Raised Access Floor
Short Analysis
By

DataSpan

Overview

- The structural floor is composed of panels and are supported by adjustable vertical pedestals. The pedestals are affixed to the subfloor through either mechanical fixings or adhesives. Since the pedestals are adjustable, the gap between the elevated floor and the subfloor is 24 inches.
- Panels are typically 2 feet by 2 feet and are normally composed of a cement core clad in steel.
- The average lifespan of a raised floor panel is about 25 years and it's supporting pedestals can be up to 50 years long. However, depending on the conditions and its use this can greatly vary. To ensure that you get the most out of your new or used raised floors you have to provide it with proper maintenance and repairs when needed.

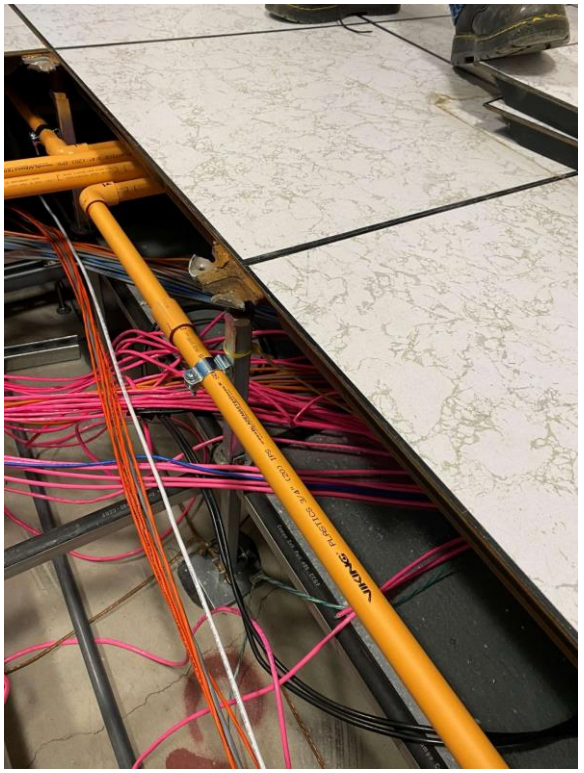
Findings

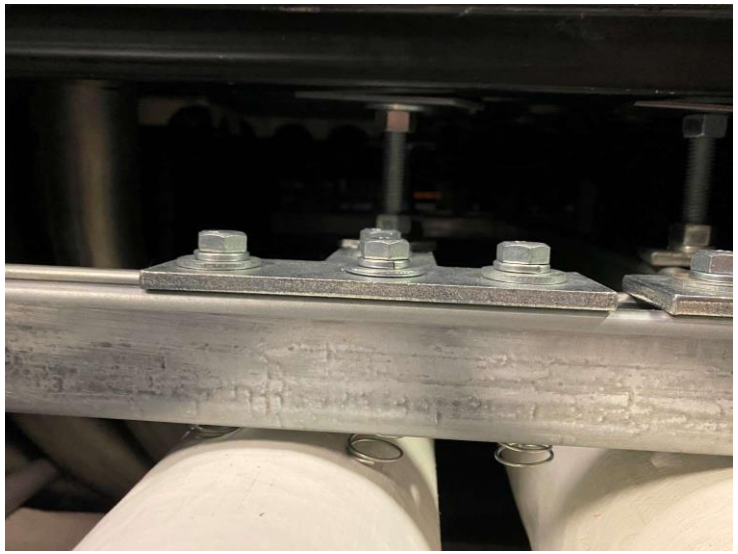
- The facility is made up of several raised access floor areas, some used for office, other areas are server farms.
- The areas of concern were A Side Farm, B Side Farm, and P Room.
- These areas are currently undergoing end of life change outs of computer room A/C units and upcoming Power upgrades.
- The raised access flooring is a Tate system with an age range of approximately 30 years.
- The original system is a four points of contact pedestal and tile floor, about halfway down the system attached to the pedestals is a cable tray platform that has been partially removed.
- The original system is a 1250 lb floor.

