Use of P.V.C. tiles by Port of London Authority

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Objekttyp: **Article**

Zeitschrift: **IABSE reports of the working commissions = Rapports des commissions de travail AIPC = IVBH Berichte der Arbeitskommissionen**

Band (Jahr): **2 (1968)**

PDF erstellt am: **22.09.2024**

Persistenter Link: https://doi.org/10.5169/seals-3985

USE OF P.V.C. TILES BY PORT OF LONDON AUTHORITY

L'emploi de dalles en P.V.C. par la "Port of London Authority"

Anwendung der P.V.C.-Fliesen durch die Port of London Authority

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The Port of London Authority are responsible for a number of bridges in the docks under its control and most of these are of moving type to permit the passage of shipping. To reduce the power required from the operating mechanism as much as possible all the dead-weight of the span has to be counter-balanced with the result that the loan on the supporting rollers or bearings is much higher than it otherwise would be.

Much has been done of recent years to reduce structural weight and considerable thought has also been given to deck surfacings. The P.L.A. have considered the use of various alternatives to rolled asphalt; which weighs some 11 lb. per sq. ft. for each inch of thickness, and for their new bridge which they have recently designed for the South Dock Entrance at India & Millwall Docks they intend to adopt a p.v.c. material containing ground mineral fillers. This will be 2.5 millimeters in thickness and weighs only 1 lb. per sq. ft.

This surfacing has been extensively used for a number of years as a road marking material and was first adopted by the P.L.A. for surfacing the lifting section of a covered footbridge which was completed in 1964.

The new bridge will have the sheeting on the road as well as on the pavements and the reasons which led to its adoption are perhaps of interest.

The carriage-ways will be formed from a welded battle deck structure which has been designed for full H.B. loading and some deflection of the $\frac{7}{8}$" road plating is of course expected. This deflection will not be much reduced by the use of a thin light-weight surfacing and the flexible tiles are therefore to be preferred to a material which has a hard setting characteristic, such as many epoxy compounds.

The sheeting has a highly non-skid triangular embossed surface and has good wear resistant properties, which have been amply proved by tests on trunk roads and pedestrian crossings in areas of intensive traffic. It will be laid in tiles 2' square and replacement will be an easy matter when eventually required.

An incidental advantage of the sheeting is that it is available in several colours including black and white making it possible to build carriageway lines etc. permanently into the surface.

It is obviously essential that the surfacing should adhere strongly to the deck plating and close attention has been given to this feature and to the necessity for protecting the steel-work from corrosion. This latter problem is aggravated by the necessity for leaving a gap of $\frac{1}{8}$" between the tiles when they are laid to allow for spread in service and these gaps have to be effectively sealed to prevent moisture seeping underneath.

It was originally intended to first prepare the deck by grit blasting followed by zinc spray with the tiles bonded to the zinc and sample plates for this treatment were made up for testing. It was found that the adhesion of the zinc to the steel was substantially less than of the tiles to the zinc and that better adhesion altogether was obtained by the grit blasting followed by a weldable primer only between the tiles and the steel. This treatment will be adopted for the new bridge and the joints between the tiles will be sealed with the adhesive.

SUMMARY

The author discusses the considerations leading to the adoption of polyvinyl chloride tiles as a carriageway surface on an opening bridge.

RESUME

L'auteur explique les raisons pour l'emploi de dalles en P.V.C. comme revêtement routier sur des ponts mobiles.

ZUSAMMENFASSUNG

Der Autor erklärt die Beweggründe, welche P.V.C.-Fliesen als besonders günstig für Straßendecken auf beweglichen Brücken erscheinen lassen.

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