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# User information

## **3x Groundsupport**

Project-Nº: 2016-0225

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The information shown in this documentation does not replace the structural report of the construction. All references have structural relevance. The structural report is required. A professional assembling and usage of the construction is assumed.

## 1 Important handling notes

This structural calculation bases on a professional assembly and use of the construction. Disregarded common valid security requirements the following advices must be considered from the static point of view.

- The structure is designed for usage inside of enclosed spaces (e.g. exhibition hall, event hall). Outdoor-usage is not allowed.
- Please see in chapter “Proofs of position stability” for advices to the correct anchoring of the construction.
- The structure must be placed on planar subsoil with sufficient load capacity. If required leveling / pressure spreading activities must be organized individually.  
max.  $F_{\text{Tower}} \approx 40 \text{ kN} \leftrightarrow 4000 \text{ kg}$   
(characteristic value plus additional ballast)
- Solely original parts of Eurotruss must be used.
- Make sure all connections cannot become loose.
- Servicing / climbing the structure by riggers are not considered during calculation.
- All references on the following pages should be noted.

### *General notes:*

- The advices in igvw-document *SQ P1* concerning potential equalization, lightning arrester and visual check of damages should be considered.
- It must be followed the manufacturer’s assembly and operating instructions too.

## 2 Trussing

The analyzed structure is a temporary bearing structure, assembled from modular framework girders (truss). It can be covered on its back wall by canopy, curtain or scrim. Crossed steel wiring allows a setup in exhibition halls of the structure.

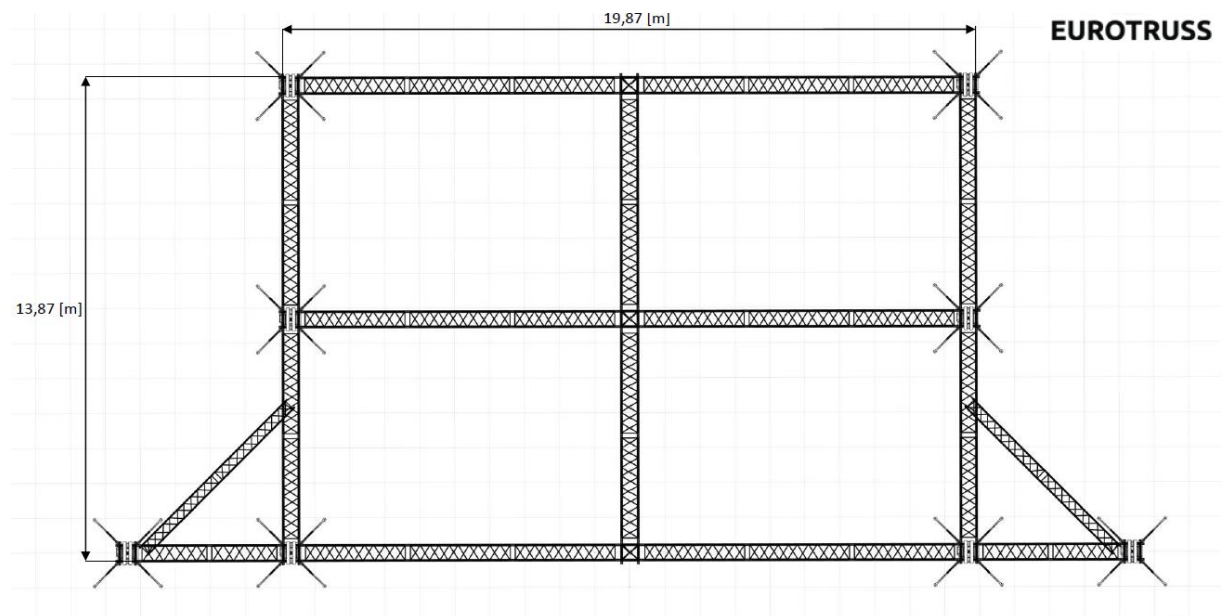
### Used trusses:

