

Seize the Eco-Potential of Prefabricated Modular Data Centers Made with Mass Timber



Exterior view of the Vertiv™ TimberMod™

Data center owners and operators want to improve their ability to meet evolving sustainability requirements. One approach is to reduce the embodied carbon of the new capacity they deploy.

Embodied carbon includes non-operational emissions, including the extraction, manufacturing, transportation,

and installation of materials and components used to build and deploy new facilities.¹ Data centers are typically constructed of concrete (up to 40%), fuel (around 25%), and steel (around 10%).² Across industries, steel contributes 10% of global carbon dioxide emissions, while concrete contributes 6% to 11%.³

Data center owners and operators can reduce embodied carbon by choosing different materials and manufacturing methods to deploy new capacity. Mass timber can be considered a more environmentally sustainable building material than concrete or steel because it can be renewable if harvested using sustainable processes. Mass timber also stores carbon dioxide captured from the environment.⁴ As a result, “mass timber construction can function as a form of carbon removal when combined with sustainable timber production and building demolition practices.”⁵

Vertiv prefabricated modular data centers (PFM) offer new IT and power capacity in modular building blocks, supporting business growth while avoiding carbon emissions due to unused capacity. Now, data center owners and operators have fresh options with Vertiv™ TimberMod™, a PFM structure made of mass timber that can be applied to **Vertiv™ Power Module** and **Vertiv™ SmartMod™** infrastructure.



Exterior view of the Vertiv™ TimberMod™

¹ Joseph Hawkins, “The embodied carbon challenge for truly net-zero data centers,” article, DatacenterDynamics, September 21, 2023, <https://www.datacenterdynamics.com/en/marketwatch/the-embodied-carbon-challenge-for-truly-net-zero-data-centers/>

² Dan Swinhoe, “Sustainable data centers require sustainable construction,” article, DatacenterDynamics, article, May 12, 2021, <https://www.datacenterdynamics.com/en/analysis/sustainable-data-centers-require-sustainable-construction/#>

³ Gideon Fink Shapiro, “Concrete, Steel, or Wood: Searching for Zero-Net-Carbon Structural Materials,” Architect Magazine, January 15, 2020, https://www.architectmagazine.com/technology/concrete-steel-or-wood-searching-for-zero-net-carbon-structural-materials_o

⁴ “What Is Mass Timber Construction,” fact sheet, American University, updated June 24, 2020, <https://www.american.edu/sis/centers/carbon-removal/fact-sheet-mass-timber.cfm#>

⁵ Ibid.

Accomplish More Sustainability Goals with Vertiv™ TimberMod™

Vertiv TimberMod addresses data center owners' and operators' desires to use more sustainable processes – without compromising performance or speed to market TimberMod™:

- **Leverages mass timber as a structural element:** Built with mass timber, TimberMod offers the same level of reliability as steel, ensuring robust performance when encountering seismic activity, wind forces, and structural demands.
- **Uses natural materials:** Mass timber can be a renewable construction material based on how it is produced, harvested, and used. Organizations that deploy TimberMod can minimize resource depletion and reduce carbon dioxide emissions.

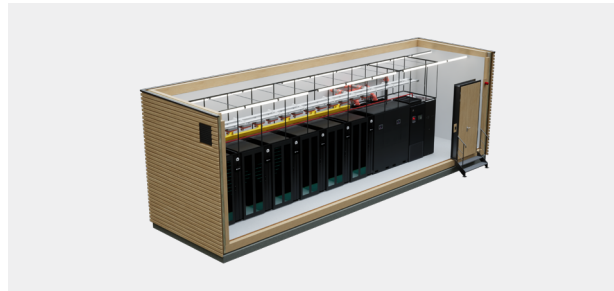
The European Commission is developing a roadmap to reduce the whole-life carbon of the building sector by 2050 by focusing on operational and embodied emissions. This regulation could spur data center owners to adopt mass timber as a construction material for new capacity in the European Union.⁶

- **Can be flexibly and rapidly deployed:** Offering prefabricated critical power and IT infrastructure, TimberMod is ideal for small and medium-sized data centers that want to deploy new capacity at pace.

⁶“MEPs back plans for a climate neutral building sector by 2050,” press release, European Parliament, March 14, 2023, <https://www.europarl.europa.eu/news/en/press-room/20230310IPR77228/meps-back-plans-for-a-climate-neutral-building-sector-by-2050>

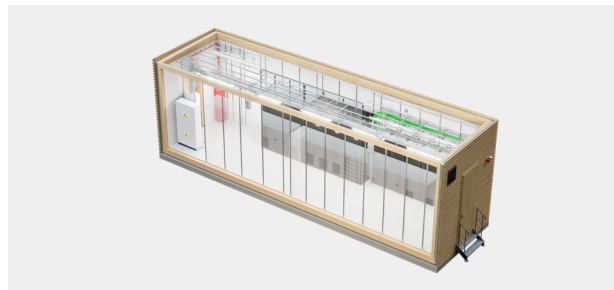
Solutions with TimberMod™ structure

Vertiv™ SmartMod™



SmartMod™ is an all-in-one modular data center featuring all equipment necessary for normal data center functionality. All subsystems are factory installed into a secure, weatherproof and transportable enclosure – simplifying and shortening the on-site time required to install and startup.

Vertiv™ Power Module



With Vertiv™ Power Module you can rapidly construct redundant blocks of critical power infrastructure for your new or existing facility, allowing you to focus on the sensitive areas of the facility that require the most attention and management.

Deploy Vertiv™ TimberMod™ to Accomplish Key Business Goals

With TimberMod, data center owners and operators gain a solution that meets their business, technical, operational, and sustainability objectives.

Deployable in modular building blocks of IT and power capacity, TimberMod has an appealing architectural design that transcends data center applications and blends into any environment. Vertiv provides end-to-end services to ensure a straightforward startup and smooth ongoing operations. These services include deployment, commissioning, ongoing maintenance, remote monitoring, and training.

Use TimberMod to meet business and performance objectives while reducing carbon emissions.



Global Warming Potential*

Timber **1** : **3** Steel

* Calculations were performed using One click LCA software and Level(s) framework, both compliant with EU taxonomy–Calculation method (EN 15978:2011). Sources for the material Environmental Product Declaration (EPD) are taken for the design phase. Data used in calculations comes from equivalent design phases of two Vertiv™ Power Modules. The calculation was carried out for the cradle (A1) to gate A3 and the transport of materials and structure elements to the assembly site (A4) – in this case our factory site in Rugvica, Croatia. The equipment was excluded from the calculation since it represents the common denominator for both buildings.

DEPLOY VERTIV™ TIMBERMOD™ TODAY

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