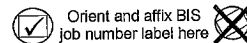




TR3: Technical Report
Concrete Design Mix

Must be typewritten.



The TR3 is required prior to permit

1 Location Information Required for all applications.

House No(s) 501 Street Name West 30th Street
Borough Manhattan Block 702 Lot 50 BIN 1012456 CB No. 104

2 Applicant Information - Licensed Concrete Testing Lab Required for all applications.

Director Last Name Aguanno Director First Name Patsy Director Middle Initial J.
Business Name Fairway Testing Company Inc. Business Telephone (845) 942-2088
Business Address 22 North Liberty Drive Business Fax (845) 942-0995
City Stony Point State NY Zip 10980 Mobile Telephone
E-Mail pjaguanno@fairwaytesting.com
Director's Lic. Number 041982 ☒ P.E. ☐ R.A. Concrete Testing Lab Lic. Number 0074

3 Strength Requirements and Design Required for all applications. Attach Trial Mixture Reports and/or Field Experience Results.

				Mix #1	Mix #2	Mix #3
Method of Determining Proportions (Trial Mixture and/or Field Experience)				<input checked="" type="checkbox"/> Trial Mix <input type="checkbox"/> Field Experience	<input checked="" type="checkbox"/> Trial Mix <input type="checkbox"/> Field Experience	<input checked="" type="checkbox"/> Trial Mix <input type="checkbox"/> Field Experience
Date Trial Mixture Performed				2-1-2012	2-1-2012	2-1-2012
Specified Strength (f'_c)				6000 PSI	5000 PSI	2500 PSI
Required Strength (f'_{cr})				7300 PSI	6200 PSI	3700 PSI
Specified Test Age (Days)				28	28	28
	Material Type	Material Source	ASTM Standard			
Cementitious #1 (lbs)	Type I/II	LaFarge	C150	608 lbs.	544 lbs.	400 lbs.
Cementitious #2 (lbs)	Fly Ash	STI	C618	152 lbs.	136 lbs.	100 lbs.
Cementitious #3 (lbs)				lbs.	lbs.	lbs.
Fine Aggregate (lbs)	Natural Sand	Roanoke S&G	C33	1333 lbs.	1404 lbs.	1604 lbs.
Coarse Aggregate #1 (lbs)	#57 Stone	ECMI	C33	1660 lbs.	1660 lbs.	1630 lbs.
Coarse Aggregate #2 (lbs)				lbs.	lbs.	lbs.
Coarse Aggregate #3 (lbs)				lbs.	lbs.	lbs.
Amount of Water (gals)	Water	Municipal	C94	33.0 gals.	33.0 gals.	32.5 gals.
Admixture #1 (oz)	Water Reducer Admix	Glenium7500 BASF	C494	38.0 oz	34.0 oz	25.0 oz
Admixture #2 (oz)	Set Retarder Admix	100 XR	C494	15.2 oz	13.6 oz	10.0 oz
Admixture #3 (oz)	Corr. Inhibitor Admix	CNI	C494	384 oz	384 oz	384 oz
Other						
Water-Cement Ratio				0.36	0.40	0.54
Slump (inches \pm tolerance)			C143	7.0 \pm 2.0	7.0 \pm 2.0	7.0 \pm 1.0
Air Content (% \pm tolerance)			C231	2.0 % \pm 1.0	2.0 % \pm 1.0	2.0 % \pm 1.0
Unit Weight (lbs./ft ³)			C138	149 lbs./ft ³	148 lbs./ft ³	147 lbs./ft ³

4 Concrete Testing Lab Director's Statement and Signature *Required for all applications.*

I hereby state that the information reported in section 3 above is correct and complete and that the tests reported in section 3 above were performed under my supervision in accordance with all applicable New York City Construction Code provisions, and Departmental rules.

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both.

It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both.

