



Standard Access Flooring: An Alternate Approach

Introduction to Access Flooring

The standard module for steel access flooring, commonly used worldwide, measures 600mm x 600mm. This design primarily addresses the need for air-conditioning and cable management beneath the floor, with typical elevations ranging from 300mm to 600mm above the building's structural base. The panels, usually concrete-filled steel, weigh up to 65kg per square meter. The considerable weight and height of these systems significantly impact building design, necessitating structural adjustments to maintain a standard finished floor-to-ceiling height of approximately 2,700mm. These necessary adjustments can result in a roughly 7% increase in structural costs, compounded further by additional expenses related to the building's façade, which can increase by up to 10%, even before the access floor's cost is considered.

Historical Context and Industry Shift

Historically, during the construction boom that produced large corporate headquarters like Standard Bank Super Block and FNB's Bank City, South Africa's access floor manufacturing sector thrived, with many products even being exported to the Middle East. However, this sector has since dwindled, with most current offerings being imported from China and a few from Europe. The decline in local manufacturing can be attributed to the cost and technical challenges associated with integrating air-conditioning systems beneath access floors. Consequently, modern access floors are now primarily used for wiring solutions rather than comprehensive environmental control systems.

Challenges in Commercial Buildings

In commercial buildings, particularly those not custom-designed for specific tenants, the high costs and design implications have led to a reduced prevalence of access flooring. Instead, power skirting is typically installed around the building's perimeters, leaving the inevitable wiring challenges to be addressed by the tenant or their designers. This has resulted in various makeshift solutions, such as running cables across floors with duct tape (a practice that is both illegal and unsafe), reticulating cables through office furniture and screens, and using overhead poles in ceilings not designed to accommodate them. These solutions often result in reduced flexibility, increased maintenance challenges, and complexity in installing wiring, especially in retrofit scenarios.



Flexibility Issues with Standard Access Floors

Standard access floors do offer some flexibility. It is possible to place electrical and data outlets at each corner of a 600mm x 600mm steel tile, with the tile being rotatable to utilize other positions. For a 1,000 m² floor, this setup could provide up to 2,777 possible outlet locations. However, this flexibility is limited compared to other more innovative systems.

CyberFloor: A New Alternative

To address the limitations of standard access flooring, the "CyberFloor" system was developed following a brainstorming session involving office planners and electrical consultants familiar with traditional access floors. CyberFloor was designed to meet the wiring requirements of custom-designed headquarters while being versatile enough to retrofit into standard commercial buildings. Developed in accordance with South African National Building Regulations and approved by the CSIR, CyberFloor offers sufficient wiring capacity at approximately 50mm above the structural level by forming a cable runway, thus eliminating the need for traditional cable trays. Despite its lower height, CyberFloor can provide a higher effective capacity compared to standard access floors, where the actual capacity is often limited by cable trays installed below floor level.

Enhanced Flexibility and Practical Benefits

CyberFloor also enhances flexibility from an office planning perspective. While a standard 1,000 m² access floor might offer 2,777 possible outlet positions, CyberFloor can provide up to 36,000 positions, significantly improving flexibility. Additional practical benefits include easier installation—particularly after most other trades have been completed—and a simplified cable installation process compared to both standard access flooring and overhead solutions.

Cost Implications

When comparing the total cost of standard access floors to CyberFloor, it is essential to consider not only the cost of the flooring itself but also the additional building costs associated with the structure's weight and height. Generally, CyberFloor's total cost is found to be around 50% of that of a standard access floor solution.



Why Use CyberFloor?

In nearly any significant office building, whether consisting of closed or open offices, managing wiring is a major challenge. While access flooring is generally acknowledged as the best solution, standard access floors are costly and require buildings to be designed specifically to accommodate them. These floors, typically 200mm to 600mm high and weighing up to 60kg per m², are often impractical for retrofitting existing buildings. CyberFloor, with its low profile of approximately 50mm and light weight of about 12kg per m², provides a viable alternative for both new and existing buildings. It avoids significant design implications, maintains minimal impact on floor-to-ceiling height, and eliminates the need for power skirting.

CyberFloor's flexibility also allows for easy retrofitting. While ramps are necessary to transition from existing levels to the raised flooring, these are minimal, and doors can simply be trimmed on-site to accommodate the flooring. This makes it an ideal solution for converting older building stock for modern use.

Conclusion

CyberFloor provides a modern, cost-effective, and flexible alternative to traditional access flooring, particularly in retrofit scenarios where standard access floors are impractical. Its design flexibility, cost efficiency, and ease of installation make it a superior choice for contemporary office environments.

Standard access flooring systems, widely used in commercial buildings, typically involve heavy, concrete-filled steel panels that are elevated above the building's structural base to accommodate air-conditioning and cable management. However, these systems are costly, heavy, and significantly impact building design, leading to increased structural and façade costs. They are generally only feasible in buildings specifically designed for such infrastructure. Over time, the manufacturing of these systems in South Africa has declined, with most products now being imported. Additionally, the complexity and costs associated with integrating these floors, particularly in retrofit scenarios, have led to alternative, often suboptimal, wiring solutions in commercial buildings.

In response to these challenges, CyberFloor was developed as a more flexible, cost-effective alternative. CyberFloor is a low-profile, lightweight system that provides significant flexibility and capacity for wiring solutions while being easier and cheaper to install. It is suitable for both new constructions and retrofitting existing buildings, offering a practical solution where standard access floors are impractical. Overall, CyberFloor's design minimizes building costs and simplifies wiring installations, making it a superior choice for modern office environments.