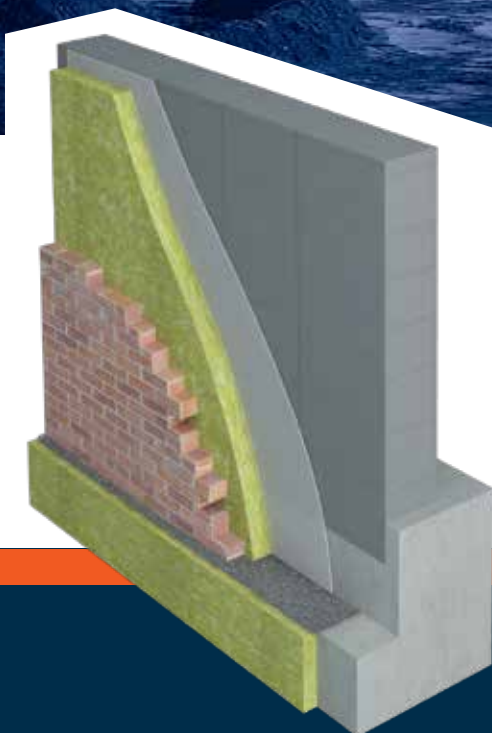




POWERWOOL™ STONE WOOL INSULATION



Exterior Wall Systems for
High-Performance Data Centers

Mission-Critical Buildings Demand

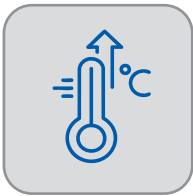
Mission-Critical Enclosures



Data centers operate 24/7 under high internal cooling loads and strict environmental tolerances.

The exterior wall system must do more than meet minimum code, it must support:

Thermal stability



Moisture resilience



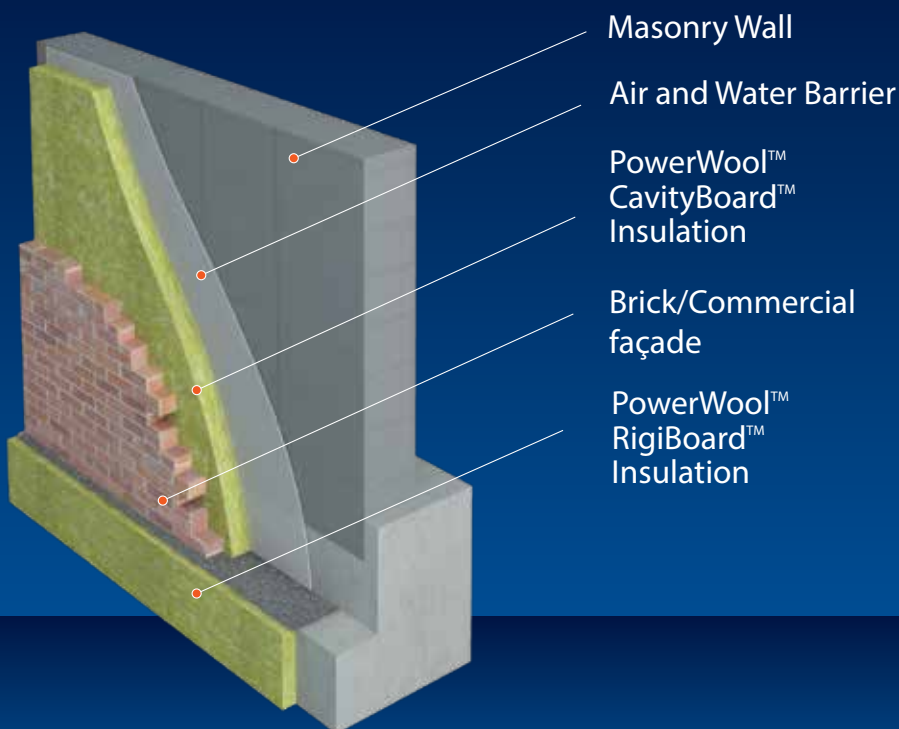
Fire protection



Long-term durability



Operational efficiency



PowerWool™ stone wool continuous insulation helps create resilient exterior wall assemblies designed for mission-critical performance.

Why Exterior Continuous Insulation Matters

1. Control Heat Gain. Stabilize Cooling Systems.



Data halls generate significant internal heat. While mechanical systems manage internal loads, the building enclosure directly influences conductive heat gain.

