

# Mechanical Lifting Operations

Lifting operations are very hazardous jobs. Therefore, they should always be planned and carried out by people with the right skills and the right equipment. The following procedures for lifting with a mechanical lifting device apply to all of Skanska's workplaces and are complemented by workplace-specific instructions.

## Roles and assignments

- There is a Lifting Coordinator at the workplace appointed by Skanska with the task of coordinating planning and execution of all lifting operations.
- The person carrying out the lift operation is responsible for how it is planned and executed in consultation with the lift coordinator.
- In some complex lifts, Skanska may request the appointment of a Lifting Supervisor. The Lifting Supervisor shall be present for the execution and ensure that the lift is carried out safely and according to plan.
- The Slinger is responsible for checking lifting equipment, secure load coupling and storage of the lifting tackle.
- The Signal person is responsible for communication with machine and crane operators during the lifting operation.



## Planning lifting operations

### Take inventory and categorise lifting needs

As a supplier, you should submit an inventory of your lifting needs to Skanska's production management at the latest at the start-up meeting. The lifts shall be categorised in consultation with the Lift Coordinator.

#### ⇒ Complex lifting

Used for tandem lifting, hoisting personnel, helicopter lifting or lifting objects with a displaced centre of gravity, more than 80% of the maximum capacity of the lifting device or if the load is extremely expensive or difficult to replace.

#### ⇒ Standard lifting

Used when there are risks in the environment or weather conditions, lifting over structures with the risk of collapse, risk of collision with other lifting devices, persons near the lifting area, lifting near overhead lines or railways.

#### ⇒ Simple lifting

Used for lifting in areas where the risk of injury is minimal, such as unloading goods on pallets with pallet collar with a telescopic fork lift truck in a well cordoned-off area.

#### ⇒ Lifting with special machinery

Refers to lifting carried out with a machine intended for a specific load, such as pile drivers, sheet piers, drill rigs and concrete pumps.

### Planning documentation

You as supplier shall document and submit the planning of standard and complex lifting in a lifting plan. This shall be done in accordance with instructions from the Lift Coordinator. The lifting plan for standard lifting normally applies to several type-lifts and is reviewed at least weekly. For complex lifting, the lifting plan normally applies to single lifts and shall be reviewed daily. Work Instructions shall always be drawn up for lifting with special machinery.

### Competence requirements:

Machine and crane operators, slingers and signal persons must have documented competence and the employer's written permission.

Skanska's digital training session, Lifting Operations, is mandatory for all who will plan, be responsible for and work with lifting operations at Skanska's workplaces. It can be accessed on [www.skanska.se/en-us/digitaltraining](http://www.skanska.se/en-us/digitaltraining). Everyone must also have the education Safe Lifting Operations (Säkra lyft)

# Mechanical Lifting Operations

## Safe execution

### Before work begins

- Copies of training certificates, employer's written permits and inspection certificates for lifting devices shall be submitted to Skanska's production management.
- Daily inspections of lifting devices shall be carried out and documented.
- Daily inspections of communication equipment shall be carried out
- Other personnel at the workplace must be informed of the current lifting operations at the daily review/morning meeting.
- Manuals and inspection documents shall be available at the workplace.
- Employers providing lifting equipment shall ensure that a register of lifting equipment is available

### Implementation

- People must never be under a suspended load!
- Lifting operations may only be carried out by designated persons with the right competence and the employer's written permission.
- Risk are shall be cordoned off and signposted.
- Everyone involved in the lifting operation shall be able to communicate in a common language.
- Hand signals shall be used according to Swedish Standard.
- If the slinger/signal person is more than 20 metres away from the crane operator, communication shall be via radio.
- Lifting devices shall be inspected and approved for their purpose.
- Lifting equipment must be CE-marked, have a specified maximum capacity and be tested and approved.
- Lifting equipment shall be checked before lifting. Damaged equipment must be immediately taken out of service and discarded.
- Slings labelled as disposable slings may only be used for the goods with which they were delivered and shall then be cut and discarded.
- Where there is a risk of collision between several lifting devices, measures shall be taken in the lifting devices' control systems. If this is not possible, documented routines must be established and measures taken to minimize the risk of collision between the lifting devices. The measures must be approved by the lifting coordinator
- A control line shall be used to steady a suspended load unless the Lifting Coordinator has granted an exception.
- Manual fitting requires good control over the lift. If an excavator is deemed to be the best possible solution, the lift must be categorized and planned as at least a standard lift. The excavator must meet the requirements in "Mandatory safety equipment for works machinery and construction transport"
- In the event of clear signs of thunderstorms, works with a lifting device projecting from the landscape must be interrupted.
- In case of unsafe conditions at the receiving point e.g. ice, fog, rain or snowfall, work shall be interrupted.