Observations

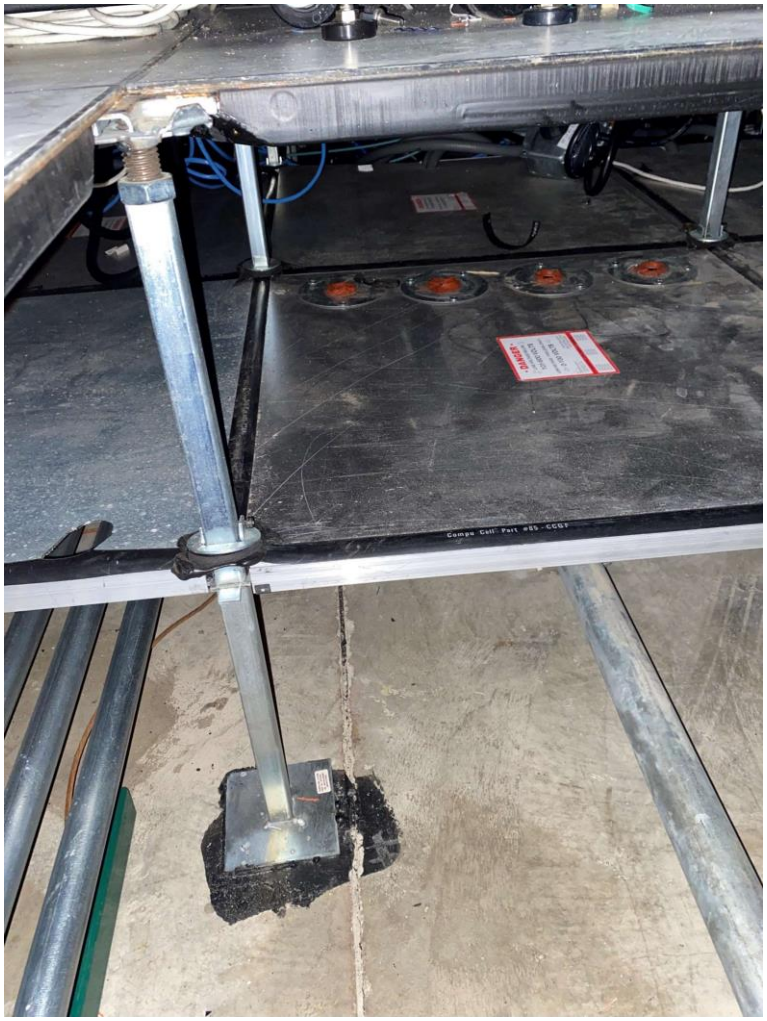
- The pedestals look like they are still in good shape for a system of this age.
- The tiles are showing they are at end of life, HPL is coming off of some tiles, dishing/cupping is occurring. This occurs from humidity, high use, weight loads rolling over the tiles.
- Some of the heavier power cabinets are sitting directly on the tiles rather than their own stands causing dishing of the tile. This means the floor is stressing under the load which can bring about catastrophic failure.
- As you will see in the following pictures, this system needs to be upgraded/replaced to allow the farms to continue to operate as indented.

As seen here, the power cabinet is sitting directly on the floor system, this is not recommended. As shown in the below picture, a Unistrut type structure has been built under a power cabinet to support the weight load, this is recommended for all power cabinets to assist stability of the entire system.

