

PUBLIC PROJECT STUDYRevision No.v7
Revision Date: 1/2025

CONSTRUCTION OF STABILIZED CERAMIC FLOOR**WORK DESCRIPTION**

Construction of stabilized ceramic floor type PROLAT, initial layer thickness 10 cm, and final layer 8 cm or alternatively initial layer 6 cm, and final layer 5 cm.

The price includes the supply, transportation, laying and compaction, so that the final surface presents a smooth and closed appearance, highlighting the natural ceramic - earthen property of the constituent materials.

UNIT OF MEASUREMENT

Square meter

PRICE ANALYSIS

Material and transportation: €/m²

Labor: €/m²

Total construction cost: €/m²

ADJUSTMENTS

The stabilized ceramic floor of the PROLAT type comes from the mixing of various adhesives, and its final result has the appearance of an earthen floor, like the one that athletes run on (tartan). Clearly, the ceramic floor is not a simple ground tile, because this would also mean the need for maintenance, at regular intervals.

The ceramic floor of the PROLAT type is an industrial product and does not need any admixture or chemical additive. It is considered a cold - bioclimatic floor. The mixture contains pozzolan, quartz sand, ceramic flour and ceramic tesserae. The mixing of these materials, as well as their correct proportion in the mixture, must be such that the floor does not get muddy, has an earthen appearance, is stable in use, and at the same time does not need any maintenance.

WEATHER CONDITIONS

Weather conditions and different temperatures do not affect either the mixture or its application. In case of rain, if the ceramic floor has not yet been installed, then it must be covered so that the mixture does not set. Since the ceramic floor is installed, the rain helps it to bond and stabilize better.

In case of snowfall, a snowplow should not be used because it can damage the floor. However, in case

of a temperature drop below zero, the ceramic floor does freeze but returns to its original form with the temperature rising again.

SUBSTRATE AND FINAL LAYER

The substrate works in such a way that it is draining (since the ceramic floor does not hold water on its surface) and leads rainwater to where it has been intended. In most cases, well-pressed soil is sufficient as a substrate. However, in order to avoid grooves, and in order to smooth the ground, a compacted layer of 10 cm 3A as a substrate is ideal, and then the final PROLAT floor is placed.

In other cases where we need special resistance, the smoothing of the ground can be done as follows: 1st layer: Dirt in a compacted thickness of 10 cm. 2nd layer: 3A in a compacted thickness of 10 cm. Then the final PROLAT floor is placed.

INSTALLATION

Before installation, wooden frames, curbs or existing natural and non-natural obstacles are applied to enclose the surface. This helps with easier and smoother laying and compaction of the ceramic floor.

The mixture is placed evenly on the ground surface with an additional 20% thickness from the desired-final thickness, since it will then shrink. So, if we are aiming for a final compacted thickness of 8 cm, we will put an initial thickness of 10 cm. Correspondingly, for a final thickness of 5 cm we will put an initial thickness of 6 cm.

Once the dry mixture is placed on the ground, we apply a lot of water, so that it goes throughout its mass. The wetting of the mixture should not be done under pressure so as not to damage the floor surface, but essentially to function as a wetting.

Compaction is done with a 650-1500kg roller (pedestrian operator - self-propelled) or roller, depending on the situation. The first pass of the roller is made with vibration, and then another one is made without vibration.

The final result is a smooth and closed surface, with a ceramic - earthen appearance, but the mixture has 'bound' and has developed strengths inside it. Due to the elasticity of the ground tile, there is no need to make expansion joints. Any capillaries will

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be filled and covered with the use of the floor by pedestrians.

TIME REQUIRED BEFORE USE

The floor can be used by pedestrians after 7 days.

FLOOR BEHAVIOR AFTER INSTALLATION

The PROLAT type ceramic floor does not require any maintenance and remains stable over time. It is water-permeable and in case of rain it has the ability to absorb rainwater. However, the use of gutters helps in cases of very heavy rainfall, for the water that does not have time to be absorbed and led to the substrate.

Even in cases where subsequent work and partial dismantling of the floor are needed, its repair and re-installation is easy and without the repair points being visible.

