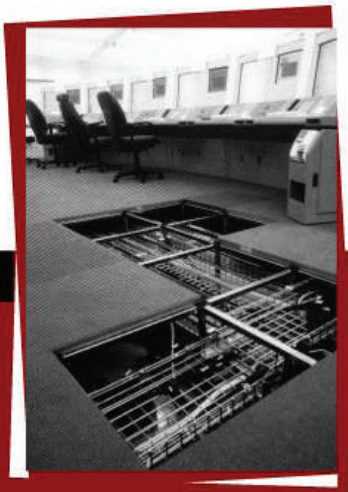
I Floor

RAISED ACCESS FLOORING



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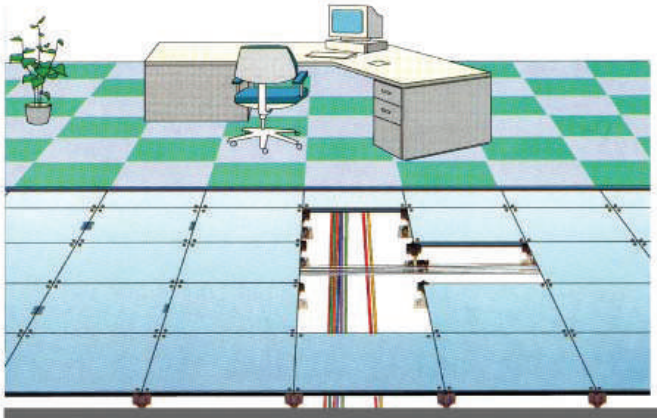
OVERVIEW OF RAISED ACCESS FLOOR SYSTEM

Raised access floor system provides a solution to the problem of housing the many types of cables & services associated with the modern buildings today.
It conceals all cabling under the Raised access floor while allowing easy access for maintenance or changes. Most important is, it gives a neat environment free of messy cables running around and make it easy to clean, neat & nice working environment.

A raised access floor system consists of tiles, understructure and accessories. Typically the size of the tile is 600 x 600mm & tiles are made of steel with cement infiled or wooden core.
These tiles are supported on understructure consists of pedestals & stringers. Accessories such as raised floor boxes, to house data, telephone & electrical sockets and grommets for passing wires through, and lifting tools to remove or replace panels are some of the accessories.

A variety of surface coverings is being used on raised access floors. The type of covering should choose to match the application & environment .

The office environment has changed in the way that employees work. These changes include fewer private offices, more open plan workstations, more modular furniture systems, and more shared areas for project teams. Today's office worker requires access to data cables as well as telephone and power outlets. All of these requirements and changes need increased flexibility and a strategy to reduce the rate of churn and the cost of continually reconfiguring offices. Raised access flooring provides the answer by creating a fully accessible floor void in the room through which cables and other services, can be run. Telephone, data, and power outlets can be mounted directly in floor panels, and these panels can be relocated quickly and easily for rapid reconfiguration. Raised access floors are designed into new buildings and can also be accommodated into existing buildings. This will cater the demands of the modern office environment.



How To Choose A Raised Flooring System

To determine the appropriate access floor system, the specifier needs to consider the application, for example general office or computer room, and the specific performance requirement, loading capacity of the floor and possibly even traffic density. Particularly important are the range of loadings that may be introduced by various types of equipment.
Structural grades or classes categorize raised access floors. These relate to specific loading criteria, namely concentrated, uniform and ultimate loads linked to deflection and safety factor.
Consideration should also be given to the possible need for cavity barriers to meet fire resistance and/or sound insulating properties to comply with specific building requirements.

TYPES OF RAISED ACCESS FLOORING

■ Raised Access Floor Tile- Cement Steel

Raised Access Floor Tile - Cementitious filled cold rolled steel panel with 1.6mm HPL cover & Black PVC trimming. Concentrated loading 800lbs.

