

NAILING WALL ANALYSIS AND DESIGN

PROJECT: C. C. La Magdalena
LOCATION: Av. Rodrigo de Chávez
DATE: 16-jul.-20
file 2007d

Data:

Maximum Wall Height	10,00	m
Wall thickness	0,20	m
Column span	6,00	m
Soil Cohesion	0,25	kg/cm2
Friction Angle	34,00	o
Natural Soil Weight	1,78	T/m3
Unit Panel Length	6,00	m
Panel Height	3,00	m

Wall Heights

	North	South	East	West	
Level 1	3,33	3,33	3,33	3,33	m
Level 2	3,33	3,33	3,33	3,33	m
Level 3	3,33	3,33	3,33	3,33	m
Level 4	0,00	0,00	0,00	0,00	m
Level 5	0,00	0,00	0,00	0,00	m
	9,99	9,99	9,99	9,99	m

Weighths and Areas Calculation:

Unit panel Area	18,00	m2
Unit Panel Volume	3,60	m3
Unit Panel Weight	8,64	T
Load on Column	28,80	T
Contribution Areas		
For Column	4,50	m2
For Panel	13,50	m2
% for Column	0,00	
% for panel	1,00	

Columns Design:

Column width, b	0,00	m
Column Length, l	0,00	m
Column Weight	0,00	T
Design Load	44,64	T
Design Moment	4,46	Tm
Compression Stress	0,00	kg/cm2
Steel amount	1,00	%
Steel Area	0,00	cm2

Lateral Pressures :

	Trapezoidal	Triangular	
Panel: Top	26,97	-1,45	T
Mid top	62,06	30,83	T
Mid bottom	43,58	50,31	T
Bottom	-37,69	71,82	T
Force in top column	0,00	0,00	T
in mid top	0,00	0,00	T
in mid bottom	0,00	0,00	T
in bottom	0,00	0,00	T
Force in panel top	26,97	-1,45	T
in mid top	62,06	30,83	T
in mid bottom	43,58	50,31	T
in bottom	-37,69	71,82	T
σ_{adm} nail bar	20,62	T	
σ_{max} nail bar	15,52	T	
FOS in nail tension	1,33	1,73	

Nail Design:

For Shearing:

Reinforcing bar diam	25	mm
Available Shearing	6,19	T
Number of Nails	4,00	
Applied Shearing	2,16	T
Factor of Safety	2,86	

For Friction:

Column Nail Diameter	15,00	cm
Panel Nail Diameter	15,00	cm
Unit Friction N/S	2,25	kg/cm ²
N/S Friction SF	3,00	
Column Friction Force	3,53	T/ml
Panel Friction Force	3,53	T/ml



