

30 June 2004  
File MTL-7137 / V-1577

A.E. Precast Concrete Products Ltd.  
19060 - 54<sup>th</sup> Avenue  
Surrey  
V3S 8E5

Attn.: Daniel Perron, P.Eng.

Dear Sir:

**RE: ASTM C672 DEICER SALT SCALING/FREEZE-THAW CYCLING TEST OF PRECAST CONCRETE SPECIMENS FROM LOCK+LOAD RETAINING WALL PANEL**

Metro Testing Laboratories Ltd. (MTL) has conducted ASTM C672 Scaling Resistance Testing on concrete precast elements from retaining wall segments sampled on 18 February 2004. Tests were conducted on two specimens exposed to tap water (Samples A and B) and two specimens exposed to a 4% CaCl<sub>2</sub> solution in water (Samples C and D). Each sample had approximately 435 cm<sup>2</sup> area of a formed face exposed to the water or salt solution. The test results are as follows:

Observation	Sample			
	A	B	C	D
Cumulative loss [g] after 5 cycles	4.3	2.6	4.7	4.2
Cumulative loss [g] after 10 cycles	5.5	3.4	7.3	12.6
Cumulative loss [g] after 20 cycles	6.4	6.1	9.4	25.4
Cumulative loss [g] after 30 cycles	10.4	10.0	11.5	48.2
Cumulative loss [g] after 40 cycles	19.7	12.1	13.3	82.2
Cumulative loss [g] after 50 cycles	28.2	14.0	14.1	101.6
Average depth of loss [mm] after 50 cycles	0.3	0.1	0.1	0.9
Surface condition after 50 cycles, Rating	2 (slight to moderate)	2 (slight to moderate)	2 (slight to moderate)	3 (moderate)

Note that very little paste scaling was observed. The loss of material was mostly due to delamination of those aggregates which were not fully embedded in cement paste. On visual observation after completion of the test, the cement paste of the test surfaces appeared to be sound.

We trust this report meets your present requirements. Please call if you have any questions or require any more detailed information.

Yours truly  
**Valley Testing Laboratories Ltd.**

Roland Heere, M.A.Sc., P.Eng.  
Senior Materials Engineer

NOTE: The above tests also meet the requirements of the following:

ASTM C666  
ASTM C672M  
MTO LS412

**TECHNICAL REPORT**

VAO4393  
November 26, 1998

**Lock + Load Stresswall**

1027 West 8<sup>th</sup> Avenue,  
Vancouver, BC  
V6H 1C3

**ATTENTION:** Mr. David Ash, P. Eng.

**PROJECT:** Quality Control, Testing of Lock + Load Retaining wall Components

**SUBJECT:** Standard Test Method for Evaluating the Freeze-Thaw Durability of Concrete Masonry Units and related Concrete units ( Re. ASTM C1262-97 )

SAMPLE NUMBER #	PERCENT MASS LOSS AFTER 100 FREEZE-THAW CYCLES (%)	SPECIFICATION, ASTM C1372-97
1	0.07	1.0 % Maximum
2	0.04	"
3	0.02	"
4	0.79	"
5	0.02	"
<b>AVERAGE:</b>	0.19	

**COMMENTS:**

- Samples delivered on August 3, 1998
- Test Started on August 7, 1998
- Test Samples prepared by Client by saw-cutting coupons from Lock+Load Wall Panel as per ASTM C1262-97.
- Samples meet the maximum allowable mass loss as per ASTM C1372-97, Standard Specification for Segmental Retaining Wall units

**CERTIFIED BY:**

*D. R. Morgan*  
D. R. Morgan, Ph.D., P. Eng.  
Chief Materials Engineer

**TESTED BY:** P.V. Joshi, ASCT

Senior Materials Technologist