- Eurotruss ST main grid
- Eurotruss TD35S tower

### Building Versions 1-3

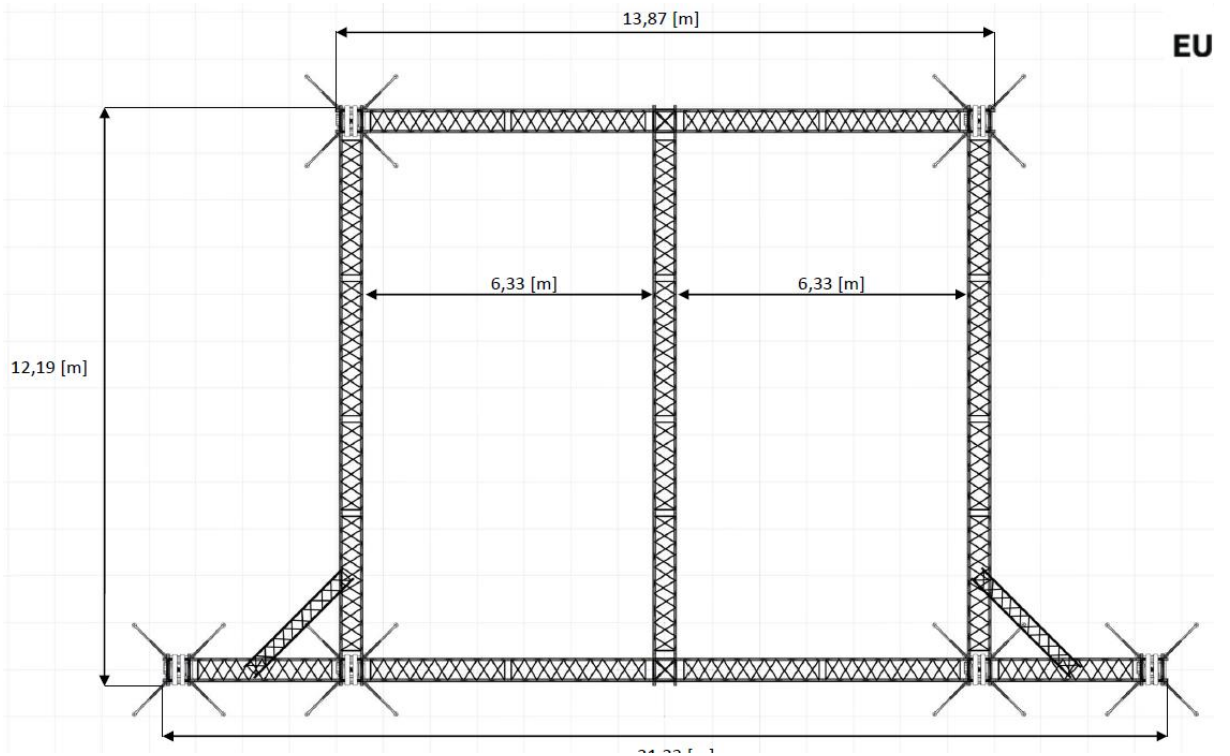
Version 1

Height rig: 12m



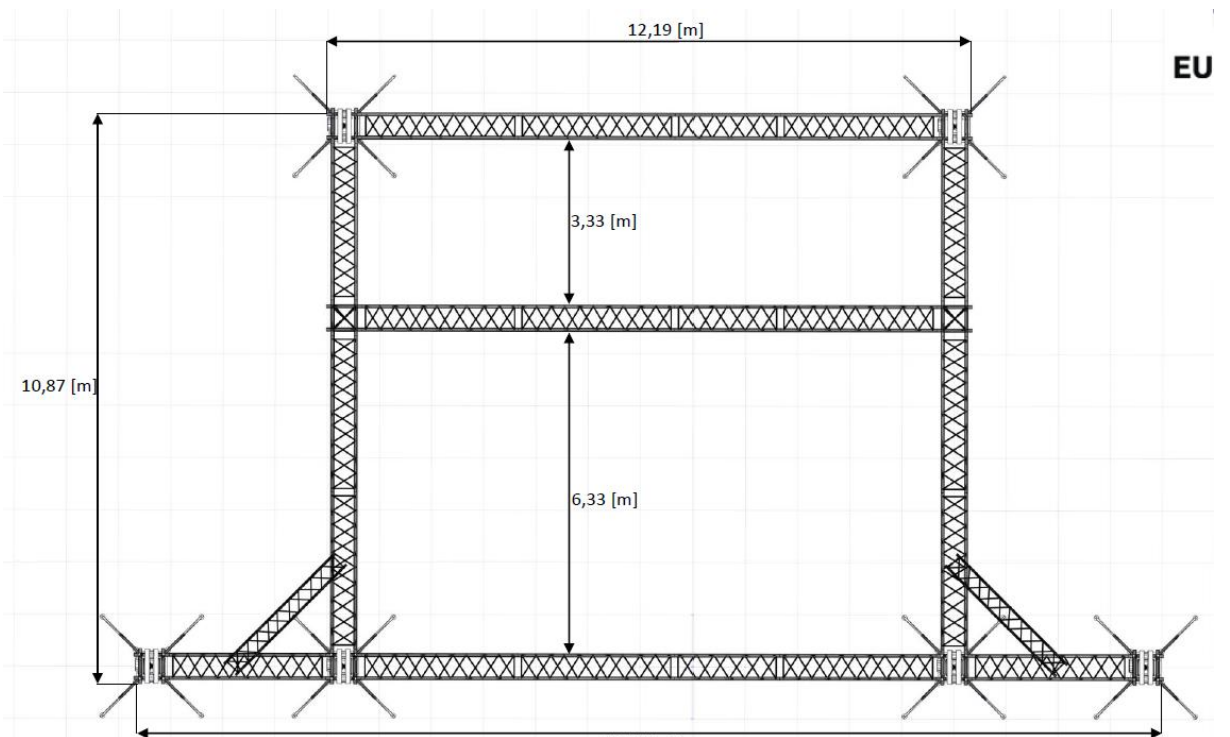
Version 2

Height rig: 9m



Version 3

Height rig: 9m



### **General notes**

Solely original parts of Eurotruss B.V. must be used, especially the Pins.

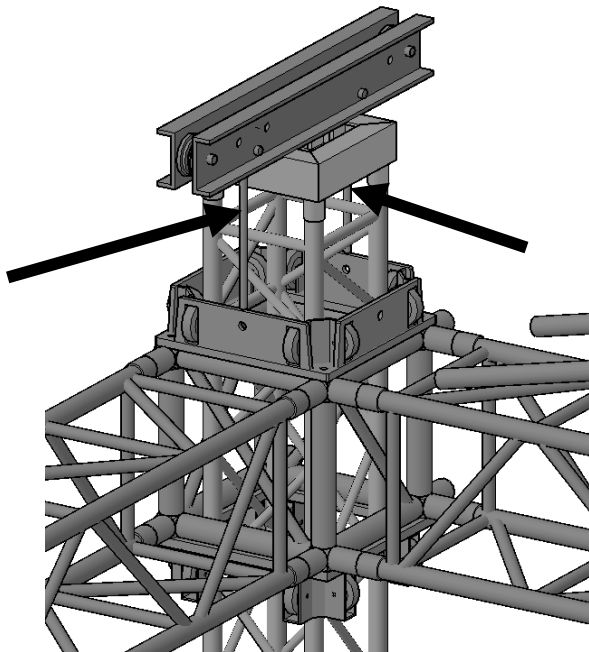
All parts, especially the weldings, must be visual checked before assembling the structure.

There are no special requirements about unit length. Straight elements shorter 0,50 m are not allowed.

All pins need to be tightened and secure by a R-clip.

### **Sleeve block dead hang**

The dead hang of the sleeve blocks must be realized by symmetric dual line hang and fit to the upper steel sleeve plate.



*Each tower:*  
req. WLL  $\geq$  4000 kg    per line!

