Handbook Safe use of scaffolding

Best practices for the safe use of scaffolding

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Best practices for the safe use of scaffolding

Foreword

The purpose of scaffolding is to establish collective fall protection for the safe execution of work at height. Scaffolding will to some extent act as a barrier against falling objects, but it is the user's responsibility to risk assess their own work and implement the necessary measures.

It is the employer's responsibility to ensure that everyone who will be using scaffolding has received training, including a review of the instructions for assembly, use and disassembly.

The employer must implement the necessary measures based on the health and safety risks that emerge from the risk assessment. It shall be ensured that:

- Collective fall protection is prioritized over personal fall protection equipment.
- Collective fall protection devices may only be breached at access points with ladders or stairs.
- Equipment is secured to prevent objects from falling and posing a danger to other persons or equipment.

Additional information may be needed. User is obliged to request information if something is unclear.

Approval and information for the scaffolding in question is stated on the scaffolding sign.

The user must familiarize themselves with this manual. The user must be informed of any location-specific conditions in addition to these instructions, as well as receive special user instructions if applicable.

General about use of scaffolding

The purpose of a scaffold is to establish collective fall protection for safe execution of work at height. Users of scaffolding must help ensure that the work on the scaffolding is safe. Users must interrupt their work if continuation entails a risk to life and health.

Scaffolding also serves as a barrier against falling objects. However, it is the user's responsibility to risk assess their own work and implement the necessary measures, among other things, measures for own safety and to prevent falling objects.

Entry or exit of scaffolding must only be through established access roads, or escape routes in the event of evacuation. When using stairs, the user must consider how it is safe to walk. If the stairs are steep or have short steps, the user must go backwards down (in the same way as in a ladder). The user must have one hand free to hold onto the railing or scaffolding.

Unless otherwise specified, the scaffolding can be loaded according to the load class on one floor at the same time.

If there is a need to changes, the scaffolding owner must be contacted.

The user must have completed user training and must be able to:

1) assess whether the scaffolding is approved for use.
2) assess the type of use for which the scaffolding is approved.
3) carry out simple risk assessment and self-protection in relation to the work to be carried out.

The user must be familiar with the installation instructions and must request if necessary.

Best practices for the safe use of scaffolding

The manufacturer or supplier of scaffolding is responsible for being able to provide installation instructions.

The installation instructions contain relevant information such as:

- Load classes and permissible loads
- Recommended scaffolding widths
- Permissible anchor points for fall protection
- Anchoring pattern
- Internal bracing
- Inspection and maintenance plan

The user is obliged to know the user instructions for the scaffolding, as well as request supplementary information if something is unclear during use.

When work is completed, scaffolding must be cleared. If the scaffolding is soiled, it must be washed. Contact the scaffolding owner and let them know that the scaffolding is ready for dismantling.

Risk assessment and self-protection

Simple risk assessment

The user must familiarize themselves with the scaffolding and assess whether

- protection against falls and falling objects is taken care of
- the scaffolding is dimensioned for work to be carried out
- work can be carried out ergonomically
- access routes and escape routes can be used effectively in an emergency

Check if the scaffolding is stable and free of damage. Consider whether additional measures are needed to prevent falling objects.

Order and tidiness

During work, equipment and waste must be secured when the user leaves the scaffolding, even for short periods such as during breaks.

Untidy scaffolding contributes to a poor culture of order and tidiness and can contribute to an increased likelihood of falling objects and other unwanted incidents.

Scaffolding with good order and tidiness helps to contribute to a better working environment.

A tidy workplace is less risk-exposed than the opposite.

Equipment and waste must be removed when work is finished. Check for forgotten equipment on and around scaffolding. Both at height and around the scaffolding at ground level.

Faults and deficiencies

If faults or deficiencies are discovered in the scaffolding, the scaffolding owner must be contacted immediately for rectification. Pay special attention to deficiencies in floors, railings, stability, and obstacles in access.

If damage is discovered after storms or other conditions, the scaffolding owner must be contacted immediately for repairs.

If damage is discovered to the scaffolding, the scaffolding owner must be contacted immediately for repairs.

