



FLEXI
ACCESS FLOOR



Frequently Asked Questions





Flexi Access Floor Frequently Asked Questions

Q. What is a Raised Access Floor System?

- A. A raised access floor system comprises of load bearing floor panels laid in a horizontal grid supported by adjustable vertical pedestals to provide an underfloor space for the housing and distribution of services. The floor panels are readily removable to allow quick access to the underfloor services.

Q. Why use a Raised Access Floor?

- A. A raised access floor is used to provide a means of creating a void below floor level, which is capable of ensuring building services are available at their required destination. These services will typically include the following:
- Electrical Power • Data • Telecom • Environmental Control / Air Conditioning
 - Fire Detection and Suppression • Security • Water and Drainage.

The use of a raised access floor will allow quick and easy access to these services for maintenance reasons. Also in today's modern office environment churn is a major issue. That is the number of times the office layout has to be modified to cater for changing requirements brought about by new technology, new personnel or new tenants to a building.

Q. What are the benefits of using a Raised Access Floor?

- A. Raised access floors are used extensively to provide the following benefits:
- Quick and easy access to the ever increasing volume of power, data and telecom services found within modern building.
 - The underfloor void or cavity depth is often used as a large duct for HVAC systems.
 - In speculative buildings, premises need to be adaptable for the needs of incoming occupiers.
 - Once occupied offices need to cater for office churn and lend themselves to new office organisations and layouts with the redirection of services.
 - Accessibility is a major consideration. People want easy access to the services for maintenance, re-routing or upgrading with as little disruption as possible to the work process.

Q. What types of Raised Access Floor are available?

- A. There are two basic types of raised access floor system available each with their own advantages.

- **Gravity held or loose lay products-** Here the floor panels rest on the pedestal head. The panels are held in place by their weight with lateral location providing engagement between panel and pedestal head. These systems allow very quick and easy access to the floor void and the panels can be readily finished with factory-bonded finishes.
- **Lock down or screw down products-** In this case the floor panel is screwed or locked directly to the pedestal head thereby holding the panel in place and also providing lateral location. This system provides a very solid and rock free floor with quick and easy access to the floor void. However these systems cannot accept factory bonded finishes

Q. What are the alternatives to using a Raised Access Floor?

A. The alternatives are: -

- **Suspended Ceilings-** High level trunking runs are above the ceiling and services drop down at the required locations through service poles. However any relocation, maintenance etc is at high level thus causing major disruption to the office area.
- **Pre-cast trunking-** This method was common in the 1970s. Steel trunking is cast into the structural slab or topping screed along pre-defined runs. No flexibility to cater for future changes.
- **Poke-through-** This is a common design practice in the USA and is simply feeding services through holes cut in the concrete slab from the floor above and down power poles to low level. No flexibility to cater for future changes.
- **Skirting and Dado trunking-** Steel or plastic trunking, which runs around the perimeters of individual rooms. Adequate for small rooms but very limited for larger areas, also limited cable capacity.
- **Furniture-** Specialist furniture, which encompasses in-built service runs. Expensive and limited to vicinity of furniture runs.

Q. What are the key components of a Raised Access Floor System?

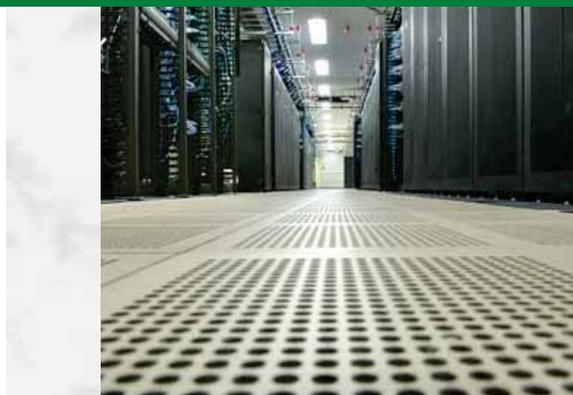
A. The key components of a Raised Access Floor System can be defined as follows:

Floor Panel

This is the horizontal load-bearing component of a raised floor. It is normally 600mm square (industry standard module size) but can be 500mm or 750mm square or of a special project related size if required. These sizes are nominal sizes and clarification should be sought from the manufacturer as to their stated panel size and tolerances. These floor panels will be supplied as either bare finished to accept a carpet tile finish on site or, with a factory bonded finish.

Pedestal

This is the complete vertical, adjustable supporting structure to the raised floor panels. The pedestals are normally bonded to the sub floor using an epoxy resin based adhesive with mechanical fixings also provided if required. The pedestal assembly provides vertical adjustment of 25mm to allow the raised floor to be installed flat and level despite undulations in the sub floor. The pedestal head provides panel location and also when required a means of fixing the panel to the pedestal head.