A continuous exterior stone wool insulation layer:

Reduces thermal bridging

Stabilizes interior surface temperatures

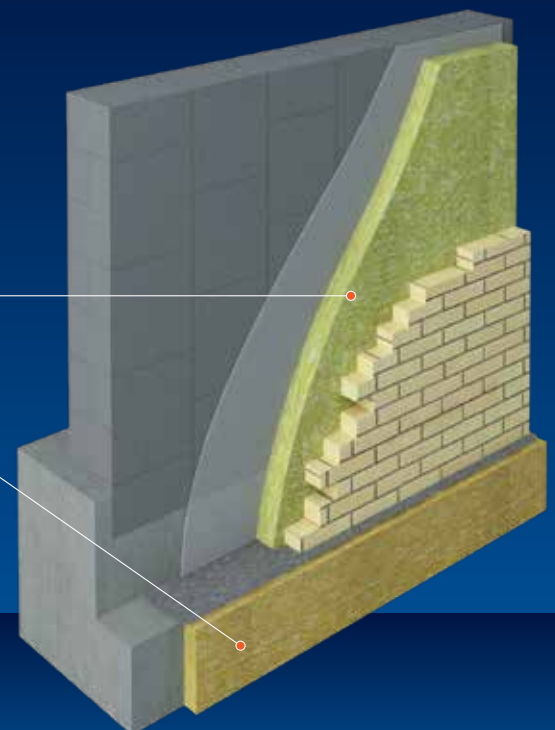
Improves effective R-value

Supports mechanical system efficiency

PowerWool™ CavityBoard and RigiBoard™ form a continuous, noncombustible thermal blanket over structural CMU or concrete walls.

PowerWool™ CavityBoard™

PowerWool™ RigiBoard™



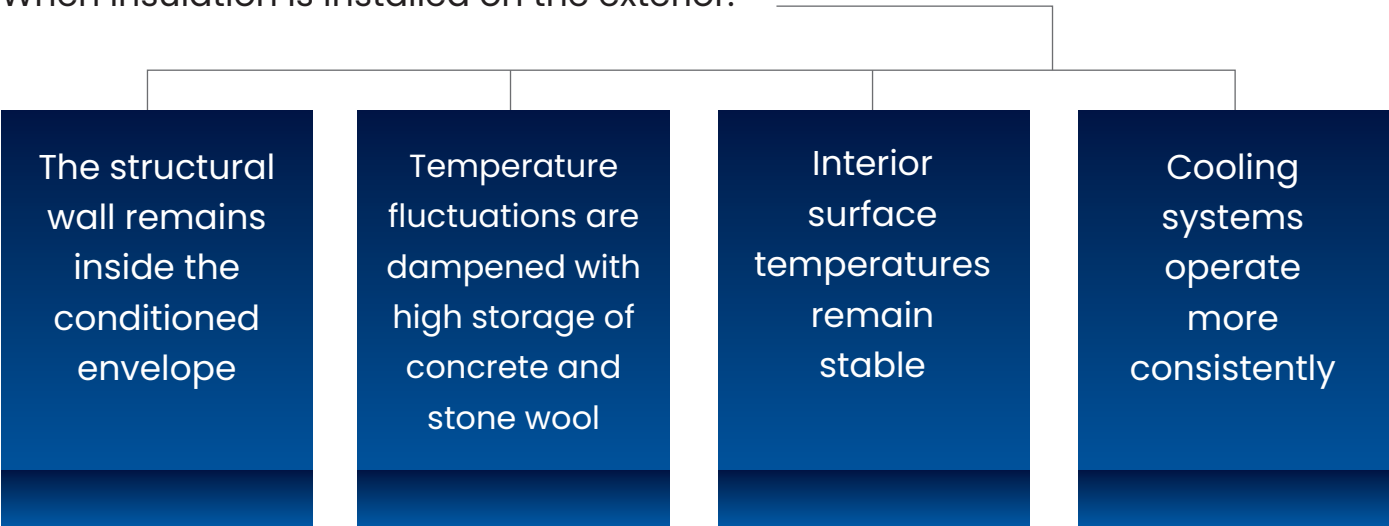
2. Leverage Thermal Mass



Most data centers are constructed with CMU or cast-in-place concrete structural walls. These materials provide high thermal mass.

Exterior insulation allows the mass wall to function as a thermal stabilizer rather than a heat sink. This turns these large thermal mass walls into a very big positive for cooling loads.

