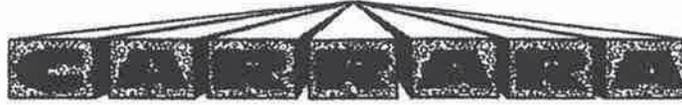


APPROVED WINN WALL Concrete Mix



PRECAST / READY-MIX CONCRETE

J. P. CARRARA & SONS, INC
CONCRETE CONTRACTORS
ARCHITECTURAL / STRUCTURAL PRECAST CONTRACTORS

2464 Case Street
 MIDDLEBURY, VT 05753
 TEL (802) 388-6363
 FAX (802) 388-9010

CROWN POINT, NY 12928
 TEL (518) 597-3680

Vermont Agency of Transportation

RECEIVED

CK'D BY JW OK'D BY WDL

March 2, 2016

RESUBMIT YES Rejected
 BY RSY DATE 3/23/2016

RT 7 SO.
 NO. CLARENDON, VT 05701
 TEL (802) 775-2301
 FAX (802) 775-1048

CONCRETE MIX DESIGN

DATE :	February 16, 2016			
PROJECT :	VAOT Annual Mix Qualification	STATE:	VT	
ENGINEER/ARCH :				
CONTRACTOR :				
CONCRETE SUPPLIER :	J.P. Carrara & Sons, Inc., Middlebury, VT			G _s , SSD
CEMENT SOURCE & TYPE :	Lafarge Type III			3.103
FLY ASH SOURCE & CLASS:	Headwaters Resources - Class F - Brayton Point			2.36
COARSE AGGREGATE(1):	J.P. Carrara & Sons, Inc., Middlebury, VT	P-stone (3/4")	ABS = 1.22%	2.586
FINE AGGREGATE :	J.P. Carrara & Sons, Inc., Middlebury, VT	JPC sand	ABS = 1.03%	2.607
AIR ENTRAINING AGENT :	Sika AEA-14			
RETARDING AGENT :	Sika Plastiment			
SELF-CONSOLIDATING ADMIX:	Sika Viscocrete 6100	HRWR + Superplasticizer		
VISCOSITY MODIFIER:	Sika Stabilizer 4R	Not Required; Dosed on an as needed basis		

QUANTITIES PER CUBIC YARD

Identification # : 445MSCC
 Mix Description : Standard SCC - 3,500psi @ 18hrs

SPECIFICATIONS REQUIREMENT,	28	Day Strength (psi)	5,000	750 # Total Cementious (CM)	Yield
Lafarge Type III	(lbs)	563			2.91
Fly Ash, Class F	(lbs)	188		25% by weight of CM	1.27
P-stone (3/4")	(lbs)(SSD)	1320		48% by weight of total agg.	8.18
JPC sand	(lbs)(SSD)	1440		52% by weight of total agg.	8.85
WATER (gallons) : (Maximum Water =	33.3 Gal.)	31.5			4.21
W/C RATIO (lbs/lb) : (Max W/C =	0.37)	0.35			
Sika AEA-14	(0-20 range) (oz/yd ³)	4.5	7.0%	+ / -- 2.0%	1.89
Sika Plastiment	(0-6 range) (oz/cwt)	2.0			
Sika Viscocrete 6100	(6-11 range) (oz/cwt)	8.5	24"	spread + / -- 4"	
Sika Stabilizer 4R	(0-7 range) (oz/cwt)	0.0	Not Required; Dosed on an as needed basis		

27.3

Mix Properties:

unit wt (#/ft³)

138.2

Prepared By:

Benjamin L. Cota, Precast Production Engineer

Approved by James Wall, VACT
 Structural Concrete Engineer 2/22/16

APPROVED PBU Concrete Mix

These PBUs are designed for HPC A with a design strength of 4,000psi, so a normal HPC can be used. Should be HP16-A-020.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIAL AND RESEARCH SECTION - STRUCTURAL CONCRETE UNIT

STRUCTURAL CONCRETE MIX DESIGN SUBMISSION

Revision: 08/31/15

Concrete class: HPC A
 Additional Description: With Fly Ash
 Ready Mix Supplier: CARRARA, JP & SONS INC - E MIDDLEBURY, VT
 Designed By: Chuck French
 Design strength: 5000 PSI
 Mix Design Style: Conventional
 Agg weight - SSD or Dry: SSD

Agency Use Only	
Mix ID	HP16-A-021
Mix Design #	021
Approved by	jwild
Approved Date	2/24/2016
Spec Book Year	2011

Mix designs are valid for a 12 month period from date of approval or unless there is a change in material, material property or design parameter.

