

Array of slabs to be cast April | 2024 0.2875 c.f. = 8'9"6"1.15/12/12 = Length x width x depth x 2 + 15 % over translated from c.i. to c.f.

Slab number	Summary	Water to cement ratio	AE-90 added (Air Entrainment Admixture)	300L added (internal waterproofing)	FirmeCrete coating installed	Rocks (lbs.)	50/50 blend of concrete and mortar sand (lbs.)	Cement (lbs.)	Alto Poz (lbs.)	Water (fl.oz.)	AE 90 (mL)	300L (mL)	Cycles sustained before level 5 damage
1	Good w/c; air-entrained	0.4	Yes	No	No	10.7	20.9	5.4	0.6	36.8	6.2	0.0	25-50
2	No FirmeCrete Coating	0.4	Yes	No	No	This is a duplicate of the slab specified above. The mix is for 2 slabs - see arithmetic at top.							25-50
3	Good w/c; air-entrained	0.4	Yes	No	Yes	10.7	20.9	5.4	0.6	36.8	6.2	0.0	No damage at 50 cycles
4	FirmeCrete Coating	0.4	Yes	No	Yes	This is a duplicate of the slab specified above. The mix is for 2 slabs - see arithmetic at top.							No damage at 50 cycles
5	Bad w/c; air-entrained	0.7	Yes	No	No	10.7	20.9	6	0	64.4	6.2	0.0	0-5
6	No FirmeCrete Coating	0.7	Yes	No	No	This is a duplicate of the slab specified above. The mix is for 2 slabs - see arithmetic at top.							0-5
7	Bad w/c; air-entrained	0.7	Yes	No	Yes	10.7	20.9	6	0	64.4	6.2	0.0	No damage at 50 cycles
8	FirmeCrete Coating	0.7	Yes	No	Yes	This is a duplicate of the slab specified above. The mix is for 2 slabs - see arithmetic at top.							No damage at 50 cycles
9	Good w/c; internal waterproofer	0.4	No	Yes	No	10.7	20.9	5.4	0.6	36.8	0.0	50.2	10-20
10	No FirmeCrete Coating	0.4	No	Yes	No	This is a duplicate of the slab specified above. The mix is for 2 slabs - see arithmetic at top.							10-20
11	Good w/c; internal waterproofer	0.4	No	Yes	Yes	10.7	20.9	5.4	0.6	36.8	0.0	50.2	No damage at 50 cycles
12	FirmeCrete Coating	0.4	No	Yes	Yes	This is a duplicate of the slab specified above. The mix is for 2 slabs - see arithmetic at top.							No damage at 50 cycles
13	Bad w/c; internal waterproofer	0.7	No	Yes	No	10.7	20.9	6	0	64.4	0.0	50.2	0-5
14	No FirmeCrete Coating	0.7	No	Yes	No	This is a duplicate of the slab specified above. The mix is for 2 slabs - see arithmetic at top.							0-5
15	Bad w/c; internal waterproofer	0.7	No	Yes	Yes	10.7	20.9	6	0	64.4	0.0	50.2	No damage at 50 cycles
16	FirmeCrete Coating	0.7	No	Yes	Yes	This is a duplicate of the slab specified above. The mix is for 2 slabs - see arithmetic at top.							No damage at 50 cycles
17	Good w/c; internal waterproofer & air-entrained	0.4	Yes	Yes	No	10.7	20.9	5.4	0.6	36.8	6.2	50.2	5-20
18	No FirmeCrete Coating	0.4	Yes	Yes	No	This is a duplicate of the slab specified above. The mix is for 2 slabs - see arithmetic at top.							5-20
19	Good w/c; internal waterproofer & air-entrained	0.4	Yes	Yes	Yes	10.7	20.9	5.4	0.6	36.8	6.2	50.2	No damage at 50 cycles
20	FirmeCrete Coating	0.4	Yes	Yes	Yes	This is a duplicate of the slab specified above. The mix is for 2 slabs - see ar							Save
21	Bad w/c; internal waterproofer & air-entrained	0.7	Yes	Yes	No	10.7	20.9	6	0	64.4	6.2	50.2	5-10
22	No FirmeCrete Coating	0.7	Yes	Yes	No	This is a duplicate of the slab specified above. The mix is for 2 slabs - see arithmetic at top.							5-10
23	Bad w/c; internal waterproofer & air-entrained	0.7	Yes	Yes	Yes	10.7	20.9	6	0	64.4	6.2	50.2	No damage at 50 cycles
24	FirmeCrete Coating	0.7	Yes	Yes	Yes	This is a duplicate of the slab specified above. The mix is for 2 slabs - see arithmetic at top.							No damage at 50 cycles

Commentary on process and results

Bottom line up front: Any slab coated with FirmeCrete will withstand freeze-thaw cycles with de-icing chemicals supremely well regardless of the mix design and finishing practices of the substrate. This is great news since it seems highly unlikely that a resurfacing contractor could count on the quality of the work of the placement contractor.

The fact that we had no uncoated slabs make it past 20 freeze thaw cycles is at first embarrassing. This implies that despite the mix design, the placement was suboptimal. Possible causes include inexperienced personnel mixing, placing and keeping it wet.