

Understanding Raised Floor Systems for the Specifier (2016)

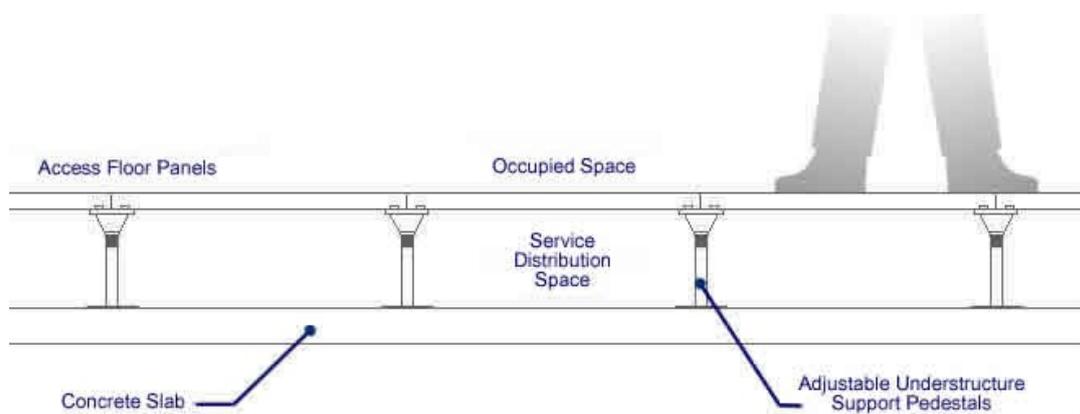
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Current Specifications

European Raised Flooring Systems now fall into two main Specification Categories. Those being PSA MOB PF2 PS and the New European and UK British Standard BSEN 12825:2001.

The MOB Standard was set up by the Public Services Agency and was compiled in 1992 and became the definitive Raised Flooring Standard. The BSEN standard was designed to allow all European manufacturers to be able to classify their systems under one standard whatever the performance of their Products.

The majority of raised flooring manufactured comes in a standard 600 mm x 600 mm floor panel size and will be supported on steel adjustable understructure (typically as per illustration).



The BSEN Specification

Panels are now graded by their ultimate loading capacity or Class (Which is defined as ultimate load at the time of failure of the element during the ultimate load test which involves placing a square indenter on various weak places on the panel and recording the Load when the panel collapsed)

Therefore the first classification is the Class the higher the number the more strength it will have:-

Class	Ultimate Load Kn
1	≥4
2	≥6
3	≥8
4	≥9
5	≥10
6	≥12

This Ultimate Loading is then divided by the Safety Factor and that gives you “The Working Load”. The Working Load is then applied to the panel and the deflection is measured and classified under the following table.

Classes Of Deflection	
A	2.5 mm
B	3.0 mm
C	4.0 mm

The panel is then defined by the tolerances it is made to. There are 2 classes 1 and 2 , “1” being the best.

Therefore BSEN flooring Systems should be defined as followed, example shows the strongest possible panel under BSEN Certification with a 3x Safety Factor.

Ultimate Load above 12Kn	Deflection under working Load 2.5mm	Safety Factor	Class of Tolerance in Manufacture
6	A	3	1

MOB PF2 PS SPU Specification

The majority of raised flooring manufactured comes in a standard 600 mm x 600 mm floor panel size.

The MOB PF2 PS calls for three grades of floor. Their relative loads are listed below:

Grade	Concentrated Load over 25mm sq	Concentrated Load over 300mm sq	Uniformly distributed Load
LIGHT	1.50 kN	2.70 kN	6.7 kN/m ²
MEDIUM	3.00 kN	4.5 kN	8.0 kN/m ²
HEAVY	4.50 kN	N/A	12.0 kN m ²
EXTRA HEAVY	4.50 kN	N/A	12.0 kN m ²
	In addition, this grade is required to sustain a total load of 11 kN applied equally on four points, each point 25mm sq on a 200 mm x 200 mm square configuration anywhere on the system.		

The systems shall sustain three times the particular static loadings for 5 minutes without collapse with the exception of the 11 kN four point static loads required for the EXTRA HEAVY GRADE which shall be 2 times for 5 minutes without collapse. The system shall be capable of withstanding this load at any of the positions which has been subjected to the particular static load test.

What are the main differences between PSA and BSEN Specifications ?

The main difference between the PSA and BSEN specifications is that in the PSA specification there was a rigid table of performance and criteria and a strict pass or fail benchmark that needed to be certified by an independent authority. Within the BSEN specification there are now an infinite variety of products and performances being certified by the manufacturers and it can be very difficult to decode exactly what you will be getting unless you select one of the higher end products. It is very easy to disguise the performance of an inferior product with a BSEN Classification.

The most common product in use today is the PSA MOB Medium Grade Bare Panel for Office Use, it is difficult to directly compare the BSEN Specification against the MOB specification but the alternative should be either a 5/A/3/I or a 6/A/3/I fully steel encapsulated panel.

Choosing Your Floor System

Your first decision when specifying should be the GRADE of flooring under the PSA Specification you require or the Working Load or Ultimate Load under the BSEN System.

Finished Floor Heights (FFH) or VOID

The next decision you need to make is the height of the raised floor above your existing slab or sub-floor. This can be expressed as a FINISHED FLOOR HEIGHT or as a clear VOID space. In the event you specify clear void space the thickness of the panel will be added to this figure to give the FFH.

Please note that when floor systems go above 450 mm it is recommended that stringers are installed. Stringers are a lateral support between pedestal heads and their use will result in an increase in the cost. However, I have seen many installations up to 800 mm with no stringers where the manufacturer has not installed them, as he has left them as an either/or item in his quote and has omitted to tell the client that his system is then not MOB PF2 PS compliant at that height without stringers. This is a common problem - as a personal recommendation one should insist on stringers above 450mm.

Floorcoverings

There are many coverings that can be chosen for factory application to Raised Floor Panels, some examples are given below. The most common type of floor panel is a bare finished panel; standard practice is to then finish with 500 mm x 500 mm carpet tiles laid off grid on a tackifier adhesive.

Vinyls	This is the most common finish after bare panels. Anti-static vinyls are used in Comms/Computer environments where static may affect delicate circuitry.
Carpet	Carpet can be factory bonded to a 600 mm x 600 mm panel.
Marble or Stone	Several types of Marble and Stone are suitable for bonding to raised floor panels.
High Pressure Laminates	High Pressure Laminates or HPL's are a type of formica product which is extremely durable and has many anti-static qualities which make it suitable for Comms/Computer room environments.
Wood	Finished Wood Planks or Strip can be bonded to a raised floor panel.
Rubber	Several types of Rubber are suitable for bonding to raised floor panels and this can lead to a colourful office environment.
This is by no means the definitive list of coverings but gives some idea of what can be applied to a panel. However, it is worthwhile noting that the floor panel's life is normally reduced to the life of the floor covering that has been factory bonded to it.	

Installation Environment

The proper installation environment is essential if a good installation is to be achieved. A good document to specify is the K4I specification in which you can insert your required Panel GRADE, Finished Floor Height and Floor Finish. This Document is examined in depth in the link K4I.DOC

Non Compliant Systems

There are a number of non-compliant systems on the market and these can produce significant cost savings over a fully compliant system. They can provide a good alternative solution to traditional timber and joist construction. These normally consist of a high density particleboard panel installed on a pedestal of steel or block, for longevity it is wise to choose one which has steel adjustable understructure as maintenance can be high on concrete block installations.

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