Cement:					
701.02	Source: _____ Brand Name: _____	Specific Gravity _____	_____ lb/cy	_____	0.00 cf
Cement Type III:		Specific Gravity _____	_____ lb/cy	_____	0.00 cf
701.04	Source: _____ Brand Name: _____				
Blended Cement:		Specific Gravity <u>3.019</u>	<u>489</u> lb/cy	<u>2.60</u>	cf
701.06	Source: <u>LAFARGE BLENDED - ST CONSTANT, QUEBEC</u> Brand Name: <u>Type SF (silica fume blended)</u>				
Cement with Slag:		Specific Gravity _____	_____ lb/cy	_____	0.00 cf
701.07	Source: _____ Brand Name: _____				
Pozzolan:		Specific Gravity _____	_____ lb/cy	_____	0.00 cf
725.03(a)	Source: _____ Brand Name: _____				
Fly Ash:		Specific Gravity <u>2.320</u>	<u>122</u> lb/cy	<u>0.84</u>	cf
725.03(a)	Source: <u>HEADWATERS RESOURCES - BRAYTON POINT, MA</u> Brand Name: <u>Class F</u>				
Silica Fume:		Specific Gravity _____	_____ lb/cy	_____	0.00 cf
725.03(b)	Source: _____ Brand Name: _____				
Slag:		Specific Gravity _____	_____ lb/cy	_____	0.00 cf
725.03(c)	Source: _____ Brand Name: _____				
Water					
Air Content Target				<u>31</u> gals	<u>258.7</u> lb/cy
Coarse Aggregate 3/8"	Absorption _____	Specific Gravity _____	_____ lb/cy	<u>7.0</u> %	<u>4.14</u> cf
704.02A	Source: _____				<u>1.89</u> cf
Coarse Aggregate 3/4"	Absorption <u>1.22</u>	Specific Gravity <u>2.580</u>	<u>1700</u> lb/cy		<u>10.56</u> cf
704.02B	Source: <u>CARRARA JP - E MIDDLEBURY, VT</u>				
Coarse Aggregate 1 1/2"	Absorption _____	Specific Gravity _____	_____ lb/cy		0.00 cf
704.02C	Source: _____				
Fine Aggregate:	Absorption <u>1.03</u>	Specific Gravity <u>2.610</u>	<u>1135</u> lb/cy		<u>6.97</u> cf
704.01	Source: <u>CARRARA JP - E MIDDLEBURY, VT</u>	Fineness Modulus <u>2.75</u>			
Air Entrainment Admixture		Specific Gravity _____	<u>5</u> oz/cy		
725.02(b)	Source: <u>W.R. GRACE & CO. - CAMBRIDGE, MA</u> Brand Name: <u>Darex II</u>				
Retarder Admixture:		Specific Gravity _____	<u>2</u> oz/cwt		
725.02(c)	Source: <u>W.R. GRACE & CO. - CAMBRIDGE, MA</u> Brand Name: <u>Daratard 17</u>				
High Range Water Reducer Admixture:		Specific Gravity _____	<u>10</u> oz/cwt		
725.02(h)	Source: <u>W.R. GRACE & CO. - CAMBRIDGE, MA</u> Brand Name: <u>ADVA 140</u>				
Other Admixtures:		Specific Gravity _____	_____ lb/cy		0.00 cf
	Source: _____ Brand Name: _____				
	Source: _____ Brand Name: _____	Specific Gravity _____	_____ lb/cy		0.00 cf
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	Source: _____ Brand Name: _____				
	Source: _____				

ABUTMENT Concrete Mix - SUBMITTED
TO JIM WILDE ON 2/16/16



J. P. CARRARA & SONS, INC
CONCRETE CONTRACTORS
ARCHITECTURAL / STRUCTURAL PRECAST CONTR

was approved on
2/24/16. I forgot to
email the approved
copy back to them.
Did it today.

