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THE PROBLEM:

Modern architecture supports people in extending their living environment on balconies, terraces and flat roofs. The rigid connection between tiles and construction layers below can cause problems. Wear and tear by sun, water and frost (varying expan-

sion coefficients, flushing and rising) when applying conventional laying techniques, leads to cracks, leakiness and sagging of the covering. Combined with plants growing in the joints, high sequential and repair costs are inevitable.

Extended constructional physical findings have proved that tiles must be separated from the substructure and the adjoining constructional parts. We have, therefore, constructed

an elasticated tile support which has proved itself world-wide and has only advantages to offer:

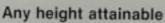
the PP-System.

THE SOLUTION: (PP = Tile Support)



The PP - System is a tile support - made of plastic (polyethylene) which is dimensionally stable, not susceptible to fatigue, and weather resistant - which separates the tiles from the substructure. Compatibility exists with all other building materials. We can offer tile supports of 15 mm and 45 mm height as well as an adjustment tile. Our tile support is placed onto the intersection point of the joints, the upper cams (15 mm high) working as spacers and thus ensuring an even joint pattern. Joints are kept open, water can flow away under the

The picture on the right shows a border and completion possibility for maximum pressure. In this case the tile supports are not halved but used whole and the diagonally opposite spacers (cams) are removed (they are 90mm high in this pictu-





Another unique feature of the PP tile support is the simple way in which any height can be obtained by stacking the tile supports. Unevenness or existing slopes can be compensated or new slopes created. PP tile supports are laid in a jiffy.

Nominal break markings facilitate splitting up of tiles according to requirements. There is no wastage as each broken-off unit can be reused (spacers remain intact when split up). At the same time thickness tolerances of tiles can be adjusted by mounting adjustment tiles. The PP-System is unsurpassed with regard to easy operating and economy.

Cost saving approx. 35 %.



PP offers you a low structural pressure when compared with the heavy conventional laying methods for terraces and flat roofs. In addition, the living comfort is increased by a decisive improvement in the footfall sound attentuation. Material fatigue in the substructure is also substantially slowed down by the thermal insulation of the PP-System.

The best recommendations of a product come from its practical use:

At the Cultural and Congress Centre in Sofia (1980), in an area of 7 000 m², over 30 000 tile supports (PP 155 15) lie under the marble tiles of this prestige water display installation.



The fundamental part as well as the adjustment disc have nominal breaking lines and are easily divided up for use in corners and borders.

Laying in and around corners



Terrace of a Café in Italy





With the PP-System, the joints remain open, water runs off under the tiles. This undersurface drainage ensures a dry walking surface. In addition, a self-cleaning effect is achieved on the tile surface. Differences in elevation which used to be necessary are now superfluous as the water runs off under the tiles.



You can enlarge the distance between tiles and substructure by stacking our standard tile supports or using our special model of 45 mm height. This leaves you the possibility for subsequent laying of circuits, cables and pipes, quickly and without any problems.

Leaks in the roof sheeting or connections are easily localised with the aid of the PP-System. Expenditure for labour and material is comparatively low.



Replacement of defective tiles, the entire tile covering, or a change in the laying pattern are possible at any time and can be carried out without any problems, each PP remaining reusable.

Objects of Reference in 5 Continents:

Greece:

Goethe-Institute, 1 250 m²

Austria:

Avanti Hotel Semmering, Steiermark 1 200 m², 12 000 pieces of PP laid Old People's Home Tulin, Lower Austria 40 Balconies 1 000 m², 10 000 pieces of PP laid

France:

Ranst, 5 000 m2, 40 000 pieces of PP laid

Holland:

Rijksuniversiteit Multifunctioneelcentrum Groningen, approx. 1 000 m² roof terrace Flatgebouwen Tussenmeer Amsterdam approx. 800 m² Galerien

Saudi Arabia:

Al Jobail Housing, Dammam 1979, 250 000 m²

Qatar

General Post Building, Doha, 2 000 m² Stuttgart Berkheim Special School Centre 1974, 7 500 m²



TECHNICAL DATA

Product No. PP 155 15 PP 155 45 AS 3/15

a) Ø of PP 155 mm b) height 15 mm/45 mm

c) height of

distance spacers 15 mm

d) spacer width

4 mm

bearing area adjustment disk AS 120 cm² 3 mm

Divisable into 1/4, 1/2, 3/4 pieces, stackable, no wastage; particularly good footfall sound attenuation.

For laying one square metre of concrete tiles you will require.

Concrete Tile Dimensions 50 x 50 cm

No. of PP Tile Supports 4

40 x 60 cm

pieces 4,2 pieces

40 x 40 cm 6,25 pieces 30 x 30 cm 11 pieces



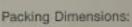
PP 155 15 Standard Model



PP 155 45 Special Height



AS 3/15 Adjustment Disc



Art. No.

PP 155 15 620x310x480 mm PP 155 45 620x310x480 mm

AS 3/15

350x300x470 mm



Weight per Carton:

155 15 1 carton 15,5 kg 250 p. 155 45 1 carton 11 kg 80 p. AS 3/15 1 carton 11 kg 500 p.

Testing Process:

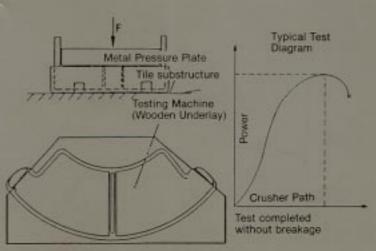
| Temperature of Testing Sample °C | max. Force N | Crusher Path mm |
|--|--------------------|-----------------------|
| 1200 | 4100 | 3,4 |
| 80 | 4000 | 2,9 |
| | 4050 | 3,3 |
| x ± s | 4050 + 50 | 3,2 + 0,3 |
| | 5070 | 3,1 |
| | 5600 | 3,5 |
| 60 | 5630 | 3,2 |
| | 6040 | 3,3 |
| | 5350 | 3,1 |
| x ± s | 5540 + 360 | 3,2 + 0,2 |
| | 7190 | 3,4 |
| 50 | 6600 | 3,4 |
| | 6200 | 3,1 |
| x ± s | 6660 + 500 | 3,3 + 0,2 |

Loading Capacity 1200 kg 1PP +90°C Constant Heat

Constant Cold -50°C

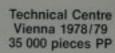
UV stabilised 2.5 % dark coloured

Oil and acid resistant and compatible with all building materials such as bitumen, PVC, PIB, ECB, elastomere





FAST SERVICE WORLD-WIDE





Residentie Hertogenpark Antwerp, Belgium 1980 30 000 pieces PP

> Educational Centre Munich 25 000 pieces PP



