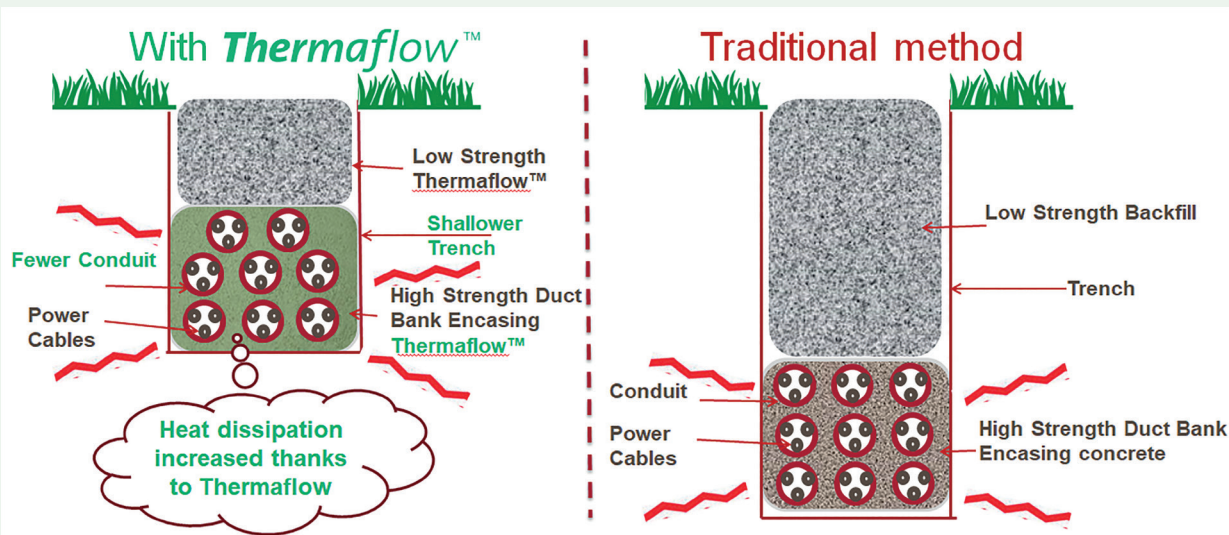


Thermaflow™

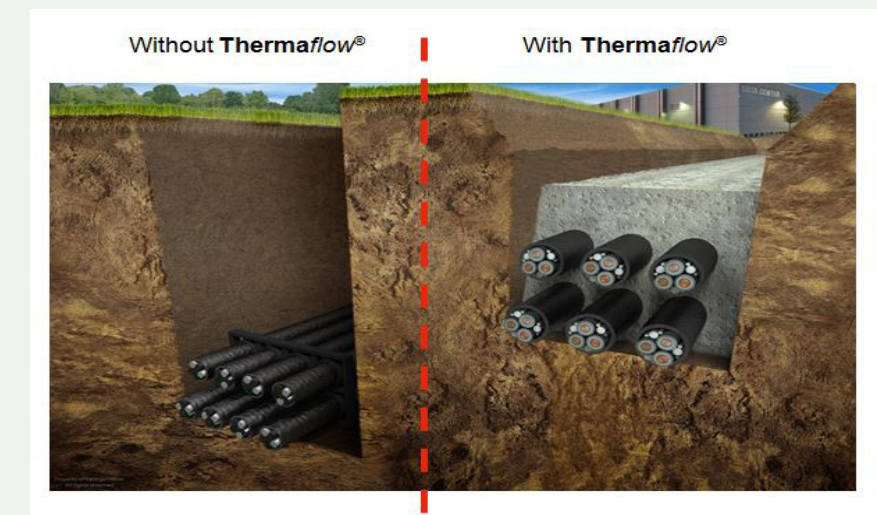
Low thermal resistivity concrete
for High-Demand Electrical facilities

Thermaflow





- Most relevant pain points:
- System reliability
 - System efficiency
 - Speed and cost of construction
 - Supply chain capabilities to supply high volume of concrete in a short period of time
 - Electrical Engineers are the key specifiers



Thermaflow™ Our Solution

- Data Centers protect buried electric cables with concrete. Those cables generate large amounts of heat.
- Thermaflow™ is a range of thermally conductive concrete mixes that excel at conducting and transferring heat away from the power cables. That property, thermal resistivity, is measured in Rho value.
- LH's Thermaflow™ performance is pre-tested and third party verified allowing for the optimization of data center duct bank design.

