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

## STRUCTURAL CONCRETE MIX DESIGN SUBMISSION

| Agency Use Only | |
|---|---|
| Mix ID | HP14-A-051 |
| Mix Design # | 051 |
| Approved by | jwild |
| Approved Date | 5/14/2014 |
| Spec Book Year | 2011 |

Concrete class: HPC A
Additional Description:
Ready Mix Supplier: CARROLL CONCRETE - BRATTLEBORO, VT
Designed By: Scott Jordan
Design strength: 4000 PSI
Design by dry weight or saturated surface 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 - TERCEM - MONTREAL, EAST PLANT / Brand Name: | | | Specific Gravity | 3.020 | 611 | lb/cy | 3.24 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: / Brand Name: | | | Specific Gravity | | | lb/cy | 0.00 cf |
| **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: COLD RIVER MATERIALS PIT - N WALPOLE, NH | Absorption | 0.80 | Specific Gravity | 2.880 | 1716 | lb/cy | 9.55 cf |
| **Coarse Aggregate 1 1/2"** 704.02C | Source: | Absorption | | Specific Gravity | | | lb/cy | 0.00 cf |
| **Fine Aggregate:** 704.01 | Source: LANE CONST INC PIT - NORTHFIELD, MA | Absorption | 1.20 | Specific Gravity / Fineness Modulus | 2.700 / 2.84 | 1378 | lb/cy | 8.18 cf |
| **Air Entrainment Admixture** 725.02(b) | Source: MASTER BUILDERS INC - MESQUITE, TX / Brand Name: MasterAir AE200/Micro Air | | | Specific Gravity | | 1.2 | oz/cy | |
| **Retarder Admixture:** 725.02(c) | Source: MASTER BUILDERS INC - MESQUITE, TX / Brand Name: MasterSet R100/Pozzolith 100XR | | | Specific Gravity | | 2 | 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:** | Source: / Brand Name: | | | Specific Gravity | | | oz/cwt | 0.00 cf |
| | Source: / Brand Name: | | | Specific Gravity | | | | 0.00 cf |
| | Source: / Brand Name: | | | Specific Gravity | | | | 0.00 cf |
| | | | | TOTAL | 46.600 | 3964 | lb | 27.00 cf |

Maximum Water/Cementitious Ratio: 0.44
Maximum Water (gal/cy): 32.2
Slump Min/Max (inch): 4.0 min — 7.0 max
Air Content Min/Max (%): 5.5 min — 8.5 max
Design Unit Wt. (lb/cf): 146.80

Approved by Jason Wild VAOT Composite Materials Engineer 5/14/14. Slump will be ignored for jobs with provisions to eliminate the slump requirement

Notes:

2014 construction season 5-13-14