

CEMATRIX™

Cellular Concrete Solutions

Cellular Concrete products solve construction problems requiring: **Lightweight Fill, Insulation, or Self-Compacting Flowable Void Fill**



Applications

Infrastructure

- Shallow Utility Insulation
- Road Construction
- MSE and RSS Wall Backfill
- Bridge Abutment and Approach Backfill
 - Integral Bridge Abutments
- Retaining Wall Backfill
- Culvert, Arch, Wingwall, and Span Backfill
- Grouting Casings, Pipes, and Culverts
- Tunnel Grouting
- Lightweight Engineered Fill

Industrial, Oilsands, Oil & Gas Facilities

- Tank Foundation Systems
- Pile Cap and Module Infill and Insulation
- Shallow Foundation and Slab Insulation
- Sulphur Pit and Buried Tank Insulation and Thermal Stress Reduction
- Shallow Utility Insulation

Benefits

- Lightweight
- High strength to weight ratio
- Well bonded, monolithic, self-supporting
- Self-compacting
- Resistant to hydrocarbons
- Freeze/thaw, sulphate, and salt resistance
- Low permeability and water absorption
- Fire and heat resistance
- High on-site production capabilities
- Remote placement
- Long pumping distances under low pressure
- Mobile equipment
- Less sub-grade preparation
- Excellent construction working surface
- Ease of excavation
- Ease and speed of placement
- Reduces construction traffic and congestion
- Cost effective



Typical material specification:

CEMATRIX CMI/CMEF/CMG-475 lightweight insulating cellular concrete
475 kg/m³ as-cast density (+/-10%)

Minimum UCS of 0.4 MPa or 0.5 MPa
(foam agent dependent) at 28 days

CEMATRIX Client Testimonials

"We saved over 5000 man hours compared to conventional backfilling techniques, as well as accelerating our pavement schedule by seven weeks. This allowed our company to install the balance of concrete paving ahead of schedule and also a great cost savings was realized."

"CEMATRIX provides a high level of confidence from an Owner's perspective because of their product performance; and their technical and research capabilities to provide site specific recommendations and specifications"

"Rigid expanded polystyrene is much lighter but it is susceptible to hydrocarbon (gas and oil) spills and UV damage. Cellular concrete is approximately 27 per cent less cost than expanded polystyrene and doesn't have those problems."

"CEMATRIX Cellular Concrete as a substitute to backfill was a good choice for this project because it simplified the installation of the material (i.e. backfill) required under the paving. It not only eliminated the need for backfill, but geotextiles, [rigid foam] and 3/4" crush were also no longer necessary. Using CEMATRIX Cellular Concrete as a replacement for all these different materials saved time and money on the project."

"The MSE retaining walls are very quick to erect, and backfill with cellular concrete can accelerate the construction even further."

"The advantages that CEMATRIX Cellular Concrete provide are the speed of construction, ease of installation, high productivity rates (low manpower requirements), and quality of products and services."

Approvals

- **BC MoTI** Lightweight Fill Material (Accepted Product)
- **Alberta Transportation** Grouts – Culvert Liners and Lightweight Fill Material (Proven Product); Lightweight Fill, Frost Barriers and Void Filling (Potential Product)
- **MTO The Road Authority, DSM** Retaining Walls; Type I, II & IV Fill; Grout / Void Fill; CLSM (Affirmed)
- **City of Calgary** Specified in Waterworks Construction Specifications
- **CEMATRIX Cellular Concrete** utilized by MIT, NWT DoT, Region of Peel, Cities of Edmonton, Winnipeg, Yellowknife and many other DoT's, Cities and Municipalities throughout Canada and U.S.

Experience, Capabilities, Services

- Hundreds of thousands of cubic metres placed across North America; with projects ranging from hundreds to tens of thousands of cubic metres in size
- Fleet of equipment of different types and sizes, allowing unrivaled production capabilities from 50 m³/hr to 120 m³/hr and long pumping distances
- Custom geothermal modelling to support insulation applications
- Geotechnical Engineering support
- Expert product support and custom mix designs
- Constructability analysis and consultation



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“Wet Mix” (Ready Mix) Applications

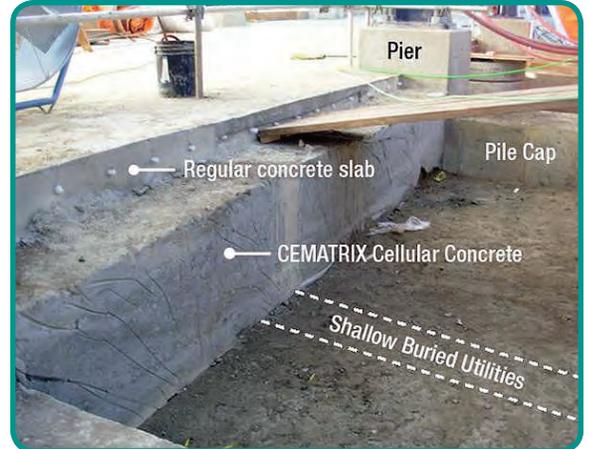
Shallow Utility Insulation

- Insulation to provide freeze protection for shallow buried pipes.
- Lightweight cellular concrete reduces loading on the pipes.
- Self-compacting, self-levelling, flowable cellular concrete is ideal for backfilling over or around utilities with no need for vibration.
- The trench base does not require a highly prepared level base, due to the fluid nature of fresh cellular concrete.
- Cellular concrete is resistant to hydrocarbons - no liner is required to protect it.
- CEMATRIX provides custom geothermal modelling to identify and recommend the width and thickness of insulation required.
- If a future tie-in, replacement, or repair is needed for the utility, cellular concrete is easy to excavate and can be hydro-vac'ed.
- Traffic loading is not an issue.



Shallow Foundation Insulation

- Insulation to provide freeze protection for foundations, slabs, pavements, gradebeams etc., as well as any utilities buried beneath them.
- Cellular concrete is stronger than a good compacted clay, and spreads loads evenly.
- Cellular concrete provides an excellent working surface for subsequent construction activities. It can handle heavy loads, supports rubber tired equipment, and formwork can be staked into it.
- No sand layer is required to protect it.
- Self-compacting, self-levelling, flowable cellular concrete is easy and quick to place; flowing around piles, pilecaps, piers, etc. without labor intensive placement.
- The sub-grade does not require a highly prepared or level base.
- Cellular concrete is resistant to hydrocarbons - no liner is required to protect it.
- CEMATRIX provides custom geothermal modelling to identify and recommend the width and thickness of insulation required.
- If a future tie-in, replacement, or repair is needed for utilities buried beneath the foundation, cellular concrete is easy to excavate and can be hydro-vac'ed.





Void Fill & Grouting Applications

- Self-compacting flowable fill for backfill of voids, grouting of annular spaces and tunnels, and filling of abandoned culverts or pipes.
- Dimensionally stable.
- Negligible long term creep under sustained loads.
- Pumped into place in a fluid state under low pressure.
- Remains permanently easy to excavate and can be hydro-vac'ed.
- The air bubbles act like ball bearings, so it can easily be pumped long distances.
- Spreads out to take the shape and size of whatever excavation, form, or void it is pumped into, regardless of shape or profile.
- Lightweight with low hydrostatic pressure, reduces the lateral loading and risk of deformation to adjacent structures.
- Cellular concrete is a semi-compressible fluid due to the extremely high air content so it will exert outwards pressure as it hardens (like a spring), ensuring the void is completely full.
- Cellular concrete is stronger than a good compacted clay, and spreads loads evenly.
- Traffic loading is not an issue.

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