



Louisiana Division
3320 Airline Drive
Metairie, LA 70001
Main: 504-834-3341
Fax: 504-836-6830

Date: 12/07/2016
Client: M NATAL CONTRACTOR INC
Attention:
Project: SLIDELL - NEW SIDEWALKS
Location:

Mix Number	Mix Description	f 'c	w/c+p	Slump	Air
RMX93	4000 PSI WRA AEA FIBERS	4000	0.46	3.00 - 5.00"	3.5 - 6.0%

Lafarge has no authority regarding where this mixture is to be placed, therefore it is the direct responsibility of the Purchaser, the design architect or design engineer, and or contractor to insure that the above designed mixture parameters for compressive strength, mixture proportions or ratios, and other required performance parameters are appropriate for the project and for the anticipated environmental, durability, or usage conditions in ACI 318 Chapter 4 and/or the relevant local building codes.

Lafarge warrants the supplied ready-mix concrete mixture designs will achieve the specified compressive strength, or other performance properties of the concrete stated in the plans and specifications, as were made available at the time of quotation, when tested and evaluated in accordance with ASTM C172-14a, ASTM C31-12 (including proper initial curing as per Section 10.1.2), ASTM C39-15a, ASTM C94-15, or other applicable ASTM test methods, provided that the recommended procedures for placement and curing of the in-place concrete, or those specifically outlined in ACI 305R-10 and ACI 306R-10 are followed.

In accordance with ASTM C94-15 Section 6.8, Lafarge shall receive all copies of testing reports, and they should be forwarded to our Quality Control Department as soon as available. Failure to forward reports in a timely fashion can delay response time in dealing with concrete concerns as well as future project submittals.

This mix design submittal, price quote, or material specific information (aggregate properties, grading, material composition, or other information regarding materials) is proprietary and confidential and not to be shared or transmitted in any form to any person or organization that is not expressly authorized in writing by a designated official of Lafarge. Any unauthorized person or entity in possession of this information will be prosecuted to the fullest extent of the law.

Material certifications for concrete constituents are representative of current material sources. If, in the event of limited material availability, substitution of a similar performing material may be required. Such materials will meet the appropriate ASTM requirements as stated in this package. In order to maintain the required mix volume (yield), Lafarge reserves the right to adjust absolute weight of aggregates to accommodate specific gravity changes.

Lafarge mix designs requiring air-entrainment are produced in accordance with ASTM C 94 Section 8.2, which allows for a tolerance of 1.5% above and below the target, and is stated as follows: *ASTM C94 - 15 8.2 The air content of air-entrained concrete when sampled from the transportation unit at the point of discharge shall be within a tolerance of +/- 1.5 of the specified value.*

Except as otherwise expressly stated above, Lafarge's standard Terms and Conditions of Sale provided with the quotation shall apply.

Please return all approved submittals to Lafarge.

When placing orders for approved mixes, always ORDER BY MIX NUMBER. Include with the order any specialty products such as Super P, Temperature Control, Fibers, etc. required by specification or desired by purchaser.

Lafarge

B.J. Eckholdt III
Manager, Quality Assurance



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Concrete Mix Design

Date: 12/07/2016
Client: M NATAL CONTRACTOR INC
Project: SLIDELL - NEW SIDEWALKS

1.0 Cubic Yard by Weight - SSD

Mix Number: RMX93
Mix Description: 4000 PSI WRA AEA FIBERS
Strength @ 28 Days: 4000 psi
Usage: Paving/Cast in Place

Materials:			SSD Weights
Cement	ASTM C-150	Type I/II	436 lbs
Fly Ash	ASTM C-618	Fly Ash	109 lbs
Coarse Aggregate	ASTM C-33	1" GRAVEL	1765 lbs
Fine Aggregate	ASTM C-33	Concrete Sand	1225 lbs
Water			250 lbs
Admixture	ASTM ASTM C 260	ASTM C 260	As Required
Admixture	ASTM C494	Water Reducer	2.0 to 5.0 oz/cwt CM

Total Weight:	3786	lbs	Fly Ash Replacement:	20.0 %
Unit Weight:	140.00	pcf	Slag Replacement:	0.0 %
Yield:	27.03	cu.ft.	Slump:	3.00 - 5.00 inches
w/cm Ratio:	0.46		Air Content:	3.5 - 6.0 %

Comments:

The cementitious content of the mix design is stated as a minimum and Lafarge reserves the right to increase cementitious content if needed.
 Chemical admixtures are added in accordance with the manufacturer's recommendations. Lafarge reserves the right to adjust dosages or change admixtures when required. Normal set water reducer is used in ambient temperature below 80 degrees F, set retarder is used above 80 degrees F.
 Please forward all compressive strength test results to Lafarge at:
 bj.eckholdt@lafargeholcim.com

Lafarge

B.J. Eckholdt III
 Manager, Quality Assurance



**LAFARGE CONSTRUCTION MATERIALS
CONCRETE COMPRESSIVE STRENGTH EVALUATION**

MIX ID: **93**

DESIGN STRENGTH: **4000**

SUMMARY OF STRENGTH ANALYSIS (ACI 214):

NUMBER OF TESTS AVERAGED: 18
SPEC. DESIGN STRENGTH (psi): 4,000
AVE. STRENGTH COMPUTED FROM TESTS (psi): 5,403
STANDARD DEVIATION (psi): 598 (GOOD)
COEFFICIENT OF VARIATION (%): 11.07
WITHIN TEST STANDARD DEVIATION (psi): 152
WITHIN TEST COEFFICIENT OF VARIATION (%): 2.82 (EXCELLENT)

SUMMARY OF PERFORMANCE (ACI 318):

STANDARD DEVIATION MODIFICATION FACTOR: 1.11
MODIFIED STANDARD DEVIATION (psi): 665
EQ. USED IN COMPUTATION: $f_c + 2.33s - 500 = 5,050$ psi
 $f_c + 1.34s = 4,891$ psi

ACI 318 REQUIRED AVERAGE STRENGTH (psi): **5,050**
OVER DESIGN STRENGTH (psi): **353**

MIX # 93

TEST NO.	DATE MADE	SLUMP (IN.)	AIR (%)	TEMP °F	7-DAY AVE. (psi)	28 - DAY (psi)	28 - DAY AVE. (psi)	CUM. AVE. (psi)	RANGE (psi)	MOVING 3 AVE. (psi)	CUM. STD. DEV. (psi)	CUM. C OF V (%)	7/28 DAY (%)
											#DIV/0!	#DIV/0!	
1	2/4/16	4.00	3.4	65	4,050	5,880	5,700	5,790	180				70
2	2/4/16	4.50	4.6	61	4,000	5,120	5,430	5,533	310		364	6.58	76
3	2/10/16	5.00	4.8	57	3,550	4,700	4,650	5,247	50	5,247	558	10.64	76
4	2/18/16	4.50	4.7	68	3,850	4,660	4,760	5,113	100	4,887	529	10.34	82
5	2/19/16	5.25	4.7	52	3,400	5,100	5,250	5,175	150	4,853	459	8.95	66
6	2/26/16	4.75	4.8	65	3,650	4,810	4,990	5,088	180	4,928	421	8.27	74
7	3/2/16	4.25	4.8	67	3,700	4,390	4,630	4,510	240	4,852	442	8.82	82
8	3/7/16	4.00	3.8	73	4,250	6,500	6,400	5,186	100	5,287	654	12.62	66
9	3/7/16	5.00	4.0	71	4,690	5,530	5,650	5,231	120	5,517	627	11.98	84
10	3/17/16	3.00	3.9	82	3,570	4,720	4,900	5,189	180	5,617	606	11.67	74
11	3/23/16	4.00	5.0	68	3,700	6,010	6,400	5,281	390	5,535	651	12.33	60
12	3/28/16	4.00	5.6	82	4,500	5,690	5,890	5,790	200	5,602	638	11.99	78
13	3/31/16	4.25	3.2	75	3,900	5,610	5,800	5,353	190	5,900	620	11.58	68
14	4/18/16	4.00	4.7	79	4,150	5,120	5,190	5,339	70	5,550	598	11.20	81
15	5/5/16	5.00	2.7	82	3,850	4,800	4,690	5,299	110	5,202	596	11.25	81
16	5/14/2016	5.00	3.1	86	4,410	6,250	6,170	5,356	80	5,370	619	11.57	71
17	5/18/16	5.00	4.9	90	4,460	5,930	5,730	5,384	200	5,595	611	11.34	77
18	6/7/16	4.25	3.3	89	4,400	5,850	5,610	5,403	240	5,923	598	11.07	77