- Size: 600 (610) x 600 (610) x 30mm.
- Material: Double jointed, pulled and extended cold rolled steel.
- Filler material: Light type cement.
- Available in 668lbs, 800lbs, 1000lbs, 1250lbs, 1500lbs, 2000lbs loadings too.
- Available without top finish (Bare panel).

■ Raised Access Floor Tile- Steel Hollow

Raised Access Floor Tile - Cold rolled hollow steel panel with 1.6mm HPL cover & Black PVC trimming.
Concentrated loading 800lbs.

- Size: 600 (610) x 600 (610) x 30mm.
- Material: Double jointed, pulled and extended cold rolled steel.
- Available in 800lbs, 1000lbs, 1250lbs, loadings too.
- Available without top finish (Bare panel). project.

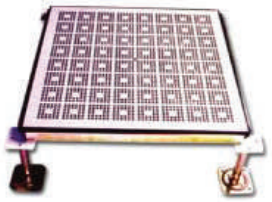
Raised Access Floor Tile - Wooden

Raised Access Floor Tile - Water resistant wood core, Galvanized steel top & bottom with 1.6mm HPL cover & Black PVC trimming.
Concentrated loading 800lbs.

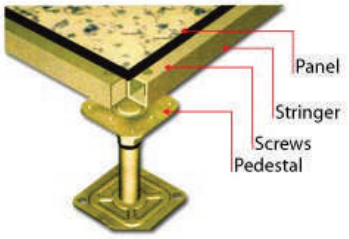
- Size: 600 (610) x 600 (610) x 27mm.
- Available in 668lbs, 800lbs, 1000lbs, 1250lbs loadings too.

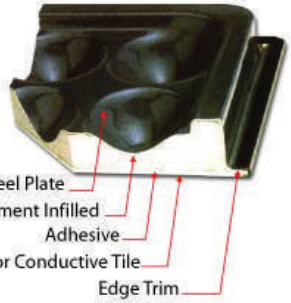
Raised Access Floor Tile - Steel Perforated

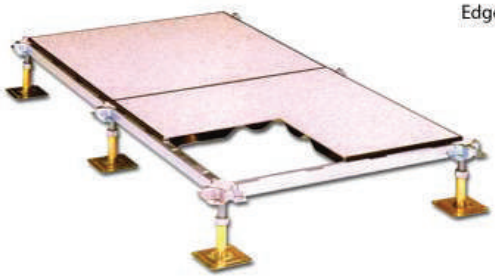
Steel Perforated Raised Access Floor Tile - Cold rolled perforated steel panel with Black PVC trimming.
Concentrated loading available in 1000lbs & 1500lbs.



- Size: 600 (610) x 600 (610) x 30mm.
- Material: Double jointed, pulled and extended cold rolled steel.
- Used for better ventilation .
- Dust-Proof type (No dust pile up,) for workshops are available too.
- Available in air flow rate 25% of 1000lbs concentrated loading with or without damper.
- Available in air flow rate 18% of 1500lbs concentrated loading with or without damper.

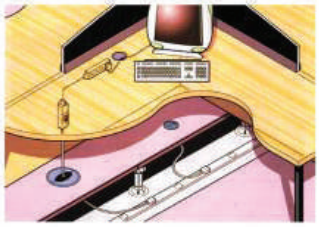


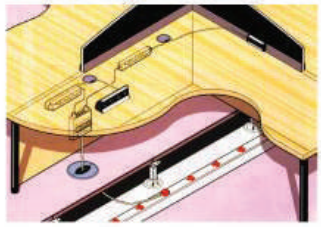


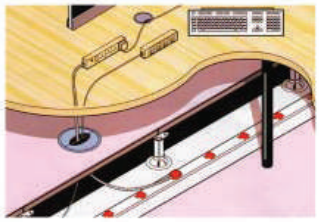


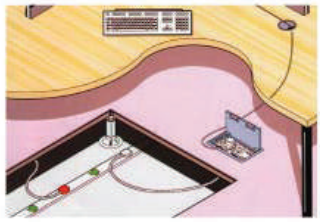
FLOOR FINISHES FOR RAISED ACCESS FLOORS

An increasing range of surface covering is being used on raised floors. They fall into two group:- Factory bonded, where the finish is permanently fixed to the panels and Loose - lay products,which are applied on site and are not permanently fixed Within each category are several options, the characteristics of which need to be considered carefully in relation to the application in order to achieve trouble-free and enduring performance in the particular environment.