### 3 Stiffening steel wires

All bracing steel wires are required in exhibition halls with horizontal live loads.  
→ *Equivalent distributed load for achieving sufficient safety against overturning / sliding according technical guideline of the fair.*

$q_{h1} = 0,125 \text{ kN/m}^2$  up to 4m height above flooring  
 $q_{h2} = 0,063 \text{ kN/m}^2$  from 4m height above flooring

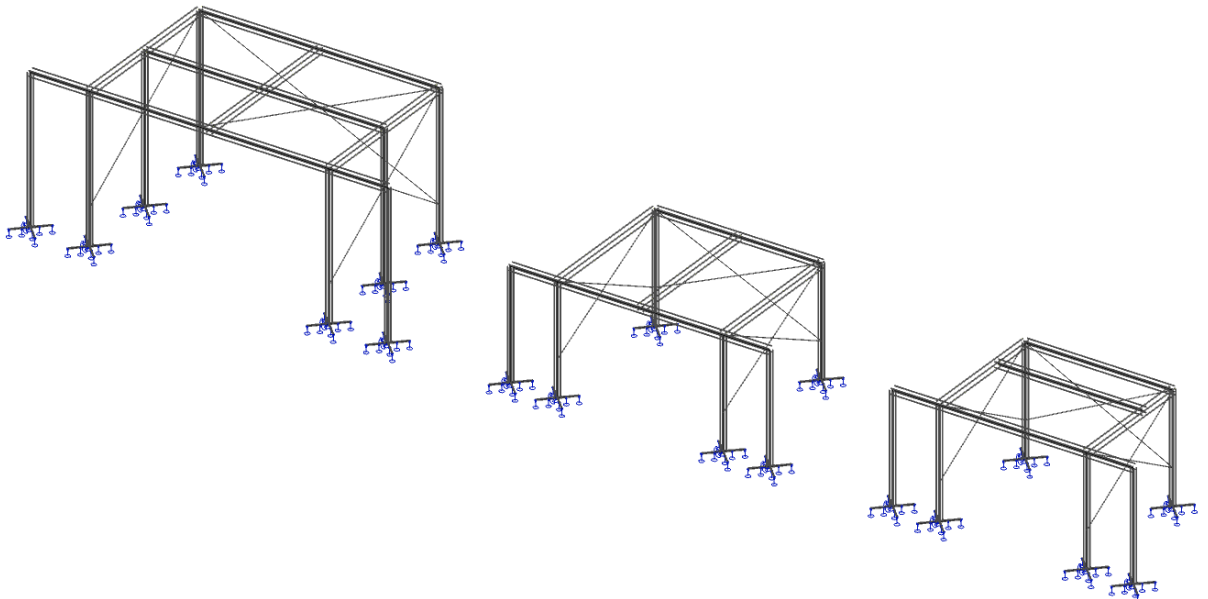
Without steel wiring the structure is not stable enough.

Upper connection: Sleeveblock  
Lower connection: Tower, 3m above ground.

All turnbuckles need to be sufficiently pretensioned.

Steel rope quality according DIN 12385-4 (6x19-1770-FE) (or comparable).

Turnbuckle quality according ASTM F1145-92 (Jaw<>Jaw) (or equal).



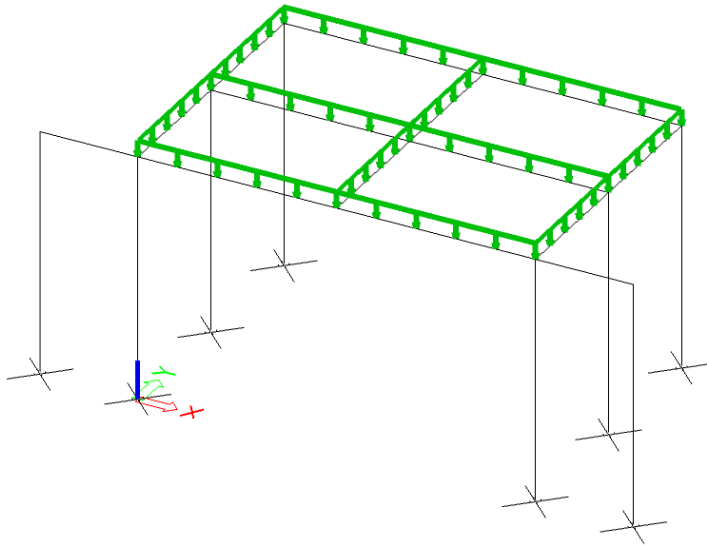
Diameter: 8 mm

Turnbuckle: 1/2 inch

Minimum ultimate load: 4000 kg (or WLL 1500 kg)

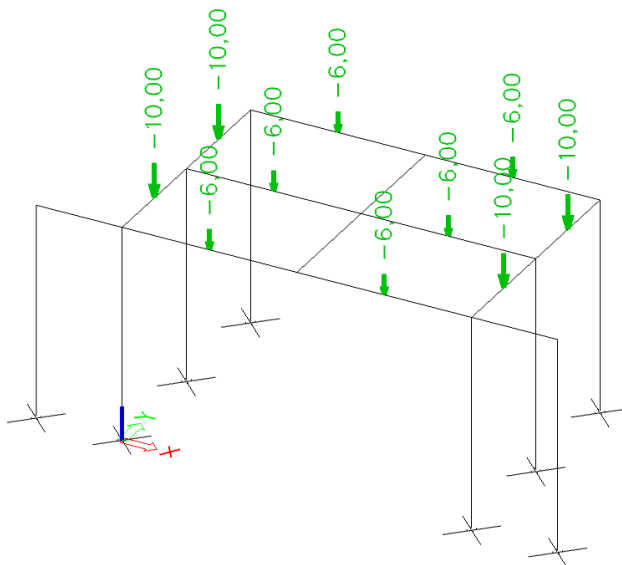
## 4 User loads

Version 1: 19,5m



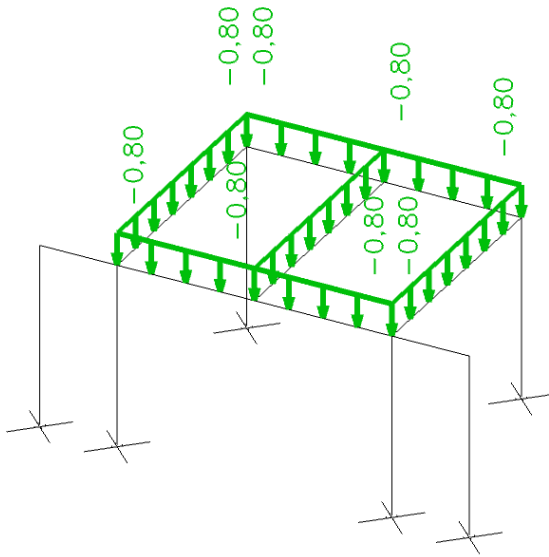
Distributed load: 40 kg/m

**or alternatively**



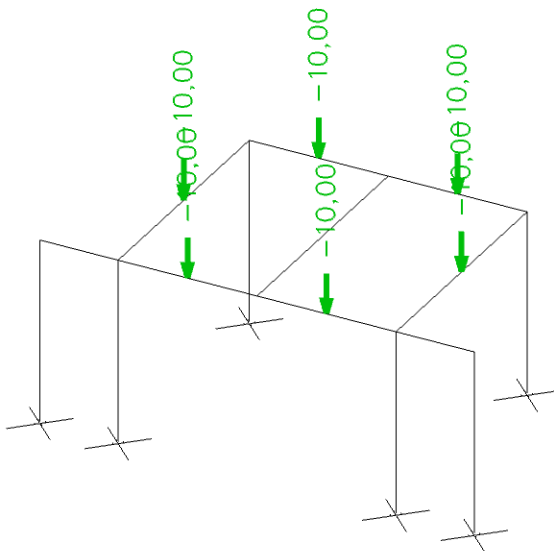
Point loads:                      6x     600 kg                      @ 4,5m from tower  
   4x     1000 kg                      @ between towers (sides)