In cases where the ceramic floor 'embraces' a tree, this can be done in two ways.

The first way is to enclose with a small curb around the tree. We can also apply the ceramic floor up to the trunk of the tree. In the latter case, the next day we can clean with a small hoe, around the tree, in order to let it breathe and be watered more easily. In any case, however, the rainwater would pass from the ceramic floor to the ground and therefore to the roots of the tree.

Finally, it is worth noting that in the event that the root of the tree grows towards the surface of the ground, the ceramic floor not only does not stop this natural growth, but on the contrary follows the displacement of the ground without even creating 'cracks' on the rest of the surface. Thus, it seems as if the floor around the tree becomes soil again, while immediately beyond it, it continues to have the same strength and behavior as the original installation.

The ceramic floor is not ideal for the passage of vehicles, as it can raise dust and being a soil-based material, there is a possibility of some damage.

PROLAT instead offers a stable and clean solution without dust and mud, without the need for maintenance, and which is at the same time fully functional for the user, the pedestrian, the cyclist, the mother with the stroller, etc.

PROJECTS WITH PROLAT FLOOR

- Acropolis Hill
- Niarchos Park
- Hellinikon Park
- Allou Fun Park
- Church of Panagia "Faneromeni" – Vouliagmeni
- Ancient City of Corinth
- Castle of Mytilene
- Old Town of Rhodes

PROLAT STABILIZED CERAMIC FLOOR CONSTRUCTION ARTICLE

Construction of a stabilized ceramic floor of the PROLAT type with the following characteristics, with a compacted layer thickness of 8 cm. Its result has the appearance of an earthen - natural floor. Coating of the final surface of corridors, spaces, etc. with material derived from the crushing of ceramic products in a grinder, fully baked, of excellent quality. The mixture contains pozzolan, quartz sand, ceramic flour and ceramic shards.

This layer of the final uniform thickness, after the completion of the compression of 8 cm, is planned to be constructed on an existing fully formed and compacted layer that is specially filled.

The price includes the supply of the final mixture, loading and unloading, transport from the production site to the project, diligent paving in the desired thicknesses (10 cm) until the intended final thickness of 8 cm is achieved after its compression, compaction and rolling with a 650-1500kg roller (pedestrian operator - self-propelled) until the mixture becomes incompressible, and simultaneous wetting with water without pressure. Price per square meter of complete final surface of compacted thickness 8 cm. after the supply and transport of the materials from any distance and each work.

Price per square meter (m2)

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CHARACTERISTICS OF PROLAT STABILIZED CERAMIC FLOOR		
CHARACTERISTICS	METHOD	RESULTS
SPECIAL PHENOMENON	BS EN 1936:1999	1,59 gr/cm ³
WATER ABSORPTION	ASTM C 1585 – 04	1.55 mm/min0.5
VAPOR PERMEABILITY	EN 1015-19:1999	2.53E-06 g / m ² .s.Pa
UNIAXIAL COMPRESSIVE STRENGTH	E 103-84/4	13.27 MPa
TENSILE STRENGTH	ASTM D 3967-08	1.06 MPa
TENSILE STRENGTH	E 105-86/18	k= 4.0E-10 (m/sec)
COEFFICIENT OF PERMEABILITY	E 105-86/11	ΜΕΓΙΣΤΗ ΠΥΚΝΟΤΗΤΑ 1.830 t/m ³ ΒΕΛΤΙΣΤΗ ΥΓΡΑΣΙΑ 14.6 %
MOISTURE-DENSITY RATIO (PROCTOR)	ASTM D 7012	99.4 kN
FAILURE LOAD	ASTM D 7012	1.72%
Axial load at failure	ASTM D 7012	2.1GPa
AXIAL DEFORMATION		0 – 8 mm



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Reflectivity Values: (Measurements based on international standards ASTM E903-12 & ASTM G159-98.)

SR	SR _{uv}	SR _{vis}	SR _{nir}	Emissivity (e) (error ± 0.02) Solar Radiation Reflectance Index (SRI)	Emissivity (e) (error ± 0.02) Solar Radiation Reflectance Index (SRI)
67	26	73	65	0,73	78

