

Tests and studies: documented results

Public summary | September 2026

The results below concern historical samples and mixes. They are not universal design values. Recipes and processes are excluded from this document.

Test	Result	Method / source
Fresh density	584 kg/m ³	CSA A23.2-6C R1
Dry / immersed density	559 / 626 kg/m ³	CSA A23.2-11C R1
Compression at 1 / 2 / 3 days	2.0 / 2.6 / 2.8 MPa	CSA A23.2-9C R1
Compression at 7 / 28 / 56 days	3.7 / 3.9 / 4.6 MPa	CSA A23.2-9C R1
Flexure at 7 / 28 / 56 days	0.9 / 1.0 / 0.9 MPa	CSA A23.2-8C R1
Elastic modulus / Poisson ratio at 28 days	2.53 GPa / 0.19	ASTM C469 R1
Fresh slump	170 mm	CSA A23.2-5C R1
Mass / volumetric absorption	12.0 % / 3.6 %	CSA A23.2-11C / ASTM D2842 B R1
Freeze-thaw: cycles / relative dynamic modulus	300 / 86.5 %	ASTM C666 B R1
Length change in freeze-thaw	0.020 %	ASTM C666 B R1
Scaling after 56 cycles with salts	0.22 kg/m ²	NQ 2621-905 R1
Dry thermal conductivity	0.16910 W/(m·K)	ASTM C518-10 R2
Thermal resistance at 71.450 mm	0.42 m ² ·K/W	ASTM C518-10 R2
Compression, cylinders 5 / 7 (2013)	3.3 / 3.1 MPa	Qualitas B16357 R3
Direct tension, asphalt / concrete assembly	0.23 MPa	CSA A23.2-6B; LC 25-010 R4

Read results with their scope

R1 | MTQ, February 3, 2015

BC-14-128 / DB-13-47; July 15, 2014 trial batch. Freeze-thaw: 300 ASTM C666 B cycles, freezing in air and thawing in water. The 0.020% value describes freeze-thaw length change, not drying shrinkage. Scaling: 0.22 kg/m² at 56 cycles; favourable scope for a layer without direct salt contact.

R2 | Exova, September 30, 2014

14-06-M0326, ASTM C518-10. 71.450 mm specimen, mean temperature 24.02 °C. MTQ identifies the dry condition. Calculated RSI at 200 mm: $0.200 / 0.16910 =$ approximately 1.18 m²·K/W.

R3 / R4 | Qualitas, 2013 and 2015

B16357: compression and deformation, age and mix unspecified. 620394, report 001: direct tension on one bonded asphalt core, 0.23 MPa at 20 °C, failure in concrete. This test alone does not establish a pavement design without a granular layer.

R5 / R6 | Institutional correspondence

MTQ GUQ-01788, March 2015: proven product for the specified mix and pavement insulation; no purchase commitment. Montréal letter 15C076D, July 2015: interest in trial sections. These records do not qualify all building or fill uses.

Pavement study and next steps

W | InnovAct Consulting, septembre / September 2020

Baaj, Tavassoti, Dias and Lorena: pavement design, fatigue, life-cycle cost and environmental analysis over 30 years. Medium cost scenario: C\$861,541 for the reference versus C\$794,691 for lightweight concrete, excluding excavation; higher initial cost for lightweight concrete. Assumptions need updating and harmonisation before comparison on another project.

The LCA compares pavement systems, not one cubic metre of product. Road-user traffic and end of life are excluded. Internal environmental-result inconsistencies require clarification; no generic carbon-reduction percentage is adopted.

The 24 properties and functions

The site distinguishes measurements, models, application potential and required qualifications. Primary data for acoustics, fire, capillarity, mould, shrinkage, vibration damping and leaching must still be matched to the proposed product and assembly.

Prepare an assessment

Define the application; select the mix; confirm relevant tests; set suitability, quality-control and acceptance criteria. Precast uses additionally require qualification of demoulding, handling and anchors.

Public records and technical discussion

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