

LOT N30
TECHNICAL REPORT

SLAB FOUNDATIONS ON EXISTING TYPE C SOIL

The plan and the position inside the lot of the slab foundation, whose dimensions are near the allowed Building Coverage, ensure compliance with the set-back areas prescribed in document *"Official Participants Guide-Self-Built Exhibition Spaces-Design, Construction, Set-up and Dismantling"* April 2013.

The position and the plan geometry of the foundation allow the open excavation to remain inside the lot boundaries, thus considering any issues related to the site safety and coordination with any activities performed outside the lot.

The static sizing of the concrete slab results from the design of a building with regular arrangement of masses and volumes throughout the contact area, with corresponding vertical and horizontal loads that are rather uniformly distributed.

In accordance with the prescriptions on the building geometry in document *"Official Participants Guide-Self-Built Exhibition Spaces-Design, Construction, Set-up and Dismantling"* April 2013 the maximum height is 12 metres, and no additional architectonic element is planned over that height.

In the design assumptions the above-ground structure is outlined as a spatial frame bound by hinge knots at the base. The distribution of vertical loads on the columns is determined as a function of the relevant areas of influence. Resistance to horizontal, cross and longitudinal actions is by means of wind bracing structures placed on the façade and/or inside.

Wind and seismic actions are those under the Regulations as assessed for the Rho site, with rated life of the structures no longer than 10 years.

If precautionary assumptions are made on the extent of permanent and live loads, based on the structural model and the static diagrams stresses at the column base were determined for the various load combinations under

NTC2008 for the purposes of structural and geotechnical surveys.

For a more flexible use of the concrete slab, uniform reinforcements will be installed along each of the two main dimensions of development.

The foundation was calculated by identifying the bearing capacity of the support soil, based on the stratigraphy resulting from the geotechnical surveys performed near the lot.

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The support soil is classified as follows:

- Type C soil: coarse-grained materials (loamy or loamy-clayey matrix gravel and sand) with good mechanical characteristics, having the following main geotechnical parameters:

Soil	γ (kN/m ³)	φ' (°)	c' (kPa)	c_u (kPa)
C	20	33	0	-

For an approximate assessment of the foundation loads, which could be useful to study the possible above-ground structure to build on the concrete slab, below is a description, under the SLE conditions, of the total uniformly distributed vertical load, with a distinction of the action of permanent loads p_{perm} and of live loads p_{acc} , and height z of the centre of gravity where such loads will apply to the column base.

Foundation	P_{perm} (kN/m ²)	z_p (m)	P_{acc} (kN/m ²)	z_a (m)
Concrete slab h=80cm	1200	7.375	1400	5.785

The height of the extrados of the concrete slab is -70 cm from the finished floor height.

- **Material characteristics**

Reinforced concrete

Resistance grade: C25/30
 Exposure class: XC2
 Cement type: CEM II
 Consistency class: S4
 Reinforcing bars: B450C
 Welded wire mesh reinforcement: B450A

Lean concrete

Resistance grade:	C16/20
Exposure class:	X0
Cement type:	CEM II

After determination of the above-ground structure, the designer will verify whether the structural design is consistent with the executive design of the type of foundation and whether the verifications related to NTC2008 from actual foot loads are still satisfied.

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APPENDIX 2

Technical Specification “Slab Foundation”