Typical damages to be aware of:

- Corrosion
- Galvanic corrosion
- Cracks
- Impact injuries
- Deformation
- Greases/oils/chemicals

Use of scaffolding

Scaffolding signage

All scaffolding must be signposted, either as approved or with access prohibited. All accesses must be signposted. If there is no sign, access is prohibited.

Approved scaffolding is signposted with a green approval card (Information card / certificate)

Approval cards state, among other things:

1) Owner of the scaffolding
2) Reference number
3) Person who has approved the scaffolding
4) Formål stillaset er konstruert for
5) Phone/contact information for scaffolding owner
6) Installation date
7) Load class
8) Carried out follow-up inspections

In addition, special considerations can be noted in information fields on the approval card. There may be requirements for securing scaffolding, use of personal fall protection, or other important information.

It is important that everyone who uses scaffolding is familiar with the information provided on the approval card.

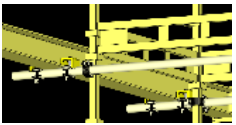
Scaffolding inspection

All scaffolding must be inspected and approved before use and regularly during use by a qualified person.

- Inspections must be carried out at least weekly offshore, and at least every 14 days for onshore facilities.
- For scaffolding built under a quay, or with a low height to the sea, an inspection must be carried out daily before work starts.
- Scaffolding must be checked after a long time without being in use, and after storms.

Follow-up inspections are signed in a table on the front or back of the approval card, or in a table on the card holder.

Anchoring and bracing



As a rule, scaffolding must be anchored to a wall or solid structure.

Exceptions are scaffolding that is designed to be free-standing.

Mobile scaffolding and small "stools" are typical examples of scaffolding that is designed to be free-standing.

Regardless of anchoring, all scaffolding must be stable with good internal bracing (diagonals).

If the scaffolding is not stable, the scaffolding owner must be notified

Protection against falls and falling objects

Scaffolding must be equipped with floors and railings.

Approved scaffolding floors can have gap openings of up to 25 mm. It is therefore very important that the user of scaffolding assesses whether there is a need for measures to ensure that equipment or tools cannot fall through gaps in the floor.

Approved handrails consist of a toe board, knee rail and handrail.

- Railings must be 1 meter high
- The toe board must be close to the floor.

Information must be provided on the approval card if scaffolding does not take care of collective fall protection. In such cases, personal fall protection must be used when using the scaffolding.

The anchorage point for the fall arrest lanyard must be clarified with the scaffold owner.

Ergonomics

Work must be carried out with good ergonomics and with good lighting conditions.
The minimum distance between scaffolding floors should normally be 190 cm.

Scaffolding components that enter or protrude from the scaffold at heights that could lead to collisions must be clearly marked.

Width classes

Different types of work require different space on the scaffolding. Sufficient space helps to ensure that work can be carried out ergonomically and that work can be carried out with the right quality.

There are width classes in the standard for scaffolding, but simplified we get this table.

Work on the scaffolding	**Recommended width**
Normal workplace, no storage of materials	0,7 / 1,0
Transport of material and storage of material	1,2 / 1,6
Normal workplace and transport/storage of materials	1,6 / 1,9 / 2,45 / 3,0

Load table q_1 and F_1

Load-class	Evenly distributed load q_1		Concentrated load on area 500 x 500 mm F_1	
	kN/m^2	(kg/m$^{2)}$	kN	(kg)
1	0,75	(75)	1,50	(150)
2	1,50	(150)	1,50	(150)
3	2,00	(200)	1,50	(150)
4	3,00	(300)	3,00	(300)
5	4,50	(450)	3,00	(300)
6	6,00	(600)	3,00	(300)

The scaffolding is divided into 6 classes for different payloads.

Class 1 scaffolding is intended to be used for inspection activities, painting work and other maintenance work that does not require the user to bring a lot of material onto the scaffolding.

Class 2 scaffolding is suitable for painting work and the like. This scaffolding allows some more material to be stored on the scaffolding.

Class 3 is scaffolding for plastering and assembly work where there is a need to store a lot of material.