Name (please print)

Patsy J. Aguanio

Signature

Date

11-15-12

P.E. / R.A. Seal (apply seal, then sign and date over seal)

5 Concrete Producer's Statement and Signature *Required for all applications. Must be filled out by Owner of Production Facility.*

I certify that the material type and source specified in section 3 above are available at my facility and that I will use such materials to produce the concrete mix(es) specified in section 3. I further certify that I will produce and deliver such mix(es) to the project site in accordance with the applicable code provisions of the NYC construction codes and that such mix(es) are appropriate for the placement conditions for the project identified in section 1 above (BC 1905.8.2).

Name (print) CONSTANTINE D. QUADROZZITitle TECHNICAL SERVICESSignature [Signature] Date 11/15/12NRMCA Certification Expiration Date (BC 1905.8.2) 11-15-13Business Name Eastern Concrete Materials

Business Telephone (201) 797-7979

Business Address 475 Market Street

Business Fax: (201) 797-1155

City ElmwoodState NJZip 07407**6 Design Applicant's Statement and Signature** *Required for all applications. Must be filled out by P.E./R.A. responsible for plans.*

☒ I certify I have reviewed the concrete design mix(es) reported by the licensed testing lab and found them to be in compliance with the approved construction documents (BC 1905.6.3.3).

Name (please print)

Signature

Date

11/16/12

P.E. / R.A. Seal (apply seal, then sign and date over seal)

7 Building Owner's Statement and Signature *Required for all applications.*

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by a fine or imprisonment, or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department.

Name (print)

Ronald MacKrow

Title

Executive Vice President

Signature

Date

11/16/12



FAIRWAY TESTING

Building a rock-solid reputation since 1969

22 North Liberty Drive
P.O. Box 578
Stony Point, NY 10980
Telephone 845.942.2088
Fax 845.942.0995

Concrete Design Mix**Date November 14, 2012**

Client Eastern Concrete Materials
Contractor New York Concrete
Project Hudson Yards Tower C

Design Mix Pump NA Mixes with CNI
Design Strength 2500psi, 5000psi, 6000psi
Concrete Supplier Eastern Concrete Materials

MIX MATERIALS

Material	Type	Manufacturer	Specific Gravity	Approval
Cement	Type I/II	Lafarge	3.15	ASTM C150
Fly Ash	Type F	STI	2.40	ASTM C618
Fine Aggregate	Natural Sand	Roanoke	2.64	ASTM C33
Coarse Aggregate	#57 stone	ECMI	2.70	ASTM C33
Water	Potable	--	1.00	ASTM C94
Water Reducing Admix	Glenium 7500	Masterbuilders	--	ASTM C494
Corrosion Inhibiting Admix	CNI	Masterbuilders	1.00	ASTM C494
Set Retarding Admix	100XR	Masterbuilders	--	ASTM C494

Mix Proportions and Properties

Proportions	Weights per Cubic Yard			Properties	2500	5000	6000
	2500	5000	6000				
Cement, lbs	400	544	608				
Fly Ash, lbs	100	136	152	Slump, in	5.0-9.0		
Fine Aggregate, lbs	1604	1404	1333	Air Content, %	2.0±1.0		
Coarse Aggregate, lbs	1630	1660	1660	Water/Cementitious Ratio	0.54	0.40	0.36
Water, gals	32.5	33.0	33.0				
Glenium 7500, oz	25.0	34.0	38.0	Unit Weight, Plastic pcf	147.4	148.0	148.8
CNI, gals	3.0	3.0	3.0				
100 XR, oz	10.0	13.6	15.2				

Mix	Mix Usage
2500 psi Pump NA SP CNI	Rat/Mud Slab, Protective Slab
5000 psi Pump NA SP CNI	Cellar Slab, Foundation Walls, Pile Caps
6000 psi Pump NA SP CNI	Shear Walls



FAIRWAY TESTING

Building a rock-solid reputation since 1969

22 North Liberty Drive
P.O. Box 578
Stony Point, NY 10980
Telephone 845.942.2088
Fax 845.942.0995

Concrete Design Mix**Date November 14, 2012**

Client Eastern Concrete Materials
Contractor New York Concrete
Project Hudson Yards Tower C

