity in Sweden. If they are from a recognised body of issuance, they will probably be accepted. If there are certain Swedish requirements we will let you know.

Safety training programs

Courses currently available through ESS:

- [Course information: Allergenic Compounds and Thermosetting Plastics \(Use of epoxy\)](#)
 - [Course information: ATEX / Flammable Liquids \(basic\)](#)
 - [Course information: Conventional Safety - Hot works](#)
 - [Course information: Crane Operator](#)
 - [Course information: Cryogenic Safety - Awareness](#)
 - [Course information: Electrical Safety - ESA-14 \(Advanced\)](#)
 - [Course information: Electrical Safety - ESA-14 \(Basic\)](#)
 - [Course information: Elevating Work Platform \(MEWP\)](#)
 - [Course information: First Aid - Basic Level](#)
 - [Course information: Preparing archiving of paper documents at ESS](#)
 - [Course information: Radiation Protection - Supervised Areas](#)
 - [Course information: Training for Safety Delegates](#)
 - [Course information: Use and Inspection of Pressurised Devices \(AFS 2017:3\)](#)
-
- [Cryogenic Safety - Awareness Level](#)
 - [Electrical Safety - Awareness Level](#)
 - [G01 Safety Training](#)
 - [Incident Reporting at ESS](#)
 - [Safety at Test Stand 2 - Awareness Level](#)



[Safety Training Website](#) (on Confluence):

[\(Responsible: Lars Aprin \(EH&S Division\)\)](#)

Swedish Work Environment Authority



Reference provisions from Swedish work environment Authority:

- building-and-civil-engineering-work-provisions-afs1999-3;
- scaffolding-provisions-afs2013-04;
- use-of-lifting-devices-and-lifting-accessories-provisions-afs2006-6;
- who-is-responsible-for-what-within-building-and-construction-adi704-eng;

Web site

<https://www.av.se/en/work-environment-work-and-inspections/publications/foreskrifter/>



Who is responsible for what within building and construction?



“Good planning and design lead to a safer construction site with reduced risk of ill health and accidents, more effective production, and increased profitability”.
(Swedish Work Environment Authority)

Registration in Sweden

- Before coming to work in Sweden, all foreign employees must notify Arbetsmiljöverket about posting an employee in Sweden.
- The employer must also notify Skatteverket about posting employees in Sweden.
- Non-EU/EEC, Switzerland workers need to apply with Migrationsverket for work and residency permits, to be obtained before arrival in Sweden.
- **Please look at Confluence!**