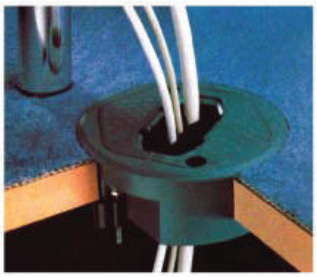




Factory Bonded Options

Certain carpets are suitable for bonding to and trimming on the panel. The backing material and weave will need to be considered carefully.
Vinyls, linoleums and rubber are generally best for applications where panels need to be lifted and reinstated frequently (eg. data centres and telecom equipment rooms). They are available with a range of electrostatic control characteristics. It is normal

to edge such panels so that the surface covering is prevented from being damaged by adjacent panels – i.e. a suitable edging machined flush with the surface finish.
Wood finishes, stone products and ceramic tiles are frequently selected for "showpiece" applications such as entrance halls, galleries, museums, etc. Such products need to be chosen with care for two important reasons. Firstly, the product selected must be available to very close dimensional tolerances to match the accuracy of the raised floor panels. Secondly, raised floor panels are designed to deflect under static and dynamic loadings and the covering material must have some ability to deflect with the underlying panel.
Factory bonding is effectively a permanent fixing of the finish to the panel. The effort required later in the life of the raised floor to change the finish is likely to be expensive and disruptive.



Loose-lay Options

The possibilities comprise a vast range of carpet products in tile from. Broadloom is not recommended as it precludes easy access to the raised floor for maintenance.

Carpet tiles are usually fixed by a peelable adhesive known as tackifier. Alternatively, many backing materials can be impregnated to give them magnetic properties sufficient to hold the tiles in place on floors which have a metal surface.
A third method of fixing carpet on site is to apply studs to the underside of the tiles, positioned to locate in matching depressions or holes formed in the topside of the floor panels.

600 x 600mm is the conventional module size opening up the possibility of harmonizing carpet and floor. However 500 x 500mm options are available.
Carpet tiles which are precision cut to 600 x 600mm can be installed on the floor panels in a one on one arrangement – one carpet tile overlying one floor panel exactly. This method simplifies access to individual panels and is a great help in facilities management. If a service panel needs to be moved to a new location, the floor panel including the service outlet and the carpet tile can be moved as a unit.
The finishes described above are in frequent use. Others are available for particular applications on request.

Electrostatic Conductive Coverings

In more critical applications Static Dissipative Covering will not always be able to reduce static charges below the sensitivity levels of some electrostatic equipment and in these instances the use of electrostatic conductive finishes may be required.

With regard to electrostatic conductive properties, the flooring must conform to the requirements of NFPA 99/ASTM F150 specifications.

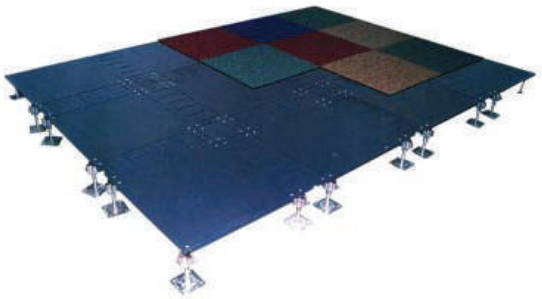
These conductive finishes will be required to be bonded to the raised floor panels using conductive adhesives. The exact system performance of the finished installation with regard to resistance levels and testing methods needs to be fully evaluated in order to ensure that the correct finish is determined.
The level of performance with regard to static dissipation is derived from specific customer requirements and these must be considered in detail before any decision can be made as to the finish and the method of bonding of a raised access floor system.