Load table F_2 and q_2

Load of one person on area 200 x 200 mm F_2		Load on part area		
		q_2		Part area a_p
kN	(kg)	kN/m^2	(kg/m$^{2)}$	m^2
1,0	(100)	Not allowed		
1,0	(100)	Not allowed		
1,0	(100)	Not allowed		
1,0	(100)	5,00	(500)	0,4 *A*
1,0	(100)	7,50	(750)	0,4 *A*
1,0	(100)	10,00	(1000)	0,4 *A*

Class 4 and 5 scaffolding is suitable for masonry and the like.

Class 6 is scaffolding for large loads that will rarely be needed. For example, for heavier work in industry and construction.

Payload and calculation

There are four different types of payloads:

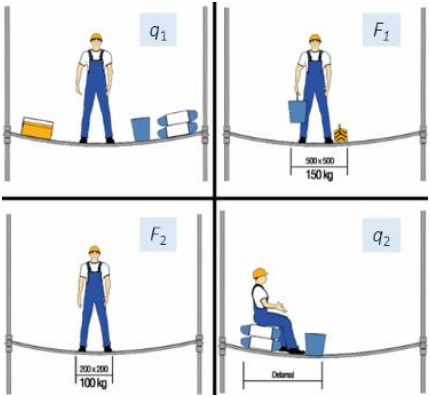
q_1 - Evenly distributed

F_1 - Concentrated load 500 x 500 mm

F_2 - Load of 1 person 200 x 200 mm

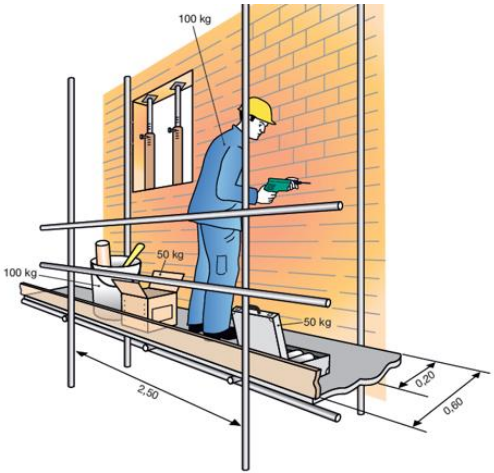
q_2 - Load on part area

On approval cards, q1 is stated.



Example calculation of evenly distributed load class 3 (2,00 kN/m²):

Standard distance l	= 2,5 m
Width w	= 0,6 m
Load class 3	=2,0kN/m²
Floor area	= l · w = 2,5 m · 0,6 m = 1,5 m²
Permissible payload	= 1,5 m² · 2,0 kN/m² = 3,0 kN
Person load	= 100 kg = 1,0 kN
Tools	= 50 kg = 0,5 kN
Material	= 150 kg = 1,5 kN
= Total	= 300kg = 3,0 kN ≤ 3,0 kN **OK!**



Example calculation of evenly distributed load class 4 (3,00 kN/m²) and load on part area:

Standard distance l = 2,5 m
Width w = 0,9 m
Floor area A = *l* · *w* = 2,5 m · 0,9 m = 2,25 m²
Part area floor = A · 40% = 2,25 m² · 0,40 = 0,90 m²
Permissible payload = 2,25 m² · 3,00 kN/m² = 6,75 kN
Person load = 100 kg = 1,00 kN
Stone pall 2,97 kN · 1,2 = 356 kg = 3,56 kN
Mortar bucket = 140 kg = 1,40 kN
Tools = 10 kg = 0,10 kN
= Total = 606 kg = 6,06 kN ≤ 6,75 kN **OK!**

Control of part area load for stone pallets (2,97 kN)

Areal = 1,25 m · 0,57 m = 0,71 m² ≤ 0,90 m² **OK!**
Delareallast = 2,97 kN : 0,71 m² = 4,20kN/m² ≤ 5,00 kN/m² **OK!**

Control of part area load for mortar bucket (1,40 kN)

Area = Ø 0,60 m = 0,28 m² ≤ 0,90 m **OK!**
Part area load = 1,40 : 0,28 m² = 5,00 kN/m² ≤ 5,00 kN/m² **OK!**

Safe work execution

Use approved access.

When the scaffolding is correctly built, access to the scaffolding must be safe, convenient and appropriate. Gates and hatches must always be closed when the user passes through.

In the event of weather changes that have a negative impact on safety, the user must take the necessary measures to secure the workplace, equipment and materials.

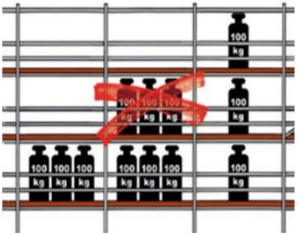
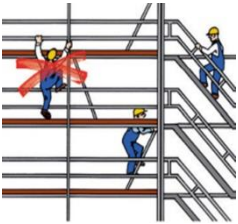
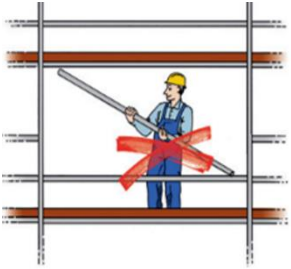
- When working on movable scaffolding, scaffolding must be cleared and secured, and scaffolding abandoned, by wind forces >12,4 m/s.
- For other scaffolding, it is the user's responsibility to assess how weather and wind affect the safety of the work to be carried out, but if the wind is more than normal (17.8 m/s), it is necessary to secure what is on the scaffolding, as well as leave the scaffolding.

Ikke bruk stillas som har feil eller mangler. Bruker plikter å melde fra til stillaseier dersom det oppdages noe ureglementert.

It is forbidden to:

- jump or throw objects onto the scaffolding floors.
- install covers, downpipes, lifts, signs, lifting equipment, and the like without obtaining permission from the scaffolding owner. This type of equipment requires a new initial inspection of the scaffolding.
- climb over railings and on the outside of the scaffolding.
- make changes to the scaffolding construction.
- use scaffolding as anchor point for personal fall protection without discussing and clarifying anchor points with the scaffold owner.

Best practices for the safe use of scaffolding

	
Don't jump onto scaffolding	Maximum load on only one floor at a time.
	
Use a ladder or staircase	Do not remove handrails

Intervention on scaffolding

All changes to scaffolding must be carried out by scaffolding owner.

Changes such as removing

- railings (including toe board)
- diagonals
- anchors
- parts of floor
- components of scaffolding structure / construction

may affect the collective fall protection, barrier against falling object, stability and strength of the scaffolding.

It is therefore very important that the user respects the integrity of the scaffolding and contacts the scaffolding owner if changes are needed. Contact information can be found on the approval card.

Plan for removal of snow and ice

When applicable, a written plan must be prepared for the removal of snow and ice. Snow and ice that are not removed can pose a risk when walking in scaffolding.

Weight from snow and ice will affect the capacity of the scaffolding in terms of permitted load.

Scaffolding types with special instructions

Mobile scaffolding / movable scaffolding

Not to be used in wind forces above 12,4 m/s.

To be used only on firm, level and horizontal substrate.
N.B! Scaffolding must be levelled after each move.

When moving scaffolding, the scaffolding must be free of objects. It is forbidden to stay on scaffolding during moving.

If there are wheels on the scaffolding, they must be locked. Both during use and when scaffolding is out of use.

Scaffolding must only be moved by hand. When moving scaffolding without wheels, it must be considered whether there are enough people involved so that no one lifts too heavy.

All movable scaffolding must be secured before, during and after use.

Lifting wheel

The user must have theoretical and practical training in the use of lifting wheels.

Lifting wheels must be approved with a separate approval card.

The user must carry out a pre-use check as described in the user manual daily before starting work.

Shelves

If the purpose of scaffolding is Shelving for storing objects, people must not use scaffolding as work scaffolding. Shelves made of scaffolding must only be temporary.

Lifting point in scaffold

The lifting beam with work equipment and lifting equipment used in lifting operations shall be conformity assessed, and CE marked with associated instructions for use and assembly in accordance with the requirements of the applicable Machinery Regulations.

The lifting point must be approved with a control card after handover on site where the scaffold owner and responsible rigger review the prerequisites for the entire lifting structure.

The lifting manager/rigger must approve the specified lifting point before lifting starts.

Scaffolding foundation for lifting beam must have a separate approval card.

The lifting point on the lifting beam must have a separate approval card clearly marked with capacity, approval date and the approver's signature.

Lifting equipment used in combination with a lifting point in scaffolding shall not have a greater capacity than the lifting point is approved for.