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CORE SOLUTIONS

Insulating the digital economy with stone wool sandwich panels

The other "firewall" of an Equinix data center
Slough | UK

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In a world that never switches off, resilience is not optional – it is essential. For data centers at the heart of global connectivity, every detail must support continuous performance. At Equinix's LD6 International Business Exchange™ in London, the building envelope plays a far greater role than simply enclosing space. It helps protect critical infrastructure, maintain stable conditions and support round-the-clock operation – all within a live, fast-paced campus environment.

Discover how a carefully engineered façade solution helped turn ambition into lasting performance.

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Performance built for 24/7 certainty

As the flagship data center on Equinix's London Slough campus, LD6 International Business Exchange™ (IBX) is one of the world's largest internet exchanges, and a critical node in global connectivity. The facility must operate around the clock with minimal unplanned downtime, placing strict demands on every part of the building – including the envelope.

Before its construction in 2015, LD6 was envisioned as a facility that could deliver high levels of resilience and efficiency within a busy, multi building campus, without disruption. It needed an envelope that would:

- Provide a high degree of fire safety to support unmanned 24/7 operation
- Maintain stable internal conditions for sensitive IT equipment
- Offer strong physical security with a largely opaque façade
- Be delivered quickly alongside existing live buildings
- Align with the campus' clean, professional identity

These required a solution that could combine high fire resilience, strong thermal and acoustic performance, and modular and scalable construction – packaged up in a refined visual expression. That is where a sandwich panel façade system with stone wool cores could take center stage.

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"LD6 is a flagship facility designed to expand the campus' network-dense ecosystem and meet growing demand for resilient, energy-efficient digital infrastructure."
– Equinix

Matters of resilience

At a hub like LD6, any fire could threaten critical infrastructure, disrupt customer services and impact neighboring facilities on the same campus, risking millions in lost revenue. To mitigate this, the project team treated the building fabric as an integral part of the fire safety and risk management strategy.

To ensure non-combustibility, the 10,803 m² building used steel sandwich panels for its envelope, containing cores of 120 mm thick stone wool. With a melting point above 1,000°C, stone wool helps to contain fire and limit flame spread within the building envelope. In tested sandwich panel systems, this supports fire classification ratings up to A2-s1, d0 under the EN 13501-1 Euroclass standard. In practice, this enables the panels to act as a fire barrier, buying valuable time for evacuation and emergency response.

Because stone wool is dimensionally stable and resistant to high temperatures, its insulating and fire resisting characteristics remain reliable throughout the building's lifetime. The key was to use materials that provide fire resistance without compromising physical security, flexibility, control of cost and project timescales.

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Clean lines, efficient construction

The LD6 IBX was constructed alongside two existing data centers on the London Slough campus. It would have to integrate visually with the existing site – conveying a sleek sense of efficiency and professionalism, without drawing attention to the mass of highly complex technologies whirring away inside.

The façade solution addressed this challenge with horizontally mounted panels, complemented by prefabricated corner elements, to create a continuous and ordered façade that visually aligns LD6 with its neighboring Equinix buildings.

Using a modular, prefabricated sandwich panel system also brought construction advantages such as faster weathertightness and enclosure, predictable installation sequences, and reduced on-site waste and disruption. For a live campus where existing data centers must remain fully operational, this speed and predictability were crucial.

Stone wool and steel are both long-lasting and largely recyclable at the end of life. The panels are resistant to moisture, temperature changes, and most environmental impacts, supporting decades of reliable service. And the steel can eventually be remelted, while stone wool can be reprocessed and returned to the manufacturing cycle.

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Inefficiencies and intruders

As lifetime electricity cost is the main OPEX of a data center, LD6 also needed to use as little energy as possible. For this purpose, the stone wool cores in the panels provide strong thermal insulation. This reduces heat transfer through the façade and maintains tight temperature bands inside the data halls. This, in turn, lowers the cooling load – fans do not need to consume as much energy to keep servers within optimal operating ranges.

In this way, the envelope is not just a passive enclosure, but an integral part of the building's technical systems. This performance was one of the contributors to LD6 achieving LEED Gold accreditation, reflecting the building's overall sustainability credentials.

As a facility designed primarily for servers rather than people, LD6 is a building "without humans". Except for offices and control rooms, the envelope is fully opaque. With minimal window openings and penetrations in the façade, it not only keeps out unwanted influences on temperature, but also makes unauthorized access more difficult.

A model for next-generation data centers

This is an envelope that contributes directly not only to LD6's resilience, but its scalability too. 2015 was years before the rise of generative AI – but because of the earlier work done by the project partners, Equinix now has the modular building blocks to optimize the transition to new and future digital technologies when they arise.

The project shows that fire resilience can be built into the fabric of the data center; that high levels of energy efficiency are achievable without compromising security or robustness; and that modular, prefabricated technologies can deliver complex facilities quickly while maintaining quality and consistency.

Stone wool insulated sandwich panels are a powerful way to make buildings both safer and more sustainable. Encasing the computed world inside the server rooms, they can be the other "firewall" – one which protects the digital services on which we increasingly depend.

Project overview

- **Project:** LD6 Equinix International Business Exchange™ (IBX)
- **Location:** Slough, UK
- **Building type:** Data center
- **Year completed:** 2015
- **Architect:** TTSP, London-based commercial architect and data center specialist
- **Sandwich panel supplier:** Trimo
- **Sandwich panel solution:** Trimo Qbiss One
- **Core insulation:** 120 mm stone wool by ROCKWOOL Core Solutions

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