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-B-051
Mix Design #	051
Approved by	jwild
Approved Date	4/8/2016
Spec Book Year	2011

Concrete class: HPC B
Additional Description
Ready Mix Supplier: CARROLL CONCRETE - BRATTLEBORO, VT
Designed By Scott Jordan
Design strength 3500 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: LAFARGE CANADA - ST CONSTANT, QUEBEC Brand Name:			Specific Gravity 3.110			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 - TERCEM - MONTREAL, EAST PLANT Brand Name:			Specific Gravity 2.980		564	lb/cy	3.03 cf
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 Brand Name:			Specific Gravity 2.400			lb/cy	0.00 cf
Silica Fume: 725.03(b)	Source: BASF CONSTRUCTION CHEMICALS - CHICAGO, IL Brand Name: MasterLife SF100			Specific Gravity 2.200			lb/cy	0.00 cf
Slag: 725.03(c)	Source: LAFARGE - NEWCEM SLAG - BALT, MD Brand Name:			Specific Gravity 2.930			lb/cy	0.00 cf
Water					29 gals	242	lb/cy	3.88 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: LANE CONST INC PIT - NORTHFIELD, MA	Absorption	1.10	Specific Gravity 2.670			lb/cy	0.00 cf
Coarse Aggregate 1 1/2" 704.02C	Source: COLD RIVER MATERIALS PIT - N WALPOLE, NH	Absorption	0.30	Specific Gravity 2.746		1801	lb/cy	10.51 cf
Fine Aggregate: 704.01	Source: LANE CONST INC PIT - NORTHFIELD, MA	Absorption	1.30	Specific Gravity 2.710 Fineness Modulus 2.94		1300	lb/cy	7.69 cf
Air Entrainment Admixture 725.02(b)	Source: MASTER BUILDERS INC - MESQUITE, TX Brand Name: MasterAir AE200			Specific Gravity		2	oz/cy	
Retarder Admixture: 725.02(c)	Source: MASTER BUILDERS INC - MESQUITE, TX Brand Name: MasterSet R100			Specific Gravity		1	oz/cwt	
High Range Water Reducer Admixture: 725.02(h)	Source: MASTER BUILDERS INC - MESQUITE, TX Brand Name: MasterGlenium 7500			Specific Gravity		4	oz/cwt	
Other Admixtures:								
Water reducing admixture 725.02(f)	Source: MASTER BUILDERS INC - MESQUITE, TX Brand Name: MasterGlenium 7500			Specific Gravity			oz/cwt	0.00 cf
Specific performance admixture 725.02(l)	Source: MASTER BUILDERS INC - MESQUITE, TX Brand Name: MasterSure Z60			Specific Gravity			oz/cwt	0.00 cf
Specific performance admixture #2 725.02(l)2	Source: MASTER BUILDERS INC - MESQUITE, TX Brand Name: MasterLife SRA20			Specific Gravity			oz/cwt	0.00 cf
				TOTAL	54.636	3907	lb	27.00 cf

Approved by James Wild, VAOT Structural Concrete Engineer 4/8/16

Maximum Water/Cementitious Ratio	0.49			
Maximum Water (gal/cy)	33.1			
Slump Min/Max (inch)	4.0	min	8.0	max
Air Content Min/Max (%)	5.5	min	8.5	max
Design Unit Wt. (lb/cf)	144.70			

Notes:

2016 construction season, 1 1/2" stone SG 2.86 720 lbs, 3/4" stone 1081 lbs to make size #467, 3-25-16