Version 2: 13,5m



Distributed load: 80 kg/m

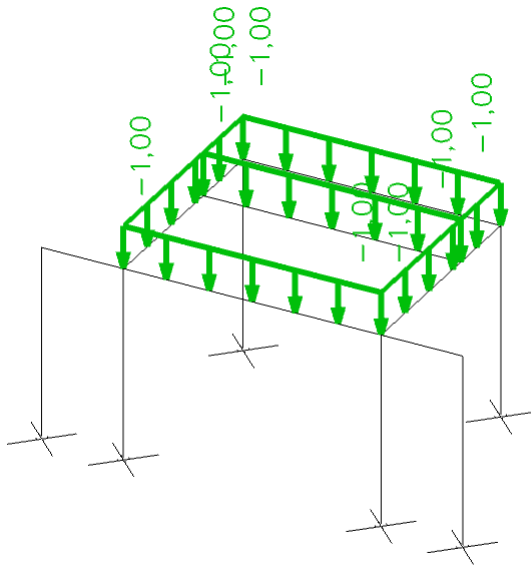
**or alternatively**



Point loads: 4x 1000 kg @ 3,0m from tower  
2x 1000 kg @ between towers (sides)

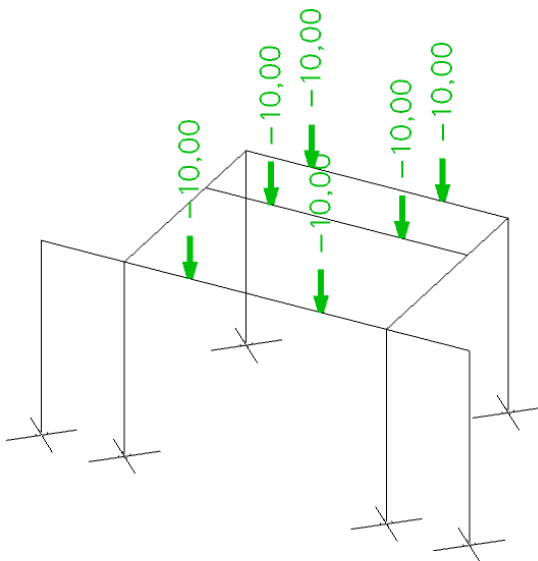


Version 3: 12,0m



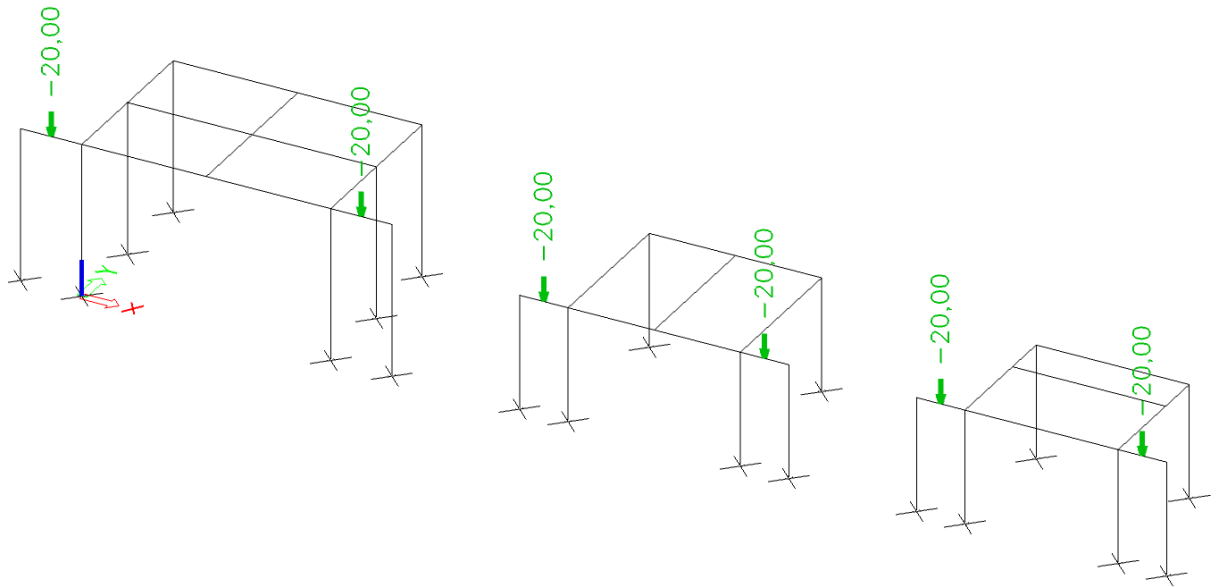
Distributed load: 100 kg/m

**or alternatively**



Point loads: 6x 1000 kg @ 3,0m from tower

### Sidewing loads



Additional to distributed loads or point loads Version 1-3:

2x 2000 kg

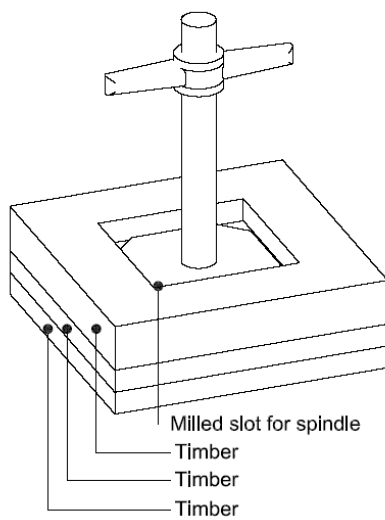
## 5 Ballast

The anchoring must be connected to the construction's base in such a way that they will be activated coeval for all possible directions of load.

$\mu = 0,4$  For the material combination "wood to wood" (used when several layers of wood are not connected to each other)

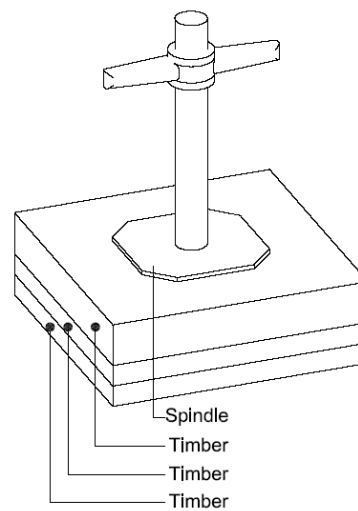
### $\mu = 0,4$ / Version 1

The spindle must be trapped in the milled slot. This is true when any underpinning are laying upon another without a fixation.