Additional Solutions

- ThermaFlow™ is highly flowable; when high-lift grouting, ensure that wall clean-out covers are tightly secured.
- When grouting bond beams, ensure that plastic mesh Grout Stop is the proper with to firmly embed in mortar joints. Example: 8" wide Grout Stop for 8" block.
- BlockFill is designed to be poured at 22-28" (550 - 700 mm) slump flow range. It is important for BlockFill's performance that this slump flow range is strictly adhered to. Ensure that all masonry specifiers and inspectors are informed and aware of this slump flow range requirement.
- These are supplied in CEM I with new micro-fibre technology and Air entrainment to provide frost resistant low bleed less crack prone concrete. In order to achieve a better strength and abrasion

Thermaflow™ brings value to High demand Facilities construction addressing their pain points.

System reliability

- Optimized duct bank design, utilizing actual Rho values, reducing, as a result, the risk of system interruption

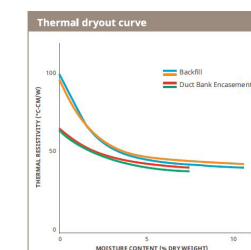
System efficiency

- Maintains cable rating preventing cable from overheating
- Reduces required cable redundancy

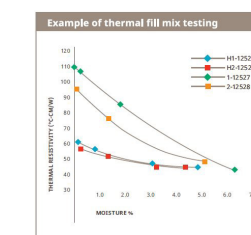
Speed and cost of construction

- By using Thermaflow™, duct bank design can be optimized at initial engineering rather than delaying construction to redesign because the assumed Rho performance was not delivered
- Reduced trench excavation, backfill and compaction costs
- Less redundancy to be built in the system, less materials to be used (cable, conduit, ...) and more cost efficient materials can be used
- Safer construction: Shallower trenches, less building materials to be dealt with at the job site

Supply chain capabilities to supply high volume of concrete in a short period of time



Science that Performs
Material science expertise delivers thermal value/moisture.



Performance Tested
Internal testing capability coupled with third party verification ensures predictable material performance.

Local mixes with local material

A mix "recipe" from another location may not perform the same way as the materials found in the location of your current project. Aggregates vary chemically from town to town, state to state and region to region. Because Lafarge has the support of a world-class research network and understands the base science of the materials and the specific elements that impact thermal performance, our teams have proactively designed and tested mixes using local material. With this thorough process you can be confident the material performance will be right when you need it and where you need it

Performance tested

Our proprietary mixes are developed based on extensive material know-how, proper testing equipment, and training. As a leading company, we have made investments in this capability in house, in every region and we go the extra mile to get each mix retested by a 3rd party lab. Only labs certified and experienced in thermal testing for concrete rho value are used because they meet our rigorous testing requirements.

Thermaflow™

Data: Thermaflow

Thermaflow™: thermal fill is an innovative fill material that dissipates heat generated by buried cables supplying electrical power to data centers and other high demand facilities.

Thermaflow™ is a gateway to additional business in data center construction: other concrete needs, cement soil stabilization, aggregates, etc.

Thermaflow™ is a valued added offering for other segments like electrical utilities and wind farms.



Applications

- Dissipates the heat generated by buried cables supplying electrical power
- Superior thermal performance may allow optimization of conduit capacity and trench design, resulting in reductions in material cost and back fill labor
- Know your Thermal resistivity (Rho) before you design: pretested and third party verified for predictable material performance.
- Flowability and small aggregate size allow the material to flow into all of the spaces in tight conduit runs without vibration
- Thermaflow™ is available in a range of strengths and levels of thermal resistivity.
- Each mix is engineered using local materials to ensure the project gets the material performance needed.
- A ready-made product delivered by mixer truck: no bags, no sand, no clean-up, no need for on-site water•

Benefits

- System reliability
- System efficiency
- Speed and cost of construction
- Supply chain capabilities to supply high volume of concrete in a short period of time
- Electrical Engineers are the key specifiers