Dissipation of Static Electricity

A person walking across a floor, particularly if the covering has a synthetic content can build up a substantial static electrical charge. This static charge can cause electronic equipment to malfunction as a result of damage to the sensitive devices that from part of modern day equipment due to high voltage static 'spikes'.

Static Dissipative Coverings

In many situations where raised access floors are to be used to accommodate computer based equipment, a resistance between the surface of the floor covering and the main building earth continuity conductor in the range 5x 105 and 2x 1010 ohms will be acceptable.
This level of performance will typically be achieved by the use of static dissipative covering factory bonded to the raised flooring panels using appropriate adhesives.



Special Panels

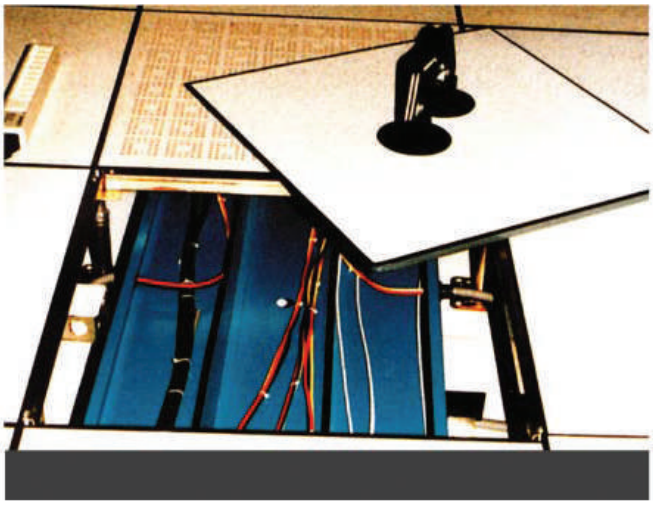
Panel Recommended	IFCS800, IFCS1000 & IFCS1250
Type of Panel	Cementitious Infilled Steel Panel
Top Finishes	Bare
Concentrated Load	800-1250 lbs / force
Height	100mm-600mm
Panel Size	600mm x 600mm x 30-50mm
Weight	15kg approx.
Optional Covering	HPL, PVC, carpet & variety of top finishes

Composite Wood Core Access Floor

I Floor high quality Wood Core Access Floor panel is designed for traditional installation of computer raised floor system. It is covered with anti-static HPL and galvanized steel base plate. It is high load bearing strength, anti-static and flameproof qualities all meet international standards, and is the ideal choice for computer rooms, power station and road stations.

The product has the advantage that it is fireproof, waterproof as well as
anti-static. It ranks between alloy steel panel and compound panel with a rather promising demand.

Panel average bearing	≥ 1200kg/m²
Electrical characteristic	1×10^{8} - 1×10^{11}
Size	500 x 500 / 600 x 600 / 610 x 610
Triproof average bearing	≥ 1500kg/m²
Flameproof capability	B1



Wood Core Panel Test Data

Panel	Weight	Static Loads			Rolling Loads	
		Conc.	Uniform	Ultimate	10 Passes	10,000 Passes
IFWP800	22kg/m²	2.9 KN	9.5 KN	8.8 KN	3.6 KN	2.6 KN
IFWP1250	32kg/m²	5.5 KN	14.0 KN	13.6 KN	4.5 KN	3.6 KN

Product Specification: HPL

1) Steel Cementitious Floor Panels

Access floor system shall consist of floor panels 600mm x 600mm of all steel welded construction with an enclosed bottom pen formed with a uniform pattern an enclosed bottom pen formed with a uniform pattern of modular pockets.

- The unitized panel shall be filled with a light weight cementitious material of sound deadening qualities and to provide the performance values specified.
- Panels shall be rigid structural assemblies fabricated to tolerances of ± 0.375mm on flatness measured on a diagonal across the top of the panel.
- Panel shell be easily removable by one person with a manufacturer's approved lifting device and shall be fully interchangeable except where cut.
- Panel shall be protected against corrosion internally with a phosphate against corrosion internally with a phosphate coating and externally with an electro- statically applied epoxy power coating. This coating shall be baked to fuse the power to steel surfaces.