### $\mu = 0,4$ / Version 2

The spindle is to screw tightly on the timber. This is true when any underpinning are laying upon another without a fixation.



## 5.1 Setup in halls without horizontal loads

→ no ballast required

## 5.2 Setup in halls with horizontal loads

$q_{h1} = 0,125 \text{ kN/m}^2$       up to 4m height above flooring  
 $q_{h2} = 0,063 \text{ kN/m}^2$       from 4m height above flooring

### Steel wires required!

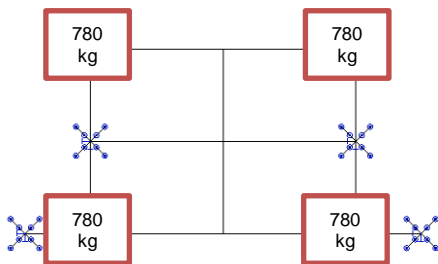
Example Version 1:

$R_{y,max} = 5,11 \text{ kN}$   
req N =  $5,11 / 0,4 = 12,78 \text{ kN}$   
 $G_{Tower} > 5,0 \text{ kN}$

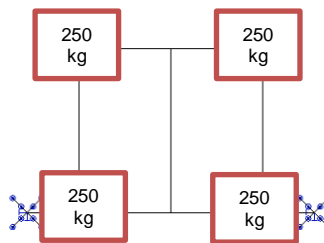
req B =  $12,78 - 5,0 = 7,78 \text{ kN}$        $\Leftrightarrow 780 \text{ kg}$

*The self-weight of (e.g.) technical equipment can be taken into account to reduce the ballast.*

Version 1:



Version 2:



Version 3:

