

SOLIDFEEL ACCESS FLOORING

The use of access floors in the workplace is rapidly gaining popularity since they present a solution that is specifically designed to support information-rich and highly computerised business environments.

Owners and developers, along with building designers and facility managers, face the challenges of constantly changing space needs, technology-driven operations, high churn rates and the almost impossible task of maintaining flexibility while keeping life-cycle costs down.

All of these challenges demand a new outlook on planning and constructing buildings and some insight into assuring that all building systems are integrated so they become mutually supporting.

The costs of both change and maintenance are exceptionally high in traditionally planned buildings, and in many instances users defer needed changes at the cost of organisational comfort and efficiency.

In fact, many traditionally designed facilities become obsolete due to wiring and wiring distribution problems created by organisational changes and advances in technology.

If the building is planned correctly though, with enough thought and creativity, changes can become almost routine and technology can be easily integrated. A well-designed, intelligent building not only has the flexibility and the capacity to accommodate change, it actually promotes change.

The concept behind access floors

An access floor is a floor placed upon a floor, thus creating an accessible plenum for the distribution of building services such as power, voice and data and the distribution of heating and cooling services. The floor can be raised by as little as 65 mm to more than 1,4 metres.

The system is modular with the ability to plug and unplug any of the electrical components in the entire system from the panel board to the receptacle. The finished floor surface can be carpet tile, vinyl tile, laminate, finished concrete or natural materials such as wood or cork.

The underfloor HVAC system not only eliminates most of the ductwork and insulation requirements associated with the overhead systems, but also enhances mechanical system flexibility because the non-ducted diffusers can be easily removed and relocated.

Floor-mounted diffusers or workstation-mounted solutions distribute conditioned air from the access floor directly to the occupant's level. From there the air gently mixes with the room air and rises to return grilles at ceiling level.

The integrated access floor system also boosts the flexibility of telecommunications, data and electrical power delivery in the workstation. Simply by removing the access floor panels, building managers can now accommodate space and workstation changes as people relocate into, out of and around the office space.

Benefits of access floors

Integrated access floors for telecommunication, power and air distribution offer several economic and environmental benefits.

Ease of reconfiguration, and easy access

The integrated access floor system is engineered to permit fast, easy installation and quick wire and cable changes, enhancing the ability to reconfigure the offices without disrupting power, voice and data services, as well as the air distribution system.

Variable Air Volume (VAV) Terminals can be easily added, removed or rearranged to respond to changes in occupancy or heating and cooling loads. Even in workplaces with very low churn rates, constantly evolving technologies in the communications and networking sectors may demand occasional updating of the cabling and wiring systems. These updates are quite simple with access floors.

Energy savings

The use of an access floor plenum for conditional air distribution can significantly reduce energy use in many possible ways, such as a reduced fan power requirement. The underfloor supply plenum with the large cross-sectional flow areas can supply air with very low overall pressure drops.

It also provides higher chiller efficiency. Underfloor systems can use warmer supply air which permits a warmer cooling coil and warmer evaporator temperature in dry climates.

In mild climates, the use of warmer supply air significantly expands the opportunity to use free cooling or the direct use of outside air, without operating a chiller.

Also, since the airflow is from floor to ceiling, most of the heat generated from ceiling-mounted lights is removed before it can enter the occupied zone. The cooling load is therefore reduced, allowing warmer air to condition the space.

In turn, the concrete slab becomes an active thermal mass, thus reducing temperature swings and peak cooling requirements, and permitting the realisation of benefits such as night precooling in underfloor air applications.

Capital (First Cost) savings

In new construction, the use of an access floor for service distribution can considerably reduce the overall building height, since floor plenums are usually shallower than ceiling plenums. Access floors can lower structural costs by allowing architects to reduce the floor-to-floor height.

In addition, the adjustable access floor pedestals accommodate imperfections in the floor slab, allowing the floor to be laser-levelled. The construction schedule can also be tightened by eliminating the need for slab screeding.

Occupant health and comfort

Reportedly, the most common complaints among employees are thermal discomfort and indoor air quality. With floor-mounted diffusers or workstation-mounted solutions such as task air modules or personal environment systems, the air is distributed directly to the workstation.

The occupants have the ability to control both the volume and the direction of the incoming air, and the fan units can be turned off to accommodate reduced cooling requirements.

As a result, personal comfort complaints are virtually eliminated. Case studies also show reduced absenteeism levels, since the system improves the indoor environmental conditions in other ways as well.

These include air quality improvements due to better pollutant removal – the upward flow of the supply air draws the pollutants upward rather than letting them swirl around with the room air.

All these benefits could result, under certain conditions, in substantial overall cost savings. However, access floors are often eliminated from the building planning out of concern for higher first costs, but capital costs for the integrated system are comparable to traditional construction, while many other benefits detailed earlier result in significantly reduced life-cycle costs that are hard to overlook.

Access floors are widely used throughout many countries and are a standard in Europe, UK, USA, Japan and the Middle East. For the majority of South African building professionals though, access floors still represent a relatively new and unfamiliar technology. The picture is now changing as we see growing acceptance of access floors by these building professionals.

While access floors are most often used in new buildings, they have started to be utilised in renovation projects as well, with a greater role in structures being totally rehabilitated.

In cases where the building interior is completely stripped, access floors become an excellent renovation tool, construction goes much faster, and pre-engineering work required to locate supply duct-work does not have to be performed.

Developers have also begun to embrace the idea that the flexibility of integrated access floor systems, can and often do, cut move-in times and make generically designed office space suitable for a wide range of potential tenants.

Conclusions

Solidfeel Access floors present a practical opportunity to economically accommodate the service distribution changes demanded by today's workplace. Use of access floors throughout an entire office building is the key – not only to flexibility, but also to the ability to forestall building obsolescence.

Solidfeel Access floors afford building owners and managers the capability to economically respond to tenant turnover, deliver superior flexibility and reduce labour, maintenance and energy costs while improving occupancy health, comfort and productivity.

LEED : Credit Contribution

Taking all the above into consideration, installing **Solidfeel Access flooring** can contribute towards achieving credits towards a LEED certification:

Optimize energy performance

Material re use

Recycling of access flooring

Re use of access flooring components

Increases ventilation

Thermal comfort

Controllability of systems

Reduced building height and construction materials