Stringer

This is a horizontal component that connects pedestals together. It connects to the pedestal head and is used to provide additional lateral support at greater floor height and/or increase the structural performance of the raised floor system.

Q. What are stringers and why should we use them?

A. Stringers are introduced for various reasons each with their own specific design.

- **Bolt on stringers**- These are screwed into the pedestal head and are designed as structural components and as such increase the structural performance of the raised floor system. They will also provide increased lateral stability.

Q. What are the anticipated structural requirements of the Raised Access Flooring in terms of static loads, rolling loads and pedestrian traffic?

A. It is important at an early stage in the consideration of a raised access floor that a detailed assessment is made of the likely loadings that will be imposed on the floor surface. These loadings need to be assessed in terms of;

Static Loads	Dynamic Loads	Pedestrian Traffic
<ul style="list-style-type: none"> • Uniformly Distributed Loads 	<ul style="list-style-type: none"> • Rolling Loads 	Areas of high traffic need to be determined
<ul style="list-style-type: none"> • Concentrated Loads 	<ul style="list-style-type: none"> • Vehicle Configuration & Weight 	

This information can then be used to determine the structural requirements of the raised access floor.

Access Floor Load Testing

Static Loads			Dynamic Loads	
Concentrated These loads are applied on a small area on the panel surface 	Uniform These loads are applied over the entire surface of the panel. 	Ultimate These loads are reached when the panel cannot accept any additional load and fails structurally 	Rolling These loads are applied by wheeled vehicles carrying loads across the floor 	Impact These loads occur when objects are accidentally dropped on the surface of the panel 

Source: 'Recommended Test Procedures for Access Floor' – CISCA (Ceilings and Interiors Systems Construction Association)
 These Test Procedures do not set standards for Test results

Q. Are there any standards governing the use of raised access floors?

A. **MasterSpec & CISCA method of Testing:** The North American specification which often travels with either the

American client or American architects and is regularly used internationally. This is an industry driven specification and test method, which is based upon individual component testing

Other standards regularly in use are: -

PSA MOB PF2 PS/SPU: This specification was initially produced by the Property Services Agency (PSA) one of the first large users of raised access flooring within general office areas. This document is a comprehensive performance specification covering both the products and their installation. It is based upon complete system testing i.e. floor panels supported on their pedestals. This standard became the de facto standard for the UK raised floor industry.

In August 2001 a European Standard was issued after several years of consultation between all the European manufacturers and was adopted as a British Standard in November 2001, **BS EN 12825**. The use of this standard is increasing as it provides specifiers with increased flexibility. This specification classifies raised flooring products by their structural performance

Q. What is the fire resistance of a Raised Access Floor System?

A. BS EN 12825 calls for compliance with provisional standard EN 13501-1 and 2 where required. In order to meet the requirements of the PSA MOB PF2 PS/SPU specification the raised access floor system has to comply with the following,

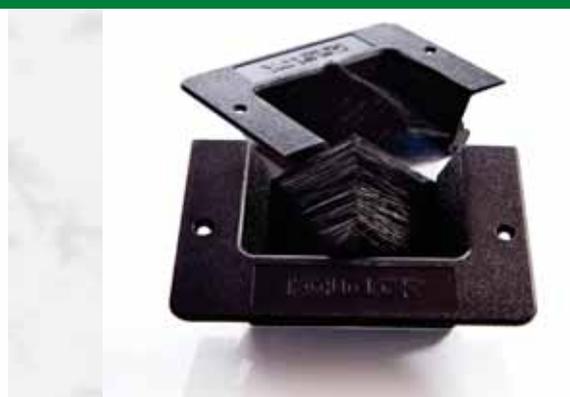
1. Class 0 fire rating which is obtained by achieving a Class 1 surface spread of flame and appropriate fire propagation indices. These are determined by BS 476 Part 7 and Part 6.
2. Pass the requirements of the small-scale fire test as outlined in the PSA specification. This test is undertaken on a complete raised floor system with the floor subject to the system's uniformly distributed load for the duration of the fire test. The floor must not show excessive deflection for the duration of the fire test.
3. Provide information relating to the thermal insulation performance of the raised floor. This is achieved by repeating the small-scale fire test with measurements taken of the temperature the raised floor surface reaches.

These tests provide information relating to the level of fire resistance and reaction to fire of a raised floor system and have proved sufficient for a long period of time and continue to be used until the requirements of EN 13501-1 and 2 are fully determined.