Design Mix Pump NA Mixes with CNI
Design Strength 2500psi, 5000psi, 6000psi
Concrete Supplier Eastern Concrete Materials

AGGREGATE ANALYSES

	Fine Aggregate Sand			Coarse Aggregate #57 Stone	
Sieve Size	Percent passing by weight		Sieve Size	Percent passing by weight	
	Actual	ASTM C-33		Actual	#57
3/8"	100	100	1 1/2"	100	100
No. 4	96	95-100	1"	99	95-100
No. 8	89	80-100	3/4"	86	
No. 16	77	50-85	1/2"	38	25-60
No. 30	54	25-60	3/8"	12	
No. 50	16	5-30	No. 4	4	0-10
No. 100	2.4	0-10	No. 8	1.5	0-5
Fineness Modulus	2.66				
Specific Gravity	2.64		Specific Gravity	2.70	
Dry Rodded Unit Wt, pcf	103.9		Dry Rodded Unit Wt, pcf	99.0	

Mix Proportions**WEIGHTS PER CUBIC YARD**

	1	2	3	4	5
Mix ID	47615523	46815523	45815523	45415523	45015523
Date Trial Mix Performed	2-1-2012	2-1-2012	2-1-2012	2-1-2012	2-1-2012
Cement, lb.	608	544	464	432	400
Fly Ash, lb.	152	136	116	108	100
Fine Agg (SSD), lb.	1333	1404	1533	1569	1604
Coarse Agg (SSD), lb.	1660	1660	1630	1630	1630
Total Water, gals.	33.0**	33.0**	32.5	32.5	32.5**
Total Water, lb.	275	275	271	271	271
Admixture, 7500, oz.	38.0	34.0	29.0	27.0	25.0
Admixture, CNI, oz.	384 (3 gals)	384 (3 gals)			384 (3 gals)
Admixture, 100 XR, oz.	15.2	13.6			10.0

** CNI can be added at a dosage rate of 3 gals per yard. Total water would be reduced by 3 gals. These trial mixes were performed without the CNI and 100 XR added. Concrete setting times may be accelerated with the use of the CNI admixture.

Concrete Design Mix

Date November 14, 2012

Client Eastern Concrete Materials
Contractor New York Concrete
Project Hudson Yards Tower C

Design Mix Pump NA Mixes with CNI
Design Strength 2500psi, 5000psi, 6000psi
Concrete Supplier Eastern Concrete Materials

Trial Batch Test Results

W/C Ratio	0.36	0.40	0.47	0.50	0.54
Slump, inches	7.75	7.75	6.00	6.75	6.00
Air content, %	2.9	2.8	2.3	2.4	2.9
Temperature, °F	68	68	67	67	68
Plastic Unit Weight, pcf	148.8	148.0	148.7	148.6	147.4

7-Day Compressive Strength

Cylinder C	6340	5470	4250	4080	3350
Cylinder D	6280	5320	4210	3840	3750
Cylinder E	6310	5340	4240	3930	3410
Average, psi	6310	5380	4230	3950	3500