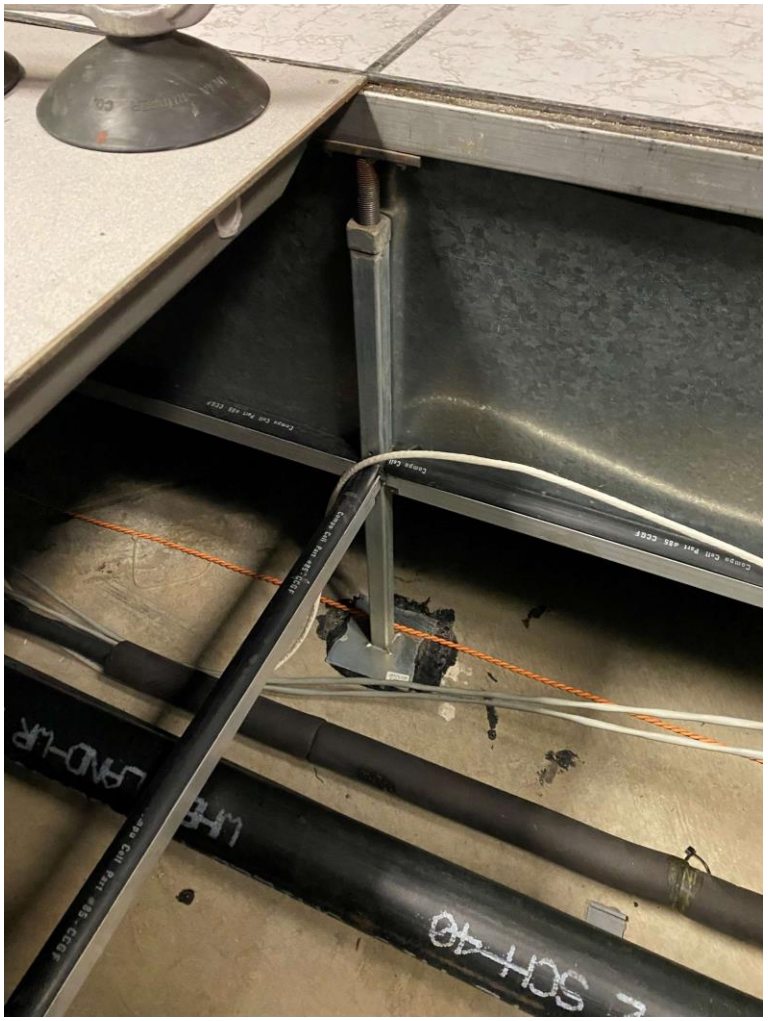


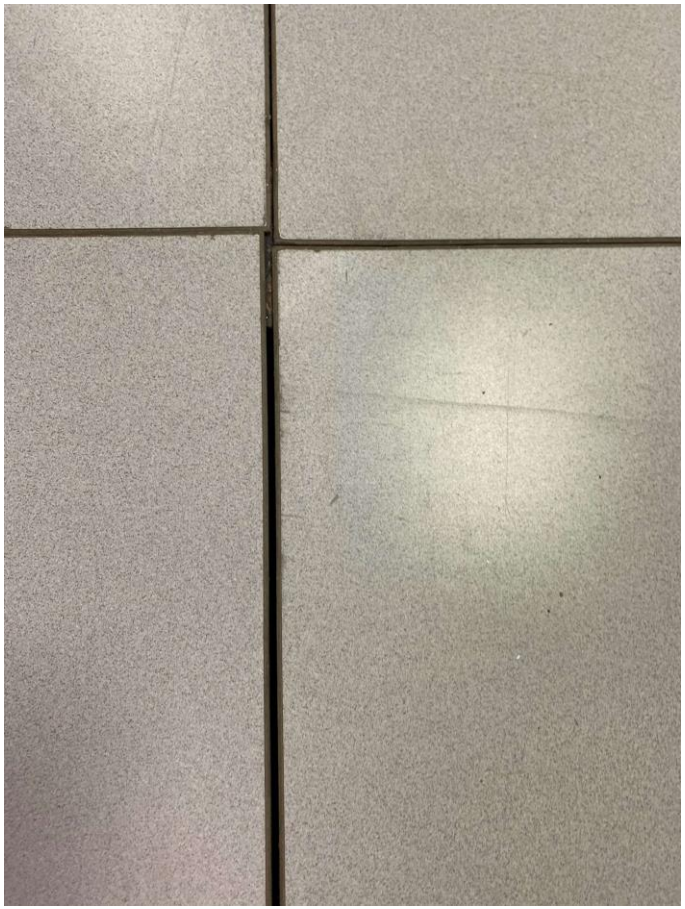


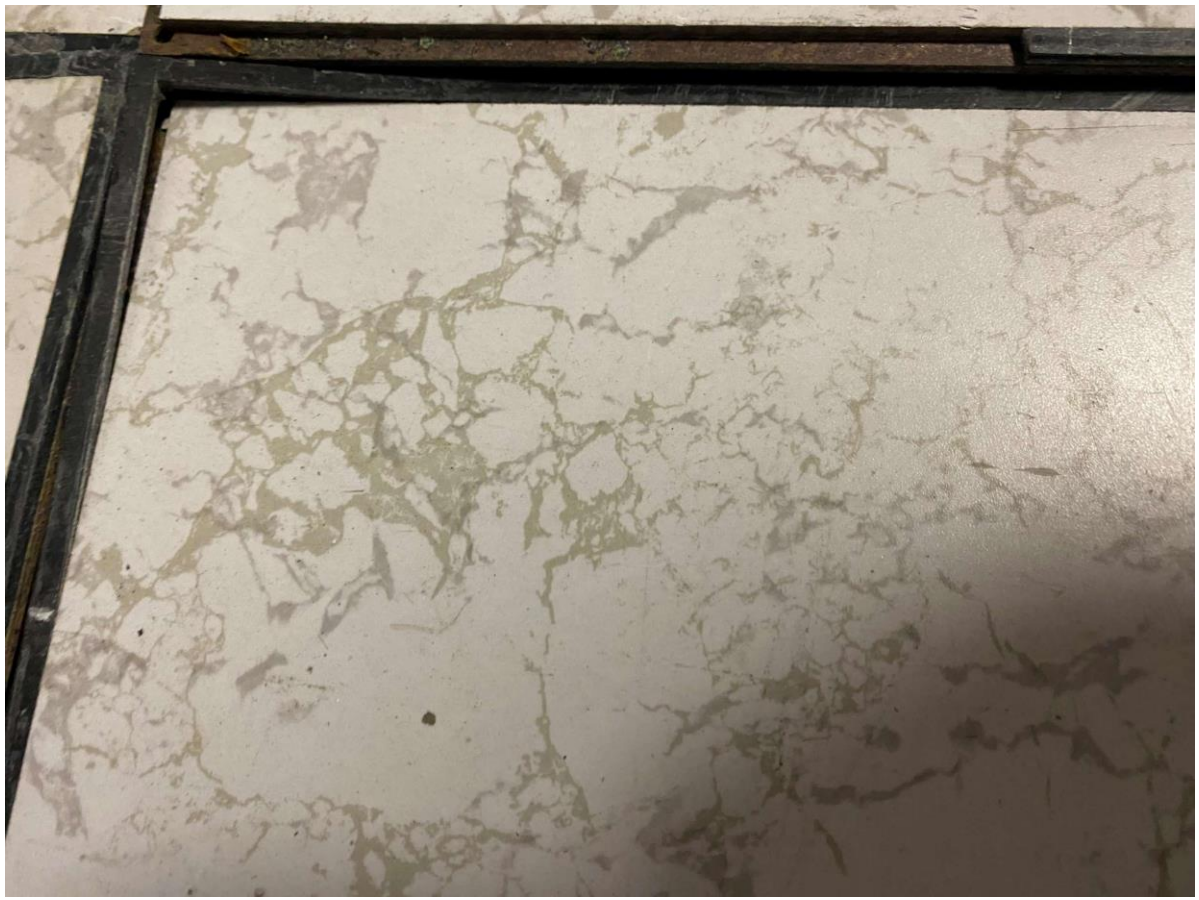
This image shows the style system that is in the entire A and B Farms as well as the P room. As seen in the picture this is a stringerless system. This style system produces many challenges such as tiles dropping into the subfloor, lack of structural stability with rolling loads.