2) Finishes

- Computer Rooms Panels shall be finished with factory applied (High Pressure Laminate/ Anti-static Vinyl Tiles) static conductive or dissipative.

3) Understructure Pedestal Assemblies – Pls refer I Foor catalogue

- Pedestal Head shall consist of an aluminium die cast head with threaded steel rod and anti-vibration proof height locking device. The freestanding pedestal heads shall have four (4) mating pins which positively locate to the underside hole recesses of individual panels and an electrically conductive sound deadening gasket which clips into the top of the pedestal head. Pedestal base shall consist of a 22mm tube welded of mechanical locked to a 3.0 mm x 100mm x 100base plate and shall be electroplate.
- Pedestal shall be secured to the sub-floor with manufacturer's approved adhesive.
- Provide for ± 50mm minimum height adjustment.
- Accepts 22.5kn axial load without failure or loss of function.

4) Performance Specification

- Concentrated Load

The access floor system shall be capable of accepting a point load over 25mm x 25mm area of (3kN/ 5.5kN) with a maximum deflection of 2.5mm

- Uniform Load

The access floor system shall be capable of accepting a uniform load of 12.0kn/ m² with a maximum deflection of 1.5mm.

- Impact Loads

An impact loads imposed on the floor system by dropping a 50kg mass from a 90mm height on to a 25mm x 25mm square indentor shall not create structural failure.

- Pedestal Load

  Pedestal shall be capable of accepting 22.5kN axial load without failure or loss of function.

- Dimensional Tolerance

  Panel dimensions along the diagonal shall be within ± 0.20mm.

- Fire Hazard

  The panels, without floor coverings shall meet BS476 part 6 & 7. These indices shall not change when the panel is cut.

5) Installation

- Shall be by approved contractor to manufacturer's specification.

6) Scheduling

- A per- job conference to establish schedule, review shop drawing and coordinate trades must be attended by the general contractor and all others whose work may be affected by the access floor system.
- Pedestal locations shall be established from approved shop drawings so that mechanical and electrical can be installed without interfering with pedestal installation.
- Installation of access floor shall be co- ordinated other trades to maintain the integrity of the installed system.

7) Delivery and Placement

- Material shall be delivered on panels clearly embossed with the manufacture's name and description. Labelled products will not be accepted.
- Material pallets shall be distributed around the area where they will be used to avoid over stressing the sub- floor and to facilitate installation.

8) Project Conditions

- General contractors shall provide secure storage and a clean sub-floor which is free of dust, construction debris and other trades during the installation of access floor.

UNDERSTRUCTURE SYSTEMS

1) Understructure with Stringers

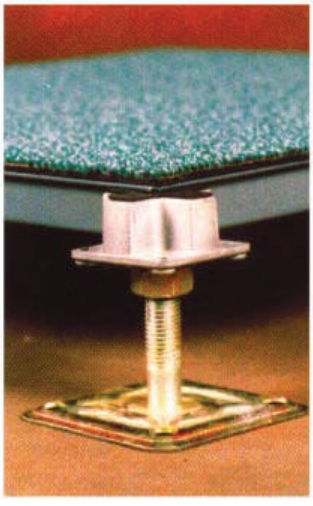
Provides with stringers understructure system able to accommodate substantial finished floor height 600mm with maximum rigidity.aximum rigidity.

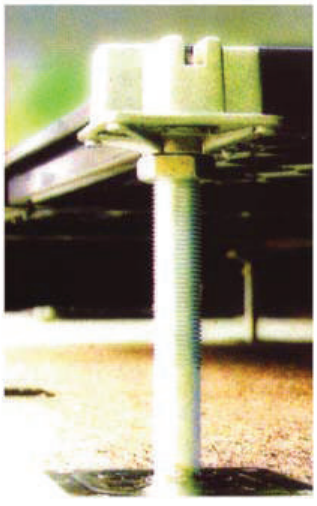
- Creates a quite, solid floor ideal for general office applications.
- Features captive fasteners that lock panel corners to pedestal heads.