28-Day Compressive Strength

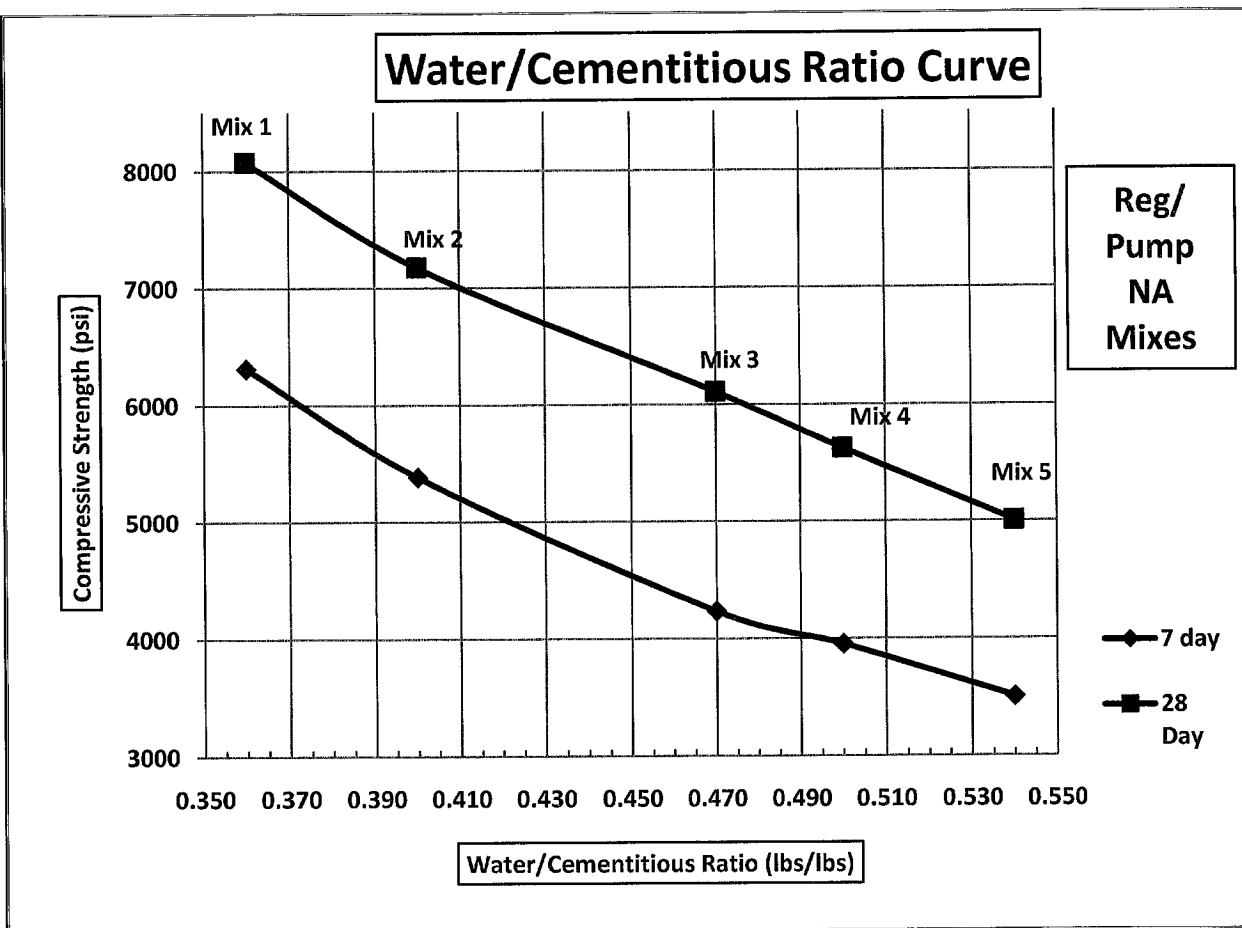
Cylinder F	8280	7300	6030	5750	4960
Cylinder G	7820	7030	6250	5550	5150
Cylinder H	7870	7220	6150	5680	5030
Cylinder J	8330	7180	5990	5530	5010
Average, psi	8080	7180	6110	5630	5010

Concrete Design Mix

Date November 14, 2012

Client Eastern Concrete Materials
Contractor New York Concrete
Project Hudson Yards Tower C

Design Mix Pump NA Mixes with CN1
Design Strength 2500 psi, 5000psi, 6000psi
Concrete Supplier Eastern Concrete Materials



This mixes are designed to achieve the design strength if sampled and tested in accordance with all current ACI codes and ASTM testing procedures. Admixture dosage rates can be adjusted due to field test results.

FAIRWAY TESTING CO., INC.

NYCDOB Lab Lic # 0074

P. J. Aguanno
P. J. Aguanno, P. E.

