MITSUBISHI CEMENT CORPORATION

CERTIFICATE OF TEST

Source: Cushenbury Plant **Plastic (Stucco) Cement** **Date: 12/08/2020**

ASTM designation: C 91 - 12 for Masonry Cement – Type M
ASTM designation: C 1328 - 12 for Plastic (Stucco) Cement – Type M
UBC Standard: 21 - 11 for Cement, Masonry – Type M
UBC Standard: 25 – 1 for Plastic Cement

Production Period
From: 11/17/2020
To: 11/17/2020

Chemical Composition:

	Test Results
Silicon Dioxide (SiO_2), %	19.4
Aluminum Oxide (Al_2O_3), %	3.9
Ferric Oxide (Fe_2O_3), %	3.8
Calcium Oxide (CaO), %	63.7
Magnesium Oxide (MgO), %	2.1
Sulfur Trioxide (SO_3), %	2.3
Loss on Ignition (LOI), %	5.8
Insoluble Residue	1.3
Total Alkali (%Na_2O + 0.658 * %K_2O)	0.48
Tricalcium Silicate (C_3S), %	74
Tricalcium Aluminate (C_3A), %	4
CO2, %	5.2
Limestone, %	14.4
$CaCO_3$ Limestone Purity, %	92

PHYSICAL RESULTS:

	ASTM C-91 & C-1328 Limits	Test Results
Blaine Fineness (m^2/kg)		470
325 Mesh (% Passing)	76 Min.	98.0
Autoclave Expansion (%)	1.0 Max.	0.05
Time of Set Initial Vicat (minutes)	90 Min. / 1000 Max.	175
Air Entrainment (% Volume)	8 Min. / 19 Max.	14.3
Water Retention, % of Original Flow	70 Min.	77

Compressive Strength Test:

	ASTM C-91 & C-1328 Limits MPA psi		MPA	PSI
1 Day			11.8	1710
3 Day			19.0	2760
7 Day	12.4 1800	Min.	28.1	4080
28 Day	20.0 2900	Min.	Due 12/15/20	

This cement has been sampled and tested in accordance with ASTM standard methods and procedures. All tests results are certified to comply with the type specification designated above. No other warranty is made or implied. We are not responsible for improper use or workmanship. The MCC laboratory is AASHTO accredited.

MITSUBISHI CEMENT CORPORATION
Cushenbury plant

Tom Gepford
Quality Control Manager

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ASTM designation: C 1328 - 12 for Plastic (Stucco) Cement – Type M	**From: 11/17/2019**
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Additional Data

Limestone Addition

% Addition:	14.4
SiO2 (%)	4.9
Al_2O_3 (%)	1.0
Fe_2O_3 (%)	0.4
CaO (%)	51.0
SO_3 (%)	0.0

Base Cement Phase Composition

C_3S	58
C_2S	17
C_3A	4
C_4AF	12

We certify that the above described data represents the material used in the cement manufactured during the production period indicated.

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Cushenbury plant

Tom Gepford
Quality Control Manager