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

STRUCTURAL CONCRETE MIX DESIGN SUBMISSION

Revision: 08/31/15

Agency Use Only	
Mix ID	HP16-A-020
Mix Design #	020
Approved by	jwild
Approved Date	2/10/2016
Spec Book Year	2011

Concrete class: HPC A
Additional Description
Ready Mix Supplier: CARRARA, JP & SONS INC - E MIDDLEBURY, VT
Designed By: Chuck French
Design strength: 4000 PSI
Mix Design Style: Conventional
Agg weight - SSD or Dry: SSD

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: 701.04	Source: / Brand Name:			Specific Gravity			lb/cy	0.00 cf
Blended Cement: 701.06	Source:	LAFARGE BLENDED - ST CONSTANT, QUEBEC		Specific Gravity	3.019	489	lb/cy	2.60 cf
	Brand Name:	II Blended						
Cement with Slag: 701.07	Source: / Brand Name:			Specific Gravity			lb/cy	0.00 cf
Pozzolan: 725.03(a)	Source: / Brand Name:			Specific Gravity			lb/cy	0.00 cf
Fly Ash: 725.03(a)	Source:	HEADWATERS RESOURCES - BRAYTON POINT, MA		Specific Gravity	2.320	122	lb/cy	0.84 cf
	Brand Name:	Class F						
Silica Fume: 725.03(b)	Source: / Brand Name:			Specific Gravity			lb/cy	0.00 cf
Slag: 725.03(c)	Source: / Brand Name:			Specific Gravity			lb/cy	0.00 cf
Water					31 gals	258.7	lb/cy	4.14 cf
Air Content Target					7.0 %			1.89 cf
Coarse Aggregate 3/8" 704.02A	Source:		Absorption	Specific Gravity			lb/cy	0.00 cf
Coarse Aggregate 3/4" 704.02B	Source:	CARRARA JP - E MIDDLEBURY, VT	Absorption 1.22	Specific Gravity	2.580	1700	lb/cy	10.56 cf
Coarse Aggregate 1 1/2" 704.02C	Source:		Absorption	Specific Gravity			lb/cy	0.00 cf
Fine Aggregate: 704.01	Source:	CARRARA JP - E MIDDLEBURY, VT	Absorption 1.03	Specific Gravity	2.610	1135	lb/cy	6.97 cf
				Fineness Modulus	2.75			
Air Entrainment Admixture 725.02(b)	Source:	W.R. GRACE & CO. - CAMBRIDGE, MA		Specific Gravity		5	oz/cy	
	Brand Name:	Darex II						
Retarder Admixture: 725.02(c)	Source:	W.R. GRACE & CO. - CAMBRIDGE, MA		Specific Gravity		3	oz/cwt	
	Brand Name:	Daratard 17						
High Range Water Reducer Admixture: 725.02(h)	Source:	W.R. GRACE & CO. - CAMBRIDGE, MA		Specific Gravity		8	oz/cwt	
	Brand Name:	ADVA 140						
Other Admixtures:	Source: / Brand Name:			Specific Gravity				0.00 cf
	Source: / Brand Name:			Specific Gravity				0.00 cf
	Source: / Brand Name:			Specific Gravity				0.00 cf
				TOTAL	48.529	3705	lb	27.00 cf

Approved by James Wild, VAOT Structural Concrete Engineer 2/10/16

Maximum Water/Cementitious Ratio	0.44		
Maximum Water (gal/cy)	32.2		
Slump Min/Max (inch)		min	max
Air Content Min/Max (%)	5.5	min	8.5 max
Design Unit Wt. (lb/cf)	137.21		

Notes: