

**AIR ENTRAINED PORTLAND CEMENT CONCRETE
CITY 4000 GRANITE MIX**

PART 1 -PRODUCTS

- 1.01 **MATERIALS:** Concrete control and quality shall conform to the requirements of the current edition of the “Bulletins and Approved Section of the Standard Concrete Specifications” issued by the Mid-West Concrete Industry Board, Inc. (MCIB). However, when the provisions of this Specification differ from the provision of such “Bulletin and Sections” the provision of this Specification shall govern. The Contractor shall submit to the Engineer letters of certification of all materials to be used in the concrete.
- 1.02 **CEMENT CONTENT:** Cement content shall consist of 610 pounds of type I or type II Portland Cement per cubic yard of concrete.
- 1.03 **COARSE AGGREGATE:** All Coarse Aggregate shall be ¾” (1” nominal) and conform to Kansas City Metropolitan Materials Board (KCMMB) Testing.
- The Contractor shall provide written confirmation on the supplying quarry letterhead confirming that the requirements for coarse aggregate stated in 1.1 above are met. Laboratory Test Reports regarding the physical properties of the granite aggregate shall be included with the documentation provided to the City.
- 1.04 **FINE AGGREGATE:** Fine aggregate shall conform to the requirements set forth in The Mid-West Concrete Industry Board, Inc. (MCIB) specifications for concrete.
- 1.05 **WATER CEMENT RATIO:**
The water to cement ratio for exterior concrete shall be 0.42.
The water to cement ratio for interior concrete shall range from 0.42 to 0.45
- 1.06 **ADDITIVES:**
Blast furnace slag, grade 100 OR Type F fly ash shall be incorporated at a rate of 25%, based upon the weight of cement utilized.
The addition of Type C fly ash shall NOT be allowed.
- 1.07 **SLUMP:** Allowable slump of the concrete mix shall be 3”, plus or minus 1.5”
- 1.08 **AIR ENTRAINMENT:** Allowable air entrainment of the concrete mix shall be 6%, plus or minus 1.5%

1.09 FIBER CONCRETE REINFORCEMENT: When specified or shown on the plans fiber reinforced concrete shall be Synthetic Fiber Reinforcement: BASF MasterFiber M 100 @ a rate of 4.0 lbs per cubic yard. The Synthetic Fiber shall conform to ASTM C 1116/C 1116M Standard Specification for Fiber-Reinforced Concrete.

- A. Synthetic Fiber manufactured by other than Fibercon International, the Contractor shall submit representative samples and be approved by the Engineer before the start of construction of this project. Adjustments to the mix design may be approved to aid placement or finish due to the addition of the fibers.
- B. For concrete thickness of up to and including 6", structural fiberglass reinforcement shall be added at a rate of 4 pounds per cubic yard. For concrete thicknesses greater than 6", structural fiber reinforcing is not required.