Q. How is a Raised Access Floor installed?

A. With regard to the physical installation of the raised access floor within a basic space there are two main issues:

- **Finished floor height and level.** Within a single floor area a datum height will be agreed between the floor installer and the main contractor. This datum height will be directly related to the building datum. This will determine the height to which the raised access floor will be installed. The raised floor will be installed level to this datum by the use of rotating laser.
- **Set out of the Raised Access Floor System.** The set out of the raised access floor is an important aspect in ensuring that the raised floor operates satisfactorily throughout its anticipated life span. Depending on the size and shape of specific floor areas and size and location of any obstacles on the sub-floor a range of solutions can be sought. Raised access flooring panels are cut on site to fit at perimeter walls therefore a best fit situation can be sought using the appropriate floor panel module size. Ideally the setting out of the panels and pedestal can be co-ordinated by: -





- Working in line with other building modules to avoid regular obstructions.
- Working out from the centre of an area.
- Working to column centres.

Cut panels should ideally be cut just under a full panel width or a half panel width in order to minimise wastage. Cut panels of less than 150mm width should be avoided in order to maintain structural integrity. When it is not possible to avoid small cut panels the following solutions are available

- In-board cutting, the principle of maximising the size of a cut panel by additionally cutting the last field panel adjacent to the perimeter. On certain product ranges and structural grades oversize panels are available as an alternative to the above.

Q. How to avoid problems associated with Raised Access Floors?

A. As the raised access floor performs a critical function within the working office environment faults with the system can cause problems from simple annoyance through to major disruption. Many faults are rectifiable to a varying degree, however it is essential to consider the following key factors to prevent such occurrences

Causes: -

- Use of inappropriate products and/or solutions
- Use of inappropriate class or grade of raised access floor
- Poor quality products and/or installation
- Raised access floor not lifted and replaced in accordance with manufacturer's instructions
- Lack of appropriate maintenance.

Effects: -

- Movement, rocking and squeaking of floor panels
- Difficulty in removing and replacing panels
- The floor may require modification in order to perform satisfactorily
- Areas of floor or the complete floor may require replacement
- Possible floor collapse with likely damage and injury

In order to avoid the problems outlined it is important that the raised access floor be correctly specified at the outset. This specification should include not only the product requirements but also the installation requirements. Once installed the raised floor must be maintained correctly in line with the manufacturer's instructions.

Q. What are the different types of screws?

A. The different types of screws used in the systems are: -

Corner lock screws: Used to screw down panels.

Bolted stringer screws: Used to secure bolt-on stringers at all heights.

Adaptor block screws: Used to screw adaptor block to pedestal heads in refurbish jobs where it is required to use new panels on old understructure. None of these screws are interchangeable for purpose in the system

Q. What is FFH? What are the issues related to it?

A. **Finished floor height (FFH):** The height of a raised access floor is measured from the sub floor to the top of the

floor panel: Void height is measured from the sub floor to the underside of the floor panel. In order to evaluate the required finished floor height there are several issues that need to be considered:

(a) Service requirements at floor level: As part of the assessment of determining the service levels in the floor void due consideration should be given to the individual requirements at desk/operator level. As part of this exercise due regard needs to be taken for expansion/increased service levels and the implications of this on the raised floor void and hence raised floor height.

(b) Minimum floor to ceiling requirements: Within any building design the top of floor to underside of ceiling minimum dimension is one aspect that is outside the designer's area of influence as it is governed by building regulations. However the use of a raised access flooring system in conjunction with under floor modular cable management and/or under floor HVAC will allow this dimension to be optimised.

(c) Level of services in floor void: A raised access floor is used to provide a means of creating a void below floor level which is capable of ensuring building services are available at their required destination. These services will typically include the following:

- Electrical Power • Data • Telecom / Voice • Environmental Control / Air Conditioning
- Fire Detection and Suppression • Security • Water and Drainage

An evaluation of each of these underfloor services will give an indication of the space required for each service run. Due regard needs to be taken for any multiple service runs, crossover of services etc. Also at this stage consideration needs to be given to the specification of any service carrier. For instance cable baskets will offer less resistance to underfloor air distribution than other trunking systems.

Q. Is the initial cost for a Raised Floor System with underfloor HVAC and modular wiring far more expensive than a conventional system?

A. Depending on the size of the project, first cost analysis is comparable to conventional methods. The cost difference can be recovered in less than eight years, or after only one or two reconfigurations, because of energy savings, increased productivity and reduced churn costs.

Q. Should the sub floor be sealed prior to installing a Raised Access Floor System

A. Coating the sub floor with epoxy resin helps in preventing access of dust into services runs and keeps the sub floor clean.

Q. Can Raised Access Floor Systems be used in Seismic Zones

A. The under structure of a raised access floor System can be designed to endure forces in locations prone to Seismic activity.

Q. What is the life span of a Raised Access Floor System

A. As stated by MOB PF2 PS the life span of a raised access floor system should be 25 years (excluding the floor coverings)





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