NATIONAL CONCRETE MASONRY ASSOCIATION
Sustainable Concrete Products for Structures and Hardscapes

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Test Report for CMU Water Uptake Test

Client:	Grace Construction Products	Lab Proj. No:	14-327
Address:	62 Whittemore Ave.	Report Date:	5/25/2014
	Cambridge, MA 02140		

Voucher Number:	**DB148985**		
Unit Designation/Description:	**Coupons**	Sampling Party:	Newtonbrook Block & Supply (Gormley)
		Date Tested:	5/22/2014

Physical Properties
(These values are similar to ASTM C140/C140M-14 properties, but they CANNOT be used to show compliance to ASTM C90-14)

Density, lb/ft^3	138.9	138.5	137.9	Avg. Density	**138.4**	lb/ft^3
Ultimate Density*, lb/ft^3	152.1	152.8	151.6	Avg. Ult. Density	**152.2**	lb/ft^3
Absorption, lb/ft^3	5.4	5.9	5.6	Avg. Absorption	**5.6**	lb/ft^3
Absorption, %	3.9	4.2	4.1	Avg. Absorption	**4.1**	%
Equivalent thickness, (T_e, in.)	1.4	1.5	1.4	Avg. T_e	**1.5**	in.
Equivalent thickness, (T_e, mm)	35.8	39.3	35.5	Avg. T_e	**36.8**	mm
Moisture Content at T = 0, %	1.5	1.4	1.2	Avg. % Moisture	**1.4**	%

* Ultimate density is the theoretical calculated density assuming the CMU was completely consolidated with no voids or absorption. It provides an indication of the consistency of the raw materials used in the CMU production. Ultimate Density, lb/ft^3 = Density, lb/ft^3 / (1 - (Absorption, lb/ft^3 / 62.4)) = $[W_d / (W_d - W_i)] \times 62.4$

Relative Water Uptake of the Unit in Percent of Total Saturation, %U_T, (T in Hours)

Time in Hours	0.00	0.25	1.00	4.00	24.00
Unit #1	0.0	4.5	8.0	12.1	22.2
Unit #2	0.0	3.8	7.0	10.8	21.1
Unit #3	0.0	4.3	7.8	11.5	22.5
Average	**0.0**	**4.2**	**7.6**	**11.5**	**21.9**

%U_{24} = 21.9%

Relative Water Uptake (%U_T)
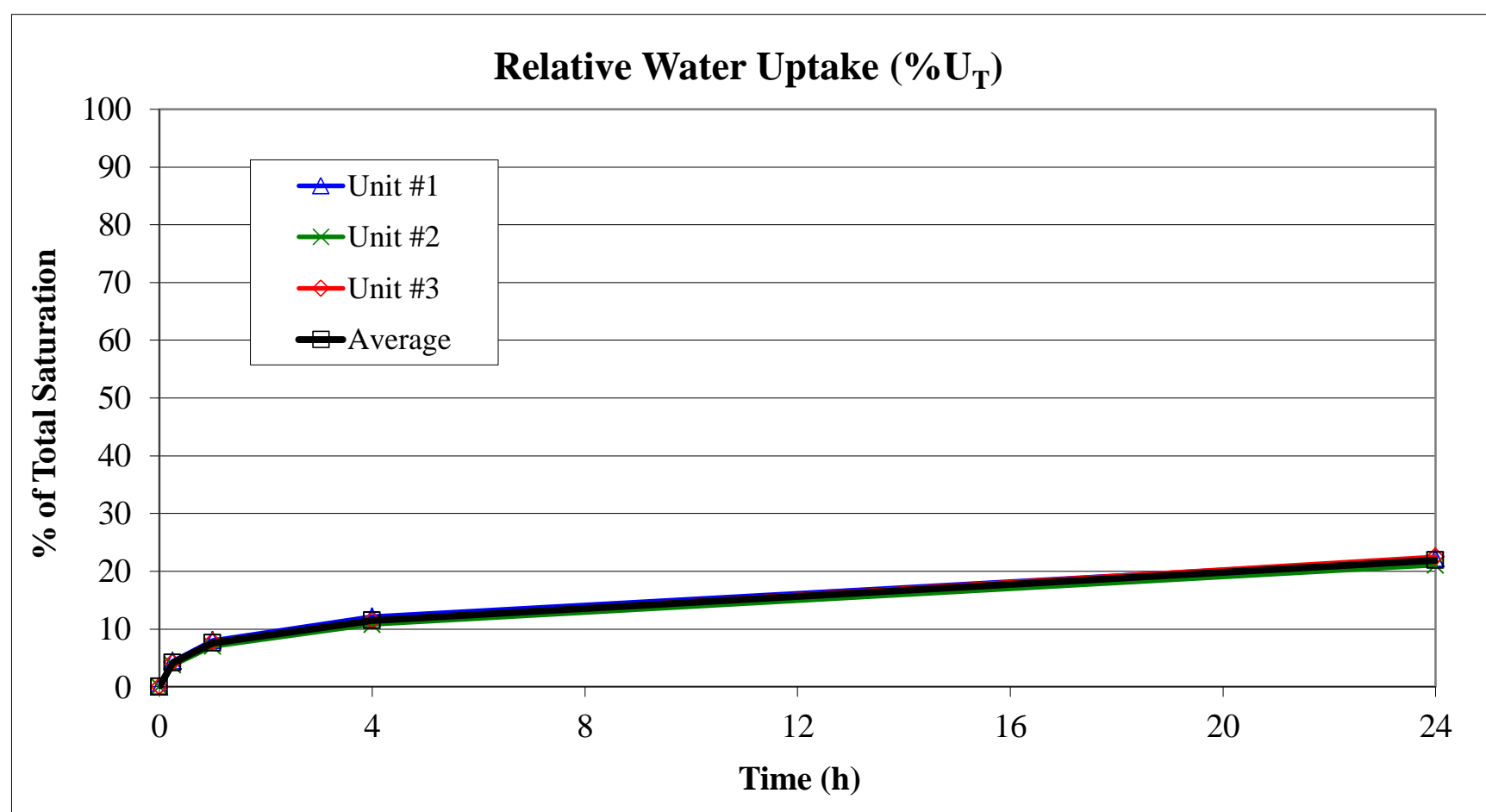
Nicholas R. Lang
Manager, Research & Development Laboratory