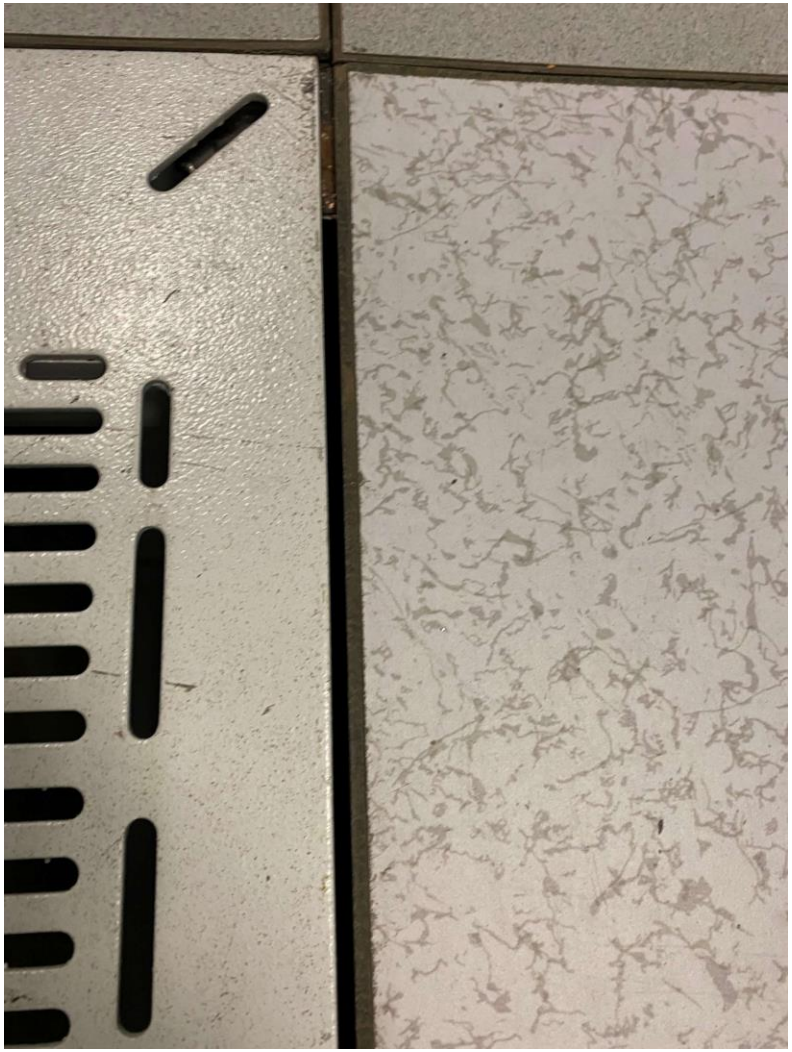
These two pictures identify the secondary level for cable tray and power distribution. The system is directly attached to the pedestal system, this addition does not assist the structural integrity of the system, it simply acts as a distribution system.



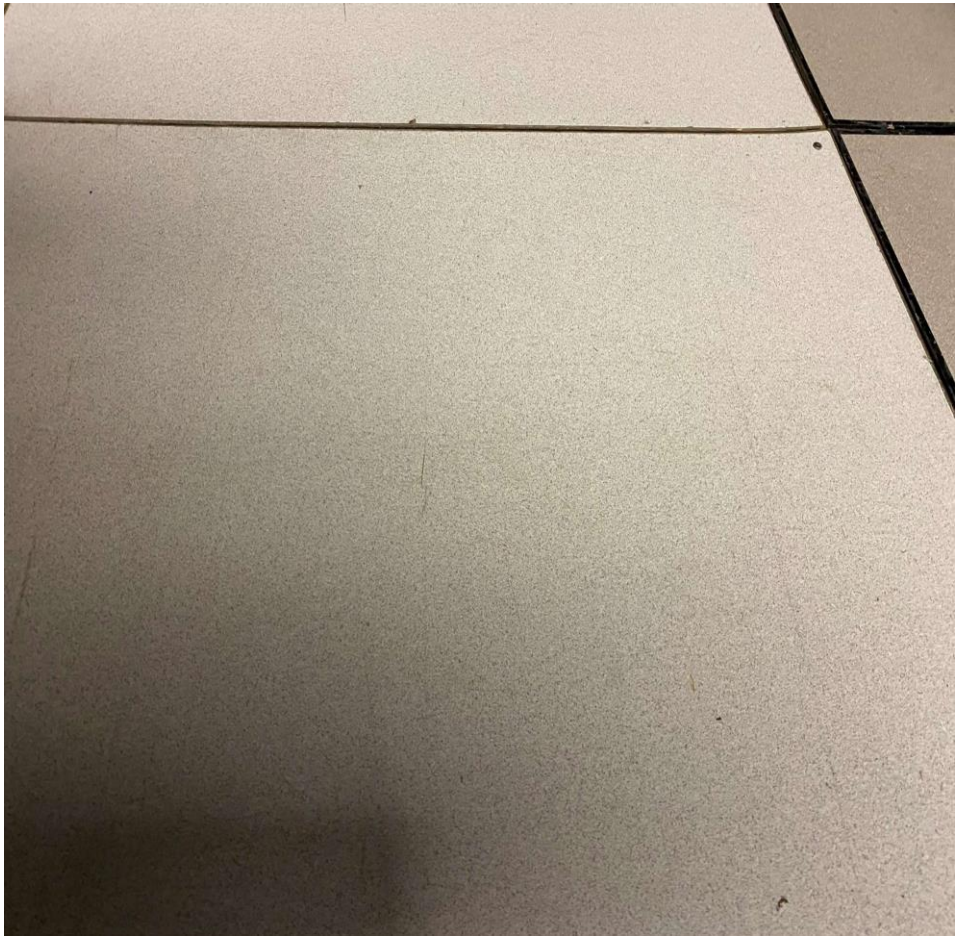




The left pictures illustrates a common look throughout the facility, after years of use pedestals can shift, pedestal heads can turn causing these misalignments, on the right this tile is caving in from heavy weight loads.



In these two pictures we see a gap between the tiles, this is of concern since this system has no stringers, this leaves the system to hold on to an edge of a pedestal head on a corner of the tile.
With the amount of work continuing to occur in these areas brings concern with regards to the integrity of the floor. Possible results can be equipment falling in the floor, or a person.



These two illustrate the cupping/dishing of the tiles as well as the loss of laminate adhesion. This typically occurs as part of the end-of-life cycle of the floor tiles.

Conclusion

- With all the upgrade work occurring in these rooms, it looks as if these rooms will continue to be used for years to come.
- It would be a good time to upgrade the existing floor, the pedestals seem to be in good shape, this would mean removing the existing pedestal heads, old tile and replacing these with new heads, stringers, and tiles. This can be done with lifting the equipment where possible live and replacing as much of the flooring as can be. Where equipment cannot be lifted, add supports to create an island that can sustain itself weight load wise.

Our recommendation would be a Tate Concore 1250 tile with a bolted stringer system, even though not illustrated here, we would use a 4’ stringer with a basket weave installation.

Key Performance Characteristics

- Panel weight : 8 lbs/ft² bare
- All steel welded construction filled internally with a cementitious core material
- Protected from corrosion by an epoxy paint finish
- Class A flame spread rating
- Non-combustible material

DataSpan
800.660.3586
info@dataspan.com

DataSpan

Empowered to Solve.
Empowered to Serve.®