



Technical Services Laboratory Report
for

Bilco Brick

Freeze-Thaw Testing
Lancaster, Texas

AASHTO Accredited & ISO 9001:2015 Certified

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INTRODUCTION

The Technical Services Laboratories of Master Builders Solutions Admixtures US, LLC received one set of normal weight concrete brick units, each measuring 2.625 x 2.75 x 9.625 inches, on 12/27/23. Testing was requested to evaluate freeze-thaw durability of the units. The submitted mix design is shown in Appendix A.

SAMPLE PREPARATION AND METHODS

The units were tested for freeze-thaw durability per ASTM C1645-22, Standard Test Method for Freeze-thaw, and De-icing Salt Durability of Solid Concrete Interlocking Paving Units.

RESULTS

Table 1 shows the results of freeze-thaw testing. To complete the freeze-thaw durability testing outline in ASTM C1645-22, the average cumulative mass loss of all the specimen tested shall not be greater than 225 g/m² upon completion of 28 freeze-thaw cycles or greater than 500 g/m² when subject to 49 freeze-thaw cycles.

Table 1 – Classic Brick Cumulative Mass Loss, g/m²

Samples	Cycles	
	7	28
A	0.0	1.3
B	0.0	1.3
C	0.0	3.9
D	0.0	0.0
E	0.0	0.0
Average	0.0	1.3

DISCUSSION

ASTM C1634-23, Specification for Concrete Facing Brick and Other Concrete Masonry Facing Units does not have any guidance for freeze thaw durability. However, the units tested completed the freeze-thaw durability course outlined in ASTM C1645-22, Standard Test Method for Freeze-Thaw, and De-icing Salt Durability of Solid Concrete Interlocking Paving Units.