Dramix® Pro Cellar Walls

This design is only valid when used together with Dramix® steel fibres. Usage of other steel fibres is unsound and potentially unsafe.

1. Project Info

Project: Example

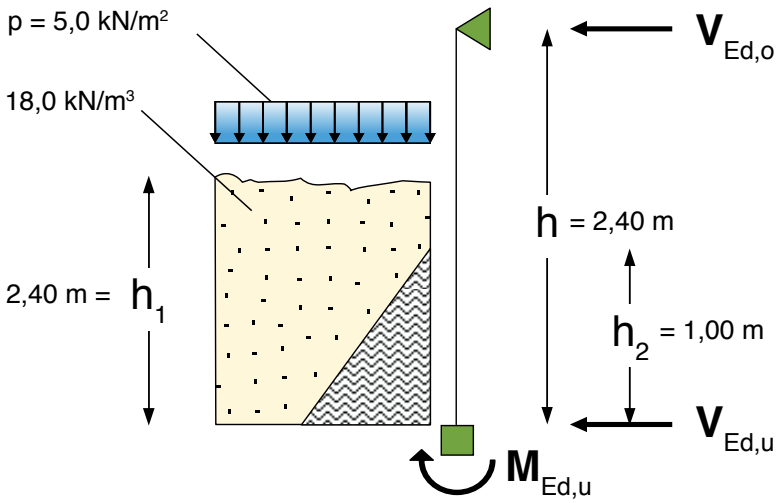
Country: Belgium

Client: Bekaert

2. Input Data

Loads

Min. Perm. vertical load N_G	60,0	[kN/m]	(at the top of the wall)
Corresp. Var. Vert. load N_Q	40,0	[kN/m]	(at the top of the wall)
Traffic load p	5,0	[kN/m²]	(at the ground surface)
Wall height h_w	2,40	[m]	
Wall thickness h	25	[cm]	
Height of ground level h_1	2,40	[m]	(from top of cellar floor)
Ground water level h_2	1,00	[m]	(from top of cellar floor)
Ground pressure coëf. e_h	0,425	[-]	
Ground dead weight G_{Ek}	18,0	[kN/m³]	
Minimum wall length	5,00	[m]	
Wall dead weight G_{wk}	24,0	[kN/m³]	
Compressive strength class	C25/30	[-]	

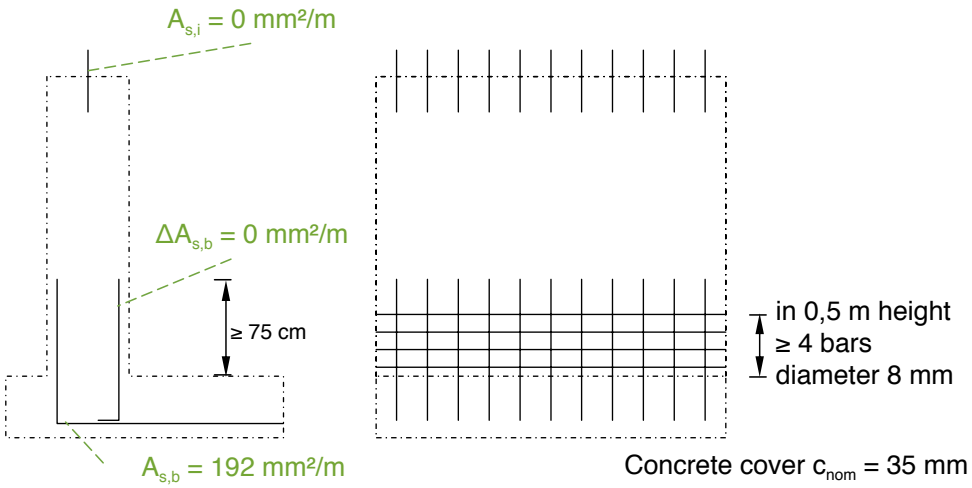


3. Results

Bending moments	M_{Ed} = 15,77 kNm/m
Shear design in accordance with EN 1992	V_{Ed} = 32,3 kN/m
Design connections	
Foot of the wall	v_{Edi} = 0,171 N/mm²
Top of the wall	v_{Edi} = 0,047 N/mm²

4. Solution

Example	
Wall height h	2,40 m
Wall thickness d	25 cm
Conrete quality	C25/30
Steel fibre type	**RC-80/60-CN**
Dosage	**20 kg/m³**
Design bending moment for the cellar floor	M_{Ed} = 16,4 kNm/m
Bending reinforcement at the bottom	$A_{s,b}$ = 192 mm²/m
Additional interface reinforcement at the bottom	$\Delta A_{s,b}$ = 0 mm²/m
Interface reinforcement at the top	$A_{s,i}$ = 0 mm²/m
Interface at wall top	rough
Interface at wall bottom	smooth



Reinforcement specification: EN10080, f_{yk} = 500 Mpa

5. Control

Bending design	M_{Rd} = 19,40 kN/m > M_{Ed} = 15,77 kN/m	☑
Shear design wall	$V_{Rd,c}$ = 104,3 kN/m > V_{Ed} = 32,3 kN/m	☑
Connections		
Foot	0,798 N/mm² ≥ 0,171 N/mm²	☑
Top	v_{Rdi} = 0,707 N/mm² ≥ v_{Edi} = 0,047 N/mm²	☑