Calculation of Self weight

Construction part: Floor partition - Groundfloor

Denomination	Proportion	thickness[m]	λ[kN/m^3]	g_k[kN/m^2]
Thermolit	1,000	0,100	0,90	0,09
Sound Membrane	1,000	0,006	0,00	0,00
Concrete	1,000	0,068	20,00	1,36
Foam	1,000	0,002	0,00	0,00
Parquet	1,000	0,014	5,00	0,07
			Sum	1,52

	Density kg/m³	Density kN/m3
Thermolit	90	0,9
Sound Membrane	0	0
Concrete	2000	20
Foam	0	0
Parquet	500	5

Calculation of EXPAN sound slab elements © NGH 2013 rev. 2021

This program calculates the required EXPAN sound slab elements.

Self-weight

Self-weight on the slab: 1,52 kN/m^2

Imposed load

Main category: A

Sub category: A1

Rooms in residential buildings and houses; kitchens and toilets.

Imposed load from people/furniture: 1,50 kN/m2

Line load from moveable partitions: ≤ 2 kN/m

Uniform load from moveable partitions: 0,80 kN/m2

Ultimate Limit States (ULS)

Ed = 1,0*1,52 + 1,5*(1,50 + 0,80) = 4,97 kN/m2

Serviceability Limit States (SLS)

Ed = 1,52 + 0,3*(1,50 + 0,80) = 2,21 kN/m2

Density - slab elements: 1750 kg/m3

Span (visible width): 4800 mm

Chose element: 180/32

Ultimate Limit States (ULS)		
Rd = 9,00 kN/m2 ≥ Ed = 4,97 kN/m2	181%	OK!

Serviceability Limit States (SLS)		
Rd = 2,89 kN/m2 ≥ Ed = 2,21 kN/m2	131%	OK!

Element data		
Density:	1750	kg/m^3
Height:	180	mm
Number of reinforcement bars:	8	stk
Diameter reinforcement bars:	10	mm
Self-weight slab:	3,20	kN/m^2

Ultimate Limit States (ULS) - included self-weight of the slab

Ed = 1,0*(1,52 + 3,20) + 1,5*(1,50 + 0,80) = 8,17 kN/m2

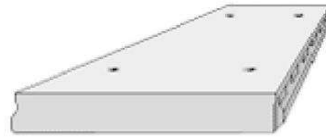*Serviceability Limit States (SLS) - included self-weight of the slab*

Ed = (1,52 + 3,20) + 0,3*(1,50 + 0,80) = 5,41 kN/m2

EXPAN sound slab elements

EXPAN Sound slab elements are produced
in following type of concrete:

- Light concrete LAC 18/1750
- Light concrete LAC 18/2000

The numbers state respectively compression strengthness (MPa) and average d
the abbriviation for Lighweight Aggregate Concrete. Choice of concrete type is a
by demands for sound reduction in the building. The elements is named in relati

- EXPAN Sound slab element 1750
- EXPAN Sound slab element 2000

Element design
EXPAN Sound slab elements are produced by contracting and are delivered tailo
related to each task with:

- Max. form measurement 1200 x 7200 mm
- Diagonal end- and side cuttings
- Special elements in widths from 300 mm

EXPAN split up the elements in account to the production- and assembly technic

Recesses
Smaller recesses can be placed individually. Bigger recesses should by statical re
to 2 elements. Bigger continuous recesses are performed by using a trimmer be

Tolerances for measurements for the individual slab element

Thickness	+/- 5 mm
Length	+/- 8 mm
Width	+/- 2 mm
Width, special elements	+/- 10 mm
Flatness down side, max.	3 mm / m
Flatness upper side max.	+/- 10 mm / m
Deviation from right angle	2 mm / 0,5 m
Measurements of recesses	+/- 10 mm
Position of recess	+/- 20 mm
Position of electrical boxes	+/- 15 mm

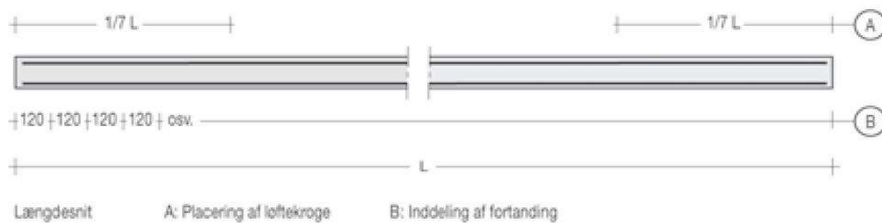## Reinforcement

Load bearing reinforcement in the down side of the element is steel with strengt
Lifting brackets are flat recessed, and in each element are normally embedded 4
reinforcement is secured by a covering layer of minimum 10 mm. The elements of
in passive and moderate environment class.

Codes for reinforcement
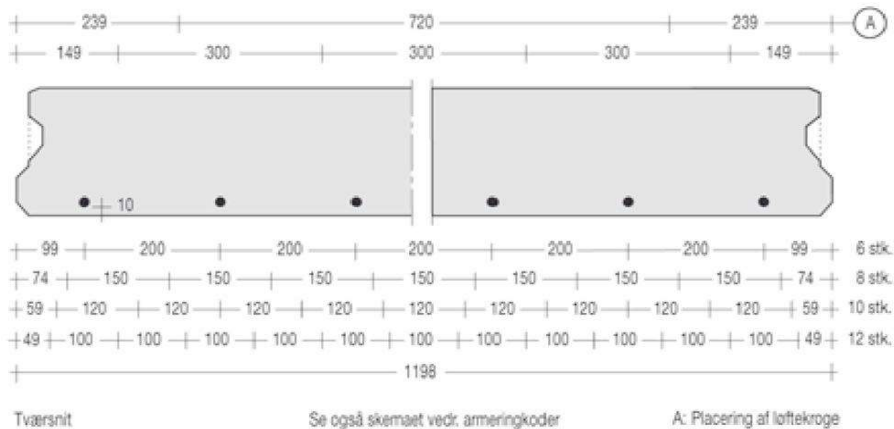
Code	Pcs.	Dim (mm)
30	8	8
31	6	10
32	8	10
33	8	12
34	10	12
35	12	12

Longitudinal section

Længdesnit   A: Placering af løftekroge   B: Inddeling af fortanding

Position of reinforcement

Tværsnit   Se også skemaet vedr. armeringkoder   A: Placering af løftekroge

Edge profile

H	T	B
140	17	25
160	30	32
180	50	32
200	50	52
220	70	52
240	70	72
260	90	72

Tværsnit   Opstalt af fugeside