

CORRECT SELECTION AND SPECIFICATION OF PAVING SUPPORT SYSTEMS



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Introduction

This technical bulletin has been produced following observations by our Surveying network of issues around the use of pedestal support systems on warm flat roof build ups and potential detrimental impacts to provision of Warranty.

What are the Warranty providers concerns?

The application of pedestal systems by Developers to create raised surfaces on warm roofs for balconies, flat roofs, and roof terraces is frequently problematic, with Surveyors regularly flagging issues during design evaluation and site visits, attributable to Designers:

- Underestimating expected loadings or failing to recognise potential foreseeable loadings by the use/user.
- Specifying insulation with compressive strength unable to meet the expected loadings from the pedestals leading to risks of indentation at the base of a pedestal and potential issues of water ponding.
- Specifying waterproofing that cannot resist these loads from pedestals when employed over insulation.
- Specifying pedestal systems that have an insufficient base area to spread the loads effectively or that have been tested on a hard material such as a concrete deck but not tested for use on insulation, leading to a risk of damage occurring under each pedestal.
- Not fully recognising the issues posed to the correct positioning of pedestal units around complex areas of detailing e.g. built kerbs, outlets.

Warranty stance

A failure to adopt a considered and calculated approach to determination of loads and the required performance of the receiving waterproofing system will impact directly on the roofs ability to meet the Functional Requirements of Warranty, notably those relating to protection of materials, the avoidance of damage to waterproofing and those relating to achieving effective drainage.

What Developers should action after reading this Technical Bulletin?

Developers are asked to adopt site specific practices in determining performance of both waterproofing systems, the insulation and any pedestal paving support systems being proposed.

Expected and foreseeable loadings shall be determined by an Engineer and working with the roofing designer the selection of an appropriate pedestal system should be based upon how each unit, its base size, and the overall spacing pattern will be expected to transfer those loads through to the waterproofing system.

Any data in relation to the load bearing capacity of the receiving waterproofing system – both insulation and membrane - should be assessed by the Engineer and roofing designer based on these specific load patterns to determine an acceptable performance level can be achieved by the selected waterproofing system.

When supplying information to allow a determination of Warranty risk, the Developers design team shall ensure that designs, specifications and installation methodologies including the pedestal 'plan layout' covering spacing and interaction with detailing are provided.

Any calculations shall be site specific and clearly state where loading data has been taken from – this may be provided by the relevant manufacturer and appropriate design codes e.g. 'Eurocode 1 — Actions on structures, Part 1-1: Specific weight of materials, self-weight of construction works and imposed loads for buildings' provides a source of information around determination of loads, categories of use and characteristic values and this can feed into any determinations on expected loading.

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Additionally in design, Developers design teams shall ensure that:

- All the materials used, have evidence that supports their intended use – so the waterproofing and insulation materials should clearly state that they can be used with a pedestal paving support system over the top.
- The design clearly defines the use including any potential foreseeable loading created by the use or user.
- The insulation, waterproofing system and pedestal support system has an appropriate and relevant amount of data demonstrating performance against the stated design loads.

On site, Developers site teams shall ensure that:

- Materials being used are as per the design – any changes or substitution of materials should be cleared by the designer of the system and documented in records in readiness of a Warranty Surveyors visit.
- Works are being supervised, and that Quality Assurance records are kept up-to date with relevant text and photographic evidence in the site office for the Warranty surveyor to observe progress during their visits.
- Test and Inspection plans are covering all aspects of the work, with particular focus on the interfacing and support arrangements being provided around areas of detailing – particularly around elements of fabric that penetrate through the paving such as stanchions and posts as these can create areas of complexities in the detailing of the pedestal support system.