B. Aggregate shall conform to the requirements of Section 804 and 805 of KDH.

C. Concrete mix water and curing water shall be clean, clear, and free from oil, acid, alkali, organic materials, or other deleterious substances and in accordance with Section 803 of KDH.

A. Concrete admixtures shall be in accordance with Section 802 of KDH.

E. Two-Ply, new burlap shall be used for curing all concrete.

F. Bonding material for bonding new concrete to existing concrete shall meet the requirements of Section 826 of KDH for Type V, Grade 1, Class A, B, or C (depending on ambient air temperature).

2.02 MIXES

The following are requirements of the concrete mix design(s) to be submitted for approval.

A. Concrete as provided in these specifications shall consist of a mixture of Portland Cement, fine aggregate, coarse aggregate, and water with air entrainment admixture combined and mixed as specified by the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, Section 601, for all concrete. **The only exception is that fly ash will not be allowed in Class "AA" mix.**

Location	Class	Min. 28-Day Compressive Strength	Min. Cement Factor Lbs./C.Y.	Maximum Size Aggregate
Reinforced Concrete-Limestone Aggregate Mix	A	3,500	564	1"
Pipe Blocking, Fill Concrete, Valve Box Pads, Concrete Pipe Encasement & Miscellaneous	B	2,500	451	1 ½"

B. All materials, construction methods of proportions, proportioning, and mixing shall be as required by the Kentucky Department of Highways specifications, except as otherwise specified herein.

C. Cold weather is defined as a period when, for more than three (3) consecutive days, the following conditions exist:

1. The average daily air temperature is less than 40E F. and;

2. The air temperature is not greater than 50E F for more than one-half of any 24-hour period.

The average daily air temperature is the average of the highest and the lowest temperatures occurring during the period from midnight to midnight.

For this specification, hot weather is any combination of the following conditions that tend to impair the quality of freshly mixed or hardened concrete by accelerating the rate of moisture loss and rate of cement hydration, or otherwise resulting in detrimental results:

1. High ambient air temperature
2. High concrete temperature
3. Low relative humidity
4. Wind velocity
5. Solar radiation

The Engineer will instruct the Contractor a minimum of 24 hours in advance of concrete placement when hot weather concrete practices (ACI 305) will be required.

PART 3 - EXECUTION

3.01 PREPARATION AND INSPECTION

A. At least 24 hours before each concrete placement, provide the Engineer with notification stating the location, date, and time of placement.

B. Before the placement of concrete, the surface of the preceding concrete placement of underlying surface, including reinforcing and water stop, shall be clean of foreign material that will effect the concrete bond.

C. Before concrete placement, the concrete supervisor shall inspect the forms and shoring for proper location, strength, and arrangement. Also, inspect all installed materials such as reinforcing, inserts, water stops, weldments, and anchors for proper location, materials, quantity, and arrangement. The concrete supervisor shall notify the Engineer that inspections have been performed.

3.02 INSTALLATION/APPLICATION/ERECTION

A. Delivery and Placement:

PART 3 - EXECUTION

3.01 GENERAL

A. All surfaces shall be free of ice, frost, dirt, grease, oil, curing compounds, paints, impregnations, all loose material, and other foreign matters likely to affect the bond or performance of the material.

B. All loose, unsound, and damaged concrete shall be removed until only sound, clean, roughened concrete is exposed.

C. All roughening procedures should be such that no additional damage or new damage is created. Any new or additional damage shall be repaired at the Contractor's expense.

3.02 CONCRETE

A. The concrete on which the grout will bear should be dry and have attained its design strength before grouting.

B. Do not wet concrete. All surfaces to be in contact with grout should be dry and entirely free of oil, grease, laitance, curing compounds, frost, and other potential bond-preventing substances.

C. Roughen the surfaces by chipping, sand-blasting, or other mechanical means to remove any laitance or weak surface layer.

3.03 BASEPLATES

A. All metal surfaces of equipment bases which are to be in contact with the grout should be thoroughly cleaned to "bare metal" if bond is required.