When insulation is installed on the exterior:



3. Manage Moisture. Protect Performance.

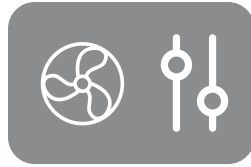
Data centers often maintain controlled interior humidity levels, creating potential vapor pressure differentials across the wall integrate:

A high-performance wall must integrate:

Water control



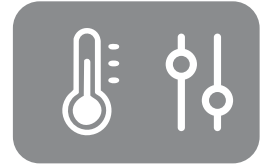
Air control



Vapor control



Thermal control
(PowerWool™)



PowerWool™ stone wool insulation is vapor permeable, supporting outward drying. When combined with properly detailed air and water barriers, this helps reduce condensation risk and supports long-term durability.

Where vapor restriction is required by climate or interior conditions, a dedicated vapor control layer can be integrated into the assembly. When using 100% exterior mineral wool insulation, the need for a vapor control is greatly reduced. An air and water control system will always fall on the exterior of the wall system.



4. Noncombustible Fire Protection

Exterior wall assemblies must comply with the **International Building Code** for construction type, fire separation distance, and combustibility.



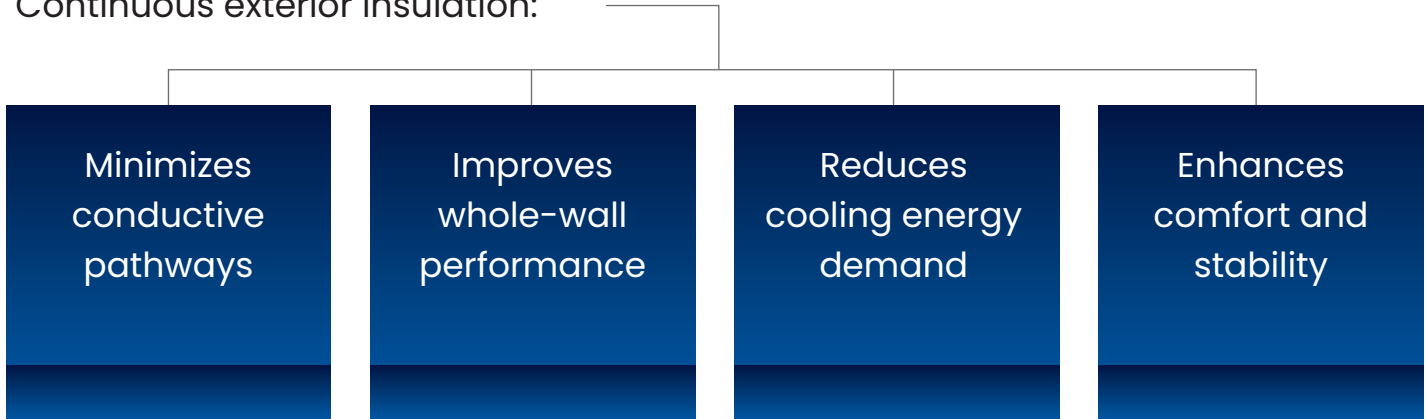
PowerWool™ stone wool insulation is noncombustible and supports fire-rated wall assemblies when incorporated into tested systems.

In mission-critical environments, passive fire protection in the building enclosure adds a layer of resilience beyond minimum compliance.

5. Reduce Thermal Bridging

Steel attachments, clips, and structural penetrations can reduce effective R-value.

Continuous exterior insulation:



PowerWool™ creates a consistent thermal control layer over mass walls and structural systems. There are many low conductive options for clip and rail systems on the market. Please reach out to your PowerWool technical representative to inquire about other options and to help design your wall system with your specific climate in mind.

Typical High-Performance Data Center Wall

A resilient exterior wall system may include:

- Interior finish
- Structural CMU or concrete wall
- Continuous air/water control layer
- Exterior PowerWool™ CavityBoard or RigiBoard
- Rainscreen cavity
- Exterior cladding

This configuration:

- Maximizes thermal mass benefits
- Reduces condensation risk
- Supports fire resistance
- Improves energy efficiency
- Enhances long-term durability

Built for Long-Term Performance

Data centers are long-life assets. Exterior wall systems must resist:

- Thermal cycling
- Moisture exposure
- Mechanical loads
- Future façade upgrades

PowerWool™ stone wool insulation provides:

- Dimensional stability
- Stable long-term R-value
- Moisture tolerance
- Compatibility with cavity wall and rainscreen systems

Exterior Walls That Work as Hard as the Servers Inside

PowerWool™ exterior continuous insulation systems help deliver:

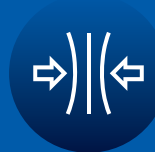
Noncombustible performance



Thermal stability



Hygrothermal resilience



Durable exterior wall assemblies



Because mission-critical facilities require more than minimum compliance — they require resilient design.

Please reach out to one of our technical representatives at technical@powerwoolinsulation.com

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