

## Exhibit "A"

### **DIVISION 2000 – CONCRETE**

**Section 2001**     SCOPE. This section covers all cast-in-place and slip-formed concrete, including reinforcing steel, forms, finishing, curing, and other appurtenant work.

**Section 2002**     GENERAL. All cast-in-place and slip-formed concrete shall be accurately formed, and properly placed and finished as shown on the drawings and specified herein.

Where governing specifications are referred to, material and construction requirements shall conform to the governing specification as modified herein. "KSS" shall refer to Standard Specifications for State Road and Bridge Construction, Kansas Department of Transportation, 2007 edition, or latest revision.

The contractor shall inform the Engineer at least 24 hours in advance of the times and places at which he intends to place concrete.

**Section 2003**     MATERIALS. All material used in the manufacture of concrete shall conform to the following:

Cement	KSS Section 2001.
Water	KSS Section 2001.
Fine Aggregate	KSS Section 1102, Type FA-A, except that artificial or manufactured sand will not be acceptable.
Coarse Aggregate	Coarse aggregate shall meet the requirements set forth in the current ASTM C33 for Class 5S aggregate, and shall be entirely granite (Granite Mountain Quarries [57 & 67]). Coarse aggregates shall meet the gradation requirements of the current ASTM C33. The acceptable gradation sizes shall be numbers 1 through 7. Mix designs shall specify the gradation designation..
Curing Materials	KSS Section 1405
Air-Entraining Agent And other Admixtures	KSS Section 1401 and 1402
Reinforcing Steel	KSS Sections 1601 and 1602; All Bars – Grade 60
Reinforcing Steel Splices	KSS Section 1605
Welded Wire Fabric	KSS Section 1603
Helical Reinforcing	KSS Section 1604

**Section 2004**     PRELIMINARY REVIEW. A report shall be submitted to the Engineer prior to the placement of concrete and shall include data on proposed use, design strength, concrete mix proportions, maximum water/cement ratio, slump designated at the point of delivery, the percent of air in the concrete for air-entrained concrete and the fine and coarse aggregate gradation.

Concrete mix design submittals shall include:

- Mix designation.
- 28 day compressive strength.
- Design slump and allowable range after addition of all admixtures.
- Proportions/weights of all mix materials.
- Source of all mix materials.
- Design water to cement ratio. Mix designs shall be submitted for each combination of materials, differing material proportions, or differing water to cement ratios.

- Design unit weight at the design air content.
- Proportion of admixtures (admixtures for water reduction, set acceleration, or set retardation may be shown as optional provided they are Kansas Department of Transportation approved and the mix design shows the allowable application rates or dosages for each optional admixture.)
- Gradation designation for the coarse aggregate.
- A certification that the coarse aggregate meets the current ASTM C33 5S requirements (including the magnesium sulfate test for soundness.)
- Test results performed by a qualified laboratory for coarse and fine aggregate gradations.
- Test results performed by a qualified laboratory that meet specifications listed in KSS Section 1102, Type FA-A (natural sand).
- A certification from the cement supplier per KSS 2001.5
- A certification that admixtures are approved by the Kansas Department of Transportation.

Mix proportions shall be selected preferably on the basis of field experience and may be adjusted upon written approval of the Engineer where required to produce concrete of proper workability, uniform consistency, and acceptable density and strength. Failure to get a mix design approved from the Engineer prior to concrete placement is just cause for removal of the concrete at the contractor's expense.

**Section 2005**      CONCRETE MIX DESIGNATIONS. KSS Section 400 Table 401-4. Unless otherwise specified in Plans/Contract Documents, or otherwise approved in writing by the Engineer, all concrete shall be Grade 4.0 (AE) (SA). Coarse aggregate as specified above.

**Section 2006**      LIMITING REQUIREMENTS. Each concrete mix shall be designed and concrete shall be controlled within the limits shown in KSS Section 401.

Maximum designated slump shall be three inches at the point of delivery..Maximum slump for Portland cement concrete pavement shall be two inches at point of delivery. Use of slumps in excess of those specified shall be only when authorized in writing by the Engineer. The addition of water after initial batching to obtain so-called "improved workability" shall not be permitted. The practice of withholding a portion of the water at the batch plant to be added at the job site is not permitted.

The initial set as determined by ASTM C403 shall be attained 5½ hours, plus or minus one hour, after the water and cement are added to the aggregates. If such use has been approved by the Engineer, the quantity of retarding or accelerating admixture shall be adjusted to compensate for variations in temperature and job conditions.

The use of admixtures other than air-entraining agents shall not be allowed without the express written approval of the Engineer. When approved for specific purposes the admixture content shall be in accordance with the recommendations of the manufacturer for compliance with these specifications.

The total volumetric air content of concrete after placement shall be six (6) percent, plus or minus one (1) percent.

As the work progresses, the Engineer reserves the right to change the proportions from time to time if conditions warrant such changes to produce a satisfactory job. Any such changes may be made within the limits of the specifications at no additional compensation to the contractor.

**Section 2007**      BATCHING AND MIXING. KSS Section 401.

The consistency of concrete shall be suitable for placement conditions. Aggregates shall be incorporated uniformly throughout the mass and the concrete shall flow sluggishly when vibrated or spaded. The slump shall be kept uniform.

**Section 2008**      PLACEMENT. KSS Section 401.

**Section 2009**      COLD WEATHER CONCRETING. KSS Section 401.

**Section 2010**      HOT WEATHER CONCRETING. KSS Section 401