2464 Case Street
MIDDLEBURY, VT 05753
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TEL (802) 775-2301
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CONCRETE MIX DESIGN

DATE :	February 23, 2016			
PROJECT :	VAOT Annual Mix Qualification			VT
ENGINEER :				
CONTRACTOR :				
CONCRETE SUPPLIER :	J.P. Carrara & Sons, Inc., Middlebury, VT			G _s , SSD
CEMENT SOURCE & TYPE :	Lafarge Type III			3.103
FLY ASH SOURCE & CLASS:	Headwaters Resources - Class F - Brayton Point			2.36
COARSE AGGREGATE(1):	J.P. Carrara & Sons, Inc., Middlebury, VT	P-stone (3/4")	ABS = 1.22%	2.586
FINE AGGREGATE :	J.P. Carrara & Sons, Inc., Middlebury, VT	JPC sand	ABS = 1.03%	2.607
AIR ENTRAINING AGENT :	Sika AEA-14			
RETARDING AGENT :	Sika Plastiment			
SELF-CONSOLIDATING ADMIX:	Sika Viscocrete 6100		HRWR + Superplasticizer	
VISCOSITY MODIFIER:	Sika Stabilizer 4R		Not Required; Dosed as needed	

QUANTITIES PER CUBIC YARD

Identification # : 425M-NoDCI
Mix Description : SCC Bridge - 4,000psi Release

SPECIFICATIONS REQUIREMENT,	28	Day Strength (psi)	5,000	800 # Total Cementious (CM)	Yield
Lafarge Type III	(lbs)	600			3.10
Fly Ash, Class F	(lbs)	200		25% by weight of CM	1.36
P-stone (3/4")	(lbs)(SSD)	1400		51% by weight of total agg.	8.68
JPC sand	(lbs)(SSD)	1320		49% by weight of total agg.	8.11
WATER (gallons) : (Maximum Water =	32.6 gal.+ CI)	31.0			4.14
W/C RATIO (lbs/lb) : (Max W/C =	0.34)	0.32			
Sika AEA-14	(2-20 range) (oz/yd ³)	5.5	7.0%	+ / -- 2.0%	1.89
Sika Plastiment	(0-6 range) (oz/cwt)	3.0			
Sika Viscocrete 6100	(7-11 range) (oz/cwt)	7.6	24"	spread + / -- 4"	
Sika Stabilizer 4R	(0-7 range) (oz/cwt)	0.0	Not Required; Dosed as needed		

27.3

Mix Properties:

Unit Wt. (#/ft³)

138.5

Prepared By:

Benjamin L. Cota, Precast Production Engineer

Vermont Agency of Transportation
RECEIVED

CK'D BY JW OK'D BY WDL

March 2, 2016

RESUBMIT YES Rejected
BY RSY DATE 3/23/2016

Pours

Pour Date	Bed	Mix	Pour Info				Release Breaks				28-Day Breaks	
			Concrete	Concrete Temp	Unit Wgt	Slump/Slothead	VSI	Air	Avg	Avg		
6/30/2015	Curtain Wall	425M-noDCI	1.8	79 ° F	144.22 lbs	13"	0.0	5.4 %	5,611	9,636		
6/30/2015	FLOATING FORM	425M-noDCI	2.4	79 ° F	144.22 lbs	13"	0.0	5.4 %	5,611	9,636		
7/1/2015	Curtain Wall	425M-noDCI	2	75 ° F	137.35 lbs	20"	0.0	8.9 %	3,982	8,026		
7/1/2015	FLOATING FORM	425M-noDCI	2.25	75 ° F	137.35 lbs	20"	0.0	8.9 %	3,882	8,026		
7/2/2015	189' BRIDGE	425M-noDCI	30.3	76 ° F	138.10 lbs	17"	0.0	8.5 %	7,291	9,001		
7/2/2015	FLOATING FORM	425M-noDCI	2.25	74 ° F	142.20 lbs	23"	0.0	6.2 %	7,273	9,848		
7/2/2015	Curtain Wall	425M-noDCI	2.1	74 ° F	142.20 lbs	23"	0.0	6.2 %	7,273	9,848		
7/2/2015	VERTICAL ABUTMEN	425M-noDCI	24.7	71 ° F	137.70 lbs	25"	0.5	8.1 %	6,261	8,378		
7/2/2015	250' Next Beam	425M-noDCI	74.4	75 ° F	142.60 lbs	22 1/2"	0.0	6.4 %	7,568	9,462		
7/6/2015	FLOATING FORM	425M-noDCI	2	78 ° F	140.58 lbs	24"	0.0	6.6 %	5,265	9,140		
7/6/2015	Curtain Wall	425M-noDCI	1.9	78 ° F	140.58 lbs	24"	0.0	6.6 %	5,265	9,140		
7/6/2015	EAST WING WOOD (425M-noDCI	4.33	78 ° F	140.58 lbs	24"	0.0	6.6 %	5,265	9,140		
7/7/2015	Curtain Wall	425M-noDCI	1.9	82 ° F	142.40 lbs	21"	0.0	6.0 %	5,501	9,510		
7/9/2015	Curtain Wall	425M-noDCI	2.1	75 ° F	137.70 lbs	25"	0.5	6.0 %	5,129	9,866		
7/9/2015	Curb Form	425M-noDCI	4.5	75 ° F	137.70 lbs	25"	0.5	6.0 %	5,129	9,866		
7/13/2015	Curb Form	425M-noDCI	4.5	78 ° F	142.60 lbs	22 1/2"	0.0	5.8 %	5,322	9,057		
7/15/2015	EAST WING WOOD (425M-noDCI	4.5	75 ° F	138.90 lbs	24"	0.0	7.9 %	5,271	8,781		
7/15/2015	Curtain Wall	425M-noDCI	2.1	75 ° F	138.90 lbs	24"	0.0	7.9 %	5,271	8,781		
8/5/2015	189' BRIDGE	425M-noDCI	25	78 ° F	143.01 lbs	24"	0.0	5.8 %	5,144	8,880		
8/7/2015	34DT 6' STEM	425M-noDCI	40.08	72 ° F	140.79 lbs	23"	0.0	7.6 %	5,947	8,013		
8/7/2015	189' BRIDGE	425M-noDCI	18.9	77 ° F	138.36 lbs	25 1/2"	0.5	7.9 %	6,488	8,532		
8/13/2015	34DT 6' STEM	425M-noDCI	40.08	75 ° F	141.50 lbs	24"	0.0	6.0 %	5,464	9,163		
8/18/2015	34DT 6' STEM	425M-noDCI	37.48	78 ° F	140.79 lbs	25"	0.5	6.8 %	5,727	8,589		
8/20/2015	189' BRIDGE	425M-noDCI	29.1	79 ° F	139.37 lbs	25"	0.0	7.3 %	5,493	8,679		
8/21/2015	34DT 6' STEM	425M-noDCI	37.24	78 ° F	141.59 lbs	23 1/2"	0.0	7.0 %	6,489	8,836		
8/28/2015	189' BRIDGE	425M-noDCI	129.1	78 ° F	142.60 lbs	25"	0.5	6.5 %	6,034	9,041		
12/23/2015	189' BRIDGE	425M-noDCI	28.8	68 ° F	141.19 lbs	27"	0.0	6.0 %	5,375	8,206		
12/30/2015	189' BRIDGE	425M-noDCI	28.8	59 ° F	140.18 lbs	28"	1.0	6.9 %	6,051	7,560		



ATC Associates Inc.
 3 Terri Lane
 Burlington, New Jersey 08016
 tel. 609-386-8800 • fax 609-386-7951

425M

ASTM C-1202-10 / AASHTO T-277
 Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration

Client: J.P. Carrara & Sons, Inc.	Report No.: CP-2
Project: MassDOT Mix Qualification	ATC Ref. No: 68.30620.0001
Date Cast: February 9, 2011	
Engineer:	

Core/Cylinder ID Number	Age (Days)	Charge Passed, (Coulombs)	Chloride Permeability
800M-A/JCP-2A	56	1235	Low
800M-B/JCP-2B	56	1424	Low

CHLORIDE PERMEABILITY ON CHARGE PASSED

Charge Passes (Coulombs)	Chloride Permeability	Typical of:
>4,000	High	High Water Cement Ratio
2,000 - 4,000	Moderate	Mod. Water Cement Ratio
1,000 - 2,000	Low	Low Water Cement Ratio
100 - 1,000	Very Low	Latex Modified Concrete
<100	Negligible	Polymer Concrete

Date Received in Laboratory: March 23, 2011
 Date Tested: April 6, 2011
 Type of Concrete: High Performance Concrete (HPC)
 Location Represented by Core/Cylinder: Mix Qualification
 Location of Specimen Within Core/Cylinder: Top 2" of Cylinder
 Curing History of Samples: Natural Cured by Client. Delivered to Lab Moist.
 Unusual Specimen Preparation: _____
 Comments: _____
 Acceptance Criteria per Client: 2,000 Maximum Coulombs

Very Truly Yours,
 ATC Associates, Inc.

Vermont Agency of Transportation

RECEIVED

CK'D BY JW OK'D BY WDL

March 2, 2016

RESUBMIT YES Rejected
 BY RSY DATE 3/23/2016

William J. Carty
 Manager, CQC/CMT