

ThecaDC01 – Data Centre Solution Frequent Asked Questions

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Frequent Asked Questions

1. Does the raised floor completely eliminate the need for suspended ceiling racking?

Yes. If properly planned together with the Mechanical Service engineers and coordinated within the 3D model, there is no need for ceiling racking. There should be ceiling conduits just for the lighting and fire sprinkler system (if required).

2. Does the raised floor system increase the floor-to-floor heights?

No. While it could change on a project bases, the floor-to-floor height depends primarily on the structural solution adopted for each building ,the strategy of services reticulation, and the server racks height. However, the depth required for suspended ceiling racking is similar to the one required under the raised floor, while the thickness of the raised floor panel is completely compensated by the removal of any cement floor screed on the slab.

3. How would you integrate liquid cooled server racks with tundishes?

Integrating liquid-cooled server racks into a raised-floor data centre while using tundishes underneath is a practical, sensible approach to handling condensate, bleed/drain lines and, critically, any accidental leaks. A liquid-cooled system integrated under a raised floor delivers superior thermal efficiency and high rack-density capability by bringing cooling directly to the heat source, reducing energy use and airflow requirements. With tundish-based leak management and underfloor routing, it provides reliable, high-performance cooling while maximising uptime and data-centre space utilisation.

4. Can the raised floor be used as part of an underfloor air-distribution system, or is it only suitable when cooling is done from the ceiling or overhead units?

Underfloor cooling is one of the advantages of using a raised floor system. The space beneath the panels provide the support for the installation of perfectly integrated, modular equipment for controlling air flow or pressure, at strategically selected points, with maximum freedom. The mapping of the raised floor is essential to locate the grid panels (free airflow about 80%) and/or perforated panels (airflow adjustable during raised floor design) in key areas. The raised floor becomes an active component of the HVAC system, enabling efficient, targeted and easily reconfigurable air distribution.

5. Can the raised-floor panels, structure, and accessories integrate with or support a hot-aisle containment setup, for example, by aligning with rack footprints, allowing proper sealing, and maintaining underfloor airflow paths?

A Hot-Aisle Containment (HAC) system encloses the hot exhaust aisle between server racks, directing hot air back to the CRAC (Computer Room Air Conditioner) units and preventing it from mixing with cold supply air, which improves cooling efficiency. The raised-floor system is fully compatible with hot-aisle containment, as it allows flexible floor panel layouts and cutouts to align with rack configurations, while maintaining proper underfloor airflow for cold supply or water-cooled systems.

6. Do you need fire-rated partition sleeves or any other under-floor system to contain fire spread?

The floor panel is made of non-combustible calcium sulphate and has received the class A1 according to EN13501-1. The thermal insulation and minimal deformation guarantee an outstanding performance during fire. Any addition of fire-rated partitions or similar system under the raised floor system lays under the overall fire strategy of the building consultants. We therefore recommend that the fire engineer and MEP designer define the compartmentation concept (fire ratings, compartment boundaries, plenum classification) and specify the type and location of fire-stopping devices. On this basis, we can support you with suitable raised-floor details (cut-outs, access panels, interfaces with walls and partitions) to ensure both code compliance and the correct operation of the underfloor air-distribution system.

7. Is the tenant forced to move to floor mounted power whips?

Using a raised-floor system provides flexible underfloor routing for power, data, and cooling, but tenants are not forced to adopt floor-mounted power whips. Overhead distribution remains fully supported, allowing each tenant to choose the configuration that best suits their equipment and operational preferences. From a coordination standpoint, the raised-floor grid and pedestal layout are designed to allow:

- underfloor routing of power whips and data cabling where desired (with grommets or cut-outs aligned with rack footprints), and
- full compatibility with existing or new overhead busways, cable ladders, and power whips.

The choice between floor-mounted and overhead power whips is therefore a functional and operational decision, not a constraint imposed by the raised floor. The system supports both configurations, and mixed solutions (e.g. overhead power + underfloor data or vice versa) can also be implemented.

8. What is the warranty like?

In accordance with applicable law, the warranty is 24 months from date of delivery to site. The engineering calculations on the bases of which the CLT slab and the raised floor solution is provided, use a design life expectancy of 50 years.

9. What are the lead times like?

The design of the raised floor system progresses together with the MEP services design. All considerations regarding position of the pedestals, span in between pedestals in certain locations, creation of under-floor corridors and reticulation is done like in any other suspended ceiling systems. From the moment when the 3D model is locked in, a typical period of 16 weeks is required for the remaining paperwork completion, production and shipment to site in Australia.

10. Are there any issues with volume for large projects?

The production capacity of Theca partners, both the CLT Manufacturer and the raised-floor system Manufacturer, is wide enough to accommodate mid-range data centres (in a range of 20-25.000m² GFA) by guaranteeing a regular supply to site. As a planning reference, both factories can typically allocate in the order of 10,000–12,000 m²/month of panels, even using a derated capacity criteria and keeping a buffer to accommodate other ongoing projects and potential unplanned events, without saturating the lines.

Multi-storey data centres are delivered in stages. Every stage can be arranged properly with Theca Project Manager to accommodate variables within the construction program.

11. How do we deal with heavy MEP plant loads? What is the maximum load that can be applied on Theca Data Centre solution?

Theca Data Centre's standard raised-floor configuration has been tested to safely support up to 30 kN of distributed load, ensuring reliable performance for typical IT equipment. For heavier MEP plant or equipment, load capacity can be further increased by integrating slab-supporting beams or reinforced panels, providing flexible support without compromising floor integrity.

12. Does the CLT need a factory applied protective membrane?

Theca Timber CLT panels for slab uses are always provided with a factory-applied, self-adhesive waterproofing membrane with overlapping edges. The membrane works not just as a temporary membrane during erection, but as a permanent waterproofing under the raised floor system. While liquid cooling systems are

provide with a leak detection system, the waterproofing membrane allows an efficient removal of any liquid dispersion on the slab consequent to failures, minimizing the risks of any interruptions of services.

13. Does the CLT need a levelling screed applied to guarantee the tolerances required by AS standards and by server racks product specifications?

Theca Timber system allows for a controlled deflection with a flatness that is within the AS standard requirement, of +/-6mm on 3m space. One of the advantages of using Theca Timber system is the avoidance of any application of floor screed or levelling resin should this not be a requirement of the job for any other reason.

14. Can penetrations be organised through the CLT slab? Are they possible in each location? Should they be fire-proofed?

Factory-made, machine-cut precise penetrations are one of the advantages of Theca Timber system. Penetrations are well planned and executed and do not require any further work on site, limiting the loss of time and resources spent in crucial time of the program, maintaining seamless the execution phases. Penetrations can be designed in different dimensions and in several locations, pending structural integrity of the slab. Whenever required, they can be fire-proofed using specific fire collars certified according to AS standards.