

TECHNICAL DATA SHEET

STABILIZED CERAMIC FLOOR PROLAT

WORK DESCRIPTION

Construction of PROLAT stabilized ceramic floor –
Initial layer thickness: 10 cm – Final layer thickness:
8 cm.

ADMIXTURES

PROLAT stabilized ceramic floor is derived from the mixing of various adhesives, which contributes to a final result with the appearance of earth floor, like track surfacing (stadium tartan). Clearly, the ceramic floor does not consist of mere ceramic tile powder, as this would necessitate maintenance at regular intervals.

PROLAT ceramic floor is an industrial product and does not need any admixtures or chemical additives. It is a bioclimatic and eco-friendly floor. The mixture does not contain any chemicals at all; its ingredients include pumice, pozzolan, silica sand, ceramic tile powder, and ceramic gravel. Altogether ceramic tile powder in various granulometries is approximately 100% of the mixture aggregates. The mixture must not contain limestone aggregates in the form of grit or gravel, because they give a 3A feel and there is no elasticity on the ground. The mixing of these materials, as well as proper material content in the mixture, must ensure that the resulting material does not become slushy, has an earthy appearance, and is durable, and also that no marks are left upon when it is used, and no maintenance is required.

WEATHER CONDITIONS

Weather conditions and different temperatures affect neither the mixture nor its application. In case of rain, if the ceramic floor has not been installed yet, it must be covered so that the mixture does not set. If the ceramic floor has already been installed, rain will help it set and stabilize better.

SUBSTRATE & FINAL LAYER

The substrate performs a draining function (since the ceramic floor surface does not retain water) and leads rain water towards the slope. In most cases ground/earth trodden flat suffices as a substrate. However, one or two layers of 15 cm 3A are ideally recommended so that there are no furrows and the ground is smoother.

In other cases in which special durability is required and the floor is used by traffic, the ground may be flattened, for example, as follows: if deemed necessary, an improvement layer may be required, or the subsoil may be used. Next, sub-base layers (15-20 cm coarse aggregates for road construction) and base layers (15 cm) are required for road construction. More specifically, right underneath the PROLAT ceramic floor there must be a consolidated 15-cm 3A. The final layer applied is the ceramic floor; initial thickness is 10 cm, which is eventually reduced to 8 cm after wetting and compaction.

INSTALLATION

Before installation wooden frames are placed around the desired surface or curbs and existing natural and non-natural obstacles are used for the same purpose. This facilitates smooth casting and consolidation of the ceramic floor.

The mixture is uniformly applied to the surface of the ground and is 20% thicker than final target-thickness, as it is bound to shrink. Initial thickness must be 10 cm.

After the dry mixture has been placed on the ground, it is sprayed with lots of water so that its entire mass is wet. Mixture wetting must not be performed with too much pressure to avoid spoiling the surface of the floor.

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Compaction is performed with a vibratory road roller (650 kg) or a roller, depending on the case. The first pass of the road roller is performed with vibrations and is followed by a second one with no vibrations.

The end result is a smooth and closed surface with a ceramic – earthy appearance, but the mixture has ‘set’ and already possesses internal durability. Wetting has to be repeated the following day.

Due to the elasticity of ceramic tile powder, expansion joints are not necessary.

TIME REQUIRED BEFORE USE

The floor may be used by pedestrians after five (5) days. If it is to be used by vehicles, a period of twenty (20) days is ideally required.

FLOOR BEHAVIOUR AFTER INSTALLATION

PROLAT ceramic floor does not need any sort of maintenance and remains stable over time. While it looks like an earth floor, thanks to its composition no dust rises even when it is windy. It is water permeable and capable of absorbing rain water when it rains. However, the additional installation and use of gutters is helpful in cases of very heavy rain, when rain water is not absorbed fast enough and channelled to the substrate.

Even in cases in which works need to be done later and partial floor removal is necessary, the ceramic floor is easy to repair and reinstall without bearing visible reparation marks.

In cases in which the ceramic floor ‘hugs’ a tree, this may be done in two ways: we may either frame the area around the tree (e.g. with a small curb or with wood) or we may apply the ceramic floor up to the tree trunk. In the latter case, we may clean a ring around the tree with a hoe, so as to allow it to

breathe and be watered more easily. At any rate, rain water would pass through the ceramic floor and flow towards the ground, therefore it would be directed towards the roots of the tree.

Finally, it is worth noting that, if the tree root grows towards the ground surface, the ceramic floor not only allows this natural development, but it also follows soil displacement without causing ‘crazing’ to the rest of the surface. So the floor around the tree appears to become earth again, whereas beyond this point it retains the same strength and behaviour that it possessed when it was first installed.

IMPORTANT NOTE

If the contractor should use only ground tile, it is 100% certain that dust will rise when ground tile is dry, and that it will turn to mud when it gets wet. If plain tile is used, it is a fact that annual maintenance will be needed and there is no chance at all that it will remain stable and not be washed away by the rain. In addition, sooner or later various plants are bound to grow on the surface, which will be avoided if the stabilized ceramic floor is used.

If we simply added cement to ceramic tile powder, it would be like concrete, therefore the floor would be unsuitable for children to play on and if a child fell, it would definitely hurt itself (since tile elasticity would be lost). Furthermore, rain water would not be absorbed at all and it would eventually stagnate over time.

PROLAT offers a stable and clean alternative, with no dust and mud, no need for maintenance, and at the same time fully functional for all users – pedestrians, cyclists, mothers with prams, etc.

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FEATURES OF PROLAT STABILIZED CERAMIC FLOOR

FEATURES	CONTROL METHOD	PRODUCT BEHAVIOUR
APPARENT SPECIFIC WEIGHT	BS EN 1936:1999	1,59 gr/cm ³
OPEN POROSITY	BS EN 1936:1999	25%
WATER SATURATION PERCENTAGE	BS EN 1936:1999	16%
WATER ABSORPTION	ASTM C 1585 – 04	1.55 mm/min0.5
VAPOUR PERMEABILITY	EN 1015-19:1999	2.53E-06 g / m ² .s.Pa
DYNAMIC MODULUS OF ELASTICITY	ULTRASOUND USE F 50 kHz	3780 MPa
7-day COMPRESSIVE STRENGTH	E 103-84/4	6.26 MPa
TENSILE STRENGTH	ASTM D 3967-08	0.66 MPa
HYDRAULIC CONDUCTIVITY	E 105-86/18	k= 9.9E-08 (m/sec)
MOISTURE-DENSITY RELATIONSHIP OF SOILS (PROCTOR)	E 105-86/11	MAXIMUM THICKNESS 1.830 t/m ³ OPTIMAL MOISTURE 14.6 %