2) Free Standing Understructure (Stringerless & without screw to the panels)

Allows the most unrestricted access to the under floor area of all flooring systems.

- Distributes vertical loads over pedestal columns.
- Specially designed Pedestal Head prevents tipping of panels under dynamic loads condition.
- Recommended maximum FFH for standard assemblies is 300mm.
- Conductive sound deadening gasket.
- Positive location pins on each quadrant of the pedestal head provide lateral stability.





WHY MAINTAIN ACCESS FLOOR

Proper care of a raised floor ensures optimum performance for your flooring system. By following these requirements, the life expectancy of your raised floor will be greatly improved.

A raised floor system plays an important role in creating the ideal environment for your equipment and personnel. While most floor systems are extremely durable, it is still important to properly maintain a floor system. Periodic cleaning of the floor surface area increases the operating efficiency and reliability of equipment, and extends the life of the floor system.

Structural raised floor problem are a serious threat to both equipment and personnel. Problems such as rocking panels and gaps between panels can cause permanent damage to a floor system, personnel injuries and damaged to equipment. Regular under floor inspections for structural integrity of the entire floor system should be mandatory.

Various trades servicing in and around an access floor disturb the grid and pedestal system creating structural hazards. The load rating of an access floor is established when all components are properly installed. Floors perform to specifications only when they are structurally sound. Supporting under structure should be inspected at least once a year. It is also advisable to have to have your floor system checked after renovations involving equipment or cabling.

The flowing section addresses the structural conditions that may exist on or below the raised floor area.

When these problems appear within your raised floor system, the cause must be identified and the problem eliminated to ensure a safe operating
environment for equipment and personnel.

The initial idea behind raised flooring was to support the weight of computer equipment. Various trades servicing the area (HVAC, Computer technicians, electricians are properly intact. Therefore regular underfloor inspections for the structural integrity of the entire system are extremely important.

When components do not sit properly on an established grid system, the employer/owner liability from a tripping or slip and-fall on- the- job injury is reason enough to justify the cost of routine structural adjustments. Regular structural adjustments reduce the possibility of this happening.

The surface covering of the floor system was designed to dissipate static electricity. When this surface is not maintained properly, the residual build- up on the surface inhibits proper static dissipation. This is critical to sensitive electronic equipment.

In summary, routine maintenance services, which remove harmful particles and surface buildup, eliminate lateral and vertical instability, will return a floor to personnel and equipment sitting on the floor system.

Each raised floors site has its own unique maintenance requirements.

While most floor systems are extremely durable, it is still important to properly maintain your floor system. The life span of an access floor can be extended through periodic maintenance. As with almost anything, if taken care of properly, it last.

Care Of Your Access Floor

Proper maintenance of raised floors should include both structural and environmental care. All raised floors require preventive maintenance to ensure safe operating conditions for equipment and personnel. Listed below are the requirements for proper access floor care;

Structural Requirements

1. Repair of untrimmed cutouts must be done immediately.
2. Install additional support pedestals prior to the additional of new equipment or when installing cutouts.
3. Rotate panels at least four times a year in heavy traffic areas.
4. Adjust grid systems two times a year to correct structural problems.
5. Replace any missing components, as needed, such as edge trim, grounding clips, stringers, gaskets, foam rubber.
6. Inspections yearly by a qualified Access Floor Technician.