**There is nothing more important than the safety of yourself and others!**

Therefore, never perform a lifting operation if something is perceived as unsafe and never be under a suspended load.



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## Safety requirements when selecting lifting device and procedure

### Lift with truck mounted crane

- The truck mounted crane may only be placed on solid and level ground; support legs shall be used in accordance with the manufacturer's instructions.
- The person using a truck mounted crane shall ensure that the lift is risk assessed and planned.

### Lifting with excavator as a crane

- The maximum load capacity of the lifting device must be clearly marked.
- A lifting point fitted by the manufacturer and designed and manufactured for this purpose must be used. A hook that is welded or screwed on by the machine owner is not allowed. The lifting hook must be CE marked and inspected together with the machine. The maximum load capacity of the lifting hook is stamped on the lifting hook
- The excavator must be equipped with suppression valves according to the requirements in "Mandatory safety equipment for works machinery and construction transport"
- No attachments must be mounted on the excavator when lifting with a lifting hook. Mounted attachments pose a danger to the slinger, impair the driver's visibility and reduce the maximum permissible load.

### Lifting with wheel loader, forklift and telehandler

- Moving the machine with a load hanging under forks or a bucket is not safe due to the risks that arise when the load turns. This may only be carried out if it does not contravene the manufacturer's instructions for the lifting device / lifting gear, and the movements of the load can be secured.
- When material is raised onto scaffolding, it shall be done to the intended loading platform with load bearing capacity checked. Measures must be taken to prevent the machine from breaking the loading platform.
- Support legs shall be used in accordance with the manufacturer's instructions.

### Lifting with helicopter

- Lifting shall take place in daylight and communication shall be with communication radio.
- Measures shall be taken against risks caused by the downdraught from the helicopter rotor wings. Loose objects shall be moved or safely anchored.
- Persons moving towards the helicopter may only do so diagonally from the front and crouching.
- Vehicles must not be brought into the landing zone before the rotor wings has come to a stop.

### Tandem lifting

- A Lifting Supervisor shall be appointed and named in the lifting plan. The Lifting Supervisor shall be present throughout the lifting operation.

- At most, 80% of the maximum capacity of the lifting devices may be used, at least 20% shall remain as a safety margin.
- Machine/crane operators shall be able to communicate with each other at all times via radio.

### Lifting in the vicinity of a railway

- When working adjacent to a railway, the Swedish Transport Administration's general rules for working adjacent to rail tracks must be followed.
- When working with a crane, excavator, etc. that comes closer than 4m from a live component of the railway, the Swedish Transport Administration's "Elsäkerhetsföreskrifter för arbete på eller nära järnvägsanknutna högspännings- och tågvärmeanläggningar" (Electrical safety regulations for work on or near railway-connected high voltage and train heating plants) shall apply.

### Hoisting personnel

- A tower/mobile crane or forklift may only be used for hoisting personnel if it is deemed to be better and safer than with equipment designed for personnel hoist, e.g. a mobile work platform or scaffolding.
- A Lifting Supervisor shall be appointed and named in the lifting plan. The Lifting Supervisor shall be present throughout the lifting operation.
- The base machine and personnel platform must be jointly inspected; certificates must be presented.
- The personnel platform may only be used for temporary/short-term work from the platform.
- The personnel platform must not be used instead of an elevator from one level to another. Persons should not be present in the personnel platform when moving the base machine.
- If a crane is used, the total weight of the platform and load on the platform shall not exceed 50 % of the maximum capacity of the crane in any position.
- If a forklift is used, the total weight of the platform and load on the platform shall not exceed 25 % of the maximum capacity of the forklift in any position.
- Communication radio shall always be used for communication between the machine/crane operator and the personnel on the platform.
- Personal fall protection equipment shall be used and be connected to a defined anchoring point. If a freely suspended personnel platform is used, the crane hook must be used as an anchoring point.
- A load must not protrude from the platform so that it can fall down, hook onto something and fasten or otherwise cause the basket to swing.
- If there is a risk of collision with other lifting devices, the other lifting devices shall be moved out of the way and emergency stops activated.