Environmental Requirements

1) Dust mop daily with the Dust Lifter System.
2) Professional cleaning of surface by an authorized Access Floor Technician with cleaning chemicals tested according to guidelines at least two times a year.
3) Interim cleaning with approved cleaning chemicals using damp lint free rayon mop as required.
4) Vacuuming of under structure and sub floor at lest two times a year.
5) Clean perforated panels twice yearly.
6) Stop clean ink stains or scuffs as needed.
7) Remove surface wax immediately from laminate surface NEVER WAX ACCESS FLOOR !
8) Vacuum carpet panels three times a week with a vacuum equipped with a static dissipating rod.
9) Cleaning of carpeted access floor at least twice yearly by extraction.
10) Cleaning frequencies should be modified to reflect traffic and soiling conditions, detection of airborne particles, and company appearance standards.

Product Advantage

- Strength, durability and a comfortable solid feel underfoot.
- Faster whilst future changes in floor height or relevelling is quick and simple and with minimum disruption to staff.
- Exceeds all expectations during and after installation.
- Durable and long lasting with corrosion resistant phosphate priming cost and a super tough power cost finish.

Single - Cup Panel Lifter

Double Cup Panel Lifter

Rotary Lid Grommet

Split Lid Grommet

Floor Boxes

TEST DATA SHEET (Indicatives Only)

Test data - bare panel

Type	Size mm	Concentrated Load			N Impact Load	N Ultimated Load	Uniform Load	N Rolling Load	
		LB	N	KG				10	10000
IFST800	600x600x30	≥800	≥3600	≥363	670	≥14680	≥9400	3560	2670
IFST1000	600x600x30	≥1000	≥4500	≥453	670	≥16900	≥11970	4450	3560
IFST1250	600x600x30	≥1250	≥5600	≥567	670	≥22240	≥14360	5560	4450
IFST1500	600x600x30	≥1500	≥6660	≥680	780	≥26690	≥17950	6670	5560
IFST2000	600x600x30	≥2000	≥8880	≥906	890	≥31130	≥23940	8880	8000

Test data - HPL panel

Type	Size mm	Concentrated Load			N Impact Load	N Ultimated Load	Uniform Load	N Rolling Load	
		LB	N	KG				10	10000
IFCS800	600x600x30	≥800	≥3600	≥363	670	≥14680	≥9400	3560	2670
IFCS1000	600x600x30	≥1000	≥4500	≥453	670	≥16900	≥11970	4450	3560
IFCS1250	600x600x30	≥1250	≥5600	≥567	670	≥22240	≥14360	5560	4450
IFCS1500	600x600x30	≥1500	≥6660	≥680	780	≥26690	≥17950	6670	5560
IFCS2000	600x600x30	≥2000	≥8880	≥906	890	≥31130	≥23940	8880	8000

APPLICATIONS OF RAISED ACCESS FLOORS

Raised Access Floors are used at places where neat and professional arrangements are required. The space between Raised Floors and the Sub Floor is used to run services like data, voice, power, air conditoning, etc.

Key benefits of i floor raised access flooring

- Flexible to use & economical in operation.
- Durable & solid.
- Versatile support system.
- Easy installation & handling.
- Completly fire safe, non-combustible.
- Interchangeable with different types of tiles.
- Superior ultimate load performance.
- Excellent grounding and electrical continuity.
- Maximum value for money .
- Highly engineered with precision, accuracy and load bearing strength.
- Easy to use and maintain.
- Gives neat, easy to clean, perfect working environment to match today's needs.

Some of raised access floors applications are

1. Server rooms.
2. Data centres.
3. Control Centres / Control rooms.
4. System Administration.
5. General offices
6. Call centres
7. Front Offices.
8. Business centres.
9. Board rooms.
10. Electrical Switchboard rooms.
11. UPS Rooms.
12. Telecommunication Switching rooms.

Any other location, where neat arrangement is required.


Server Rooms


Data Centres


Control Rooms


System Administration


Front Offices

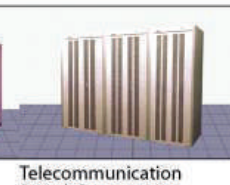

Business Centres


Board Rooms


General Offices


Electrical Switch Rooms


UPS Rooms


Telecommunication Switch Rooms


Call Centres