B. Leveling and alignment of baseplates should be performed according to the recommendation of the equipment manufacturer and/or project specifications. Five Star Epoxy Grout, a minimum 1 1/2 inch clearance should be provided. For baseplates wider than three feet, provide an additional one inch of clearance for each three feet of width. Grout pours deeper than four inches present the potential for cracking due to excessive internal heat development and subsequent cooling. Deeper pours can be accomplished by pouring in lifts and/or by using reinforcing bars in the epoxy. Embedded rebars act as heat sinks for curing epoxy. Both methods reduce temperature rise. For placements deeper than four inches, the grout manufacturer should be contacted for detailed procedures.

contaminants.

3. Scarify PVC surfaces

H. Insulated Pipe

1. Prepare insulated pipe surfaces in accordance with manufacturer's instructions.

2. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.

I. Wood

1. Remove surface deposits of sap and pitch by scraping and cleaning with mineral spirits. Seal knots and pitch pockets with a product manufactured for this specified purpose.

2. Sand rough spots of smooth siding and finish woodwork.

3. After prime coat is dry, fill cracks, holes and scratches with suitable wood filler or spackling compound and when dry, sand flush with surface.

4. Sand lightly between coats.

J. Gypsum Board

1. Sand joint compound smooth and flush with surface using fine grit sandpaper.

2. Fill nicks, scratches, holes and uneven spots with spackling compound and, after dry, sand flush with surface.

APPLICATION

A. Apply materials at specified film thickness by method recommended by manufacturer.

B. First coat for porous masonry surfaces, concrete and dense masonry shall be applied by suitable method to completely fill voids and surface irregularities.

C. Allow each coat to dry thoroughly before recoating. Follow manufacturer's recommended recoat time.

D. Cut edges clean and sharp where work joins other materials or colors.

E. Make finish coats smooth, uniform in color and free of brush marks, laps, runs, dry spray, overspray and skipped or missed areas.

INSPECTION

A. Request acceptance of each coat before applying succeeding coats.

B. Repair and touch-up all work that is not acceptable to the engineer and request final acceptance.

CLEANING

A. Remove paint spatters from glass, plumbing fixtures and adjoining surfaces.

B. Repair damage to coatings or surfaces caused by cleaning operations.

C. Remove debris from job site and leave storage areas clean.

SURFACE NOT TO BE PAINTED

A. Pre-finished wall panels, partitions and ceiling tile.

B. New items with factory-applied final finish.

C. Concealed ducts, pipes and conduit.

2. Concrete Floors (Previously Painted)

Coat	Tnemec Product	DFT (Mils)
Surface Prep	Mechanically Scarify	
1st Coat	281-Color Tneme-Glaze	200 sq.ft. / gal.
2nd Coat	281-Color Tneme-Glaze	200 sq.ft. / gal.
* Broadcast 30/50 Flintshot Aggregate into first coat at a rate of 1.5 lbs / 100 sq.ft. for a non-skid finish.		

3. Exterior Atmospheric Exposure; Dense & CMU

Coat	Tnemec Product	DFT (Mils)
Surface Prep	Surface shall be clean and dry	
1st Coat	180-Color W.B. Tneme-Crete	60 to 80 sq.ft. / gal.
2nd Coat	180-Color W.B. Tneme-Crete	8.0 to 10.0

4. Concrete Basins (Immersion Service)*

Coat	Tnemec Product	DFT (Mils)
Surface Prep	Brush-off Blast with abrasive	
1st Coat	FC207-Pota Pox (Fast Cure)	150 sq.ft. / gal.
Spot Patch	265 Elasto-Shield TG	---
2nd Coat	264 Elasto-Shield	50 sq.ft. / gal.
* Per Appendix A		

5. Interior Exposure; Dense Masonry & Dense CMU

Coat	Tnemec Product	DFT (Mils)
Surface Prep	Clean and Dry	
Spot Fill	130 Envirofill	75 to 100 sq.ft. / gal.
Spot Patch	130-6603 Envirofill PC	---
1st Coat	114-Color H.B. Tneme-Tufcoat	2.0 to 3.0
2nd Coat	114-Color H.B. Tneme-Tufcoat	2.0 to 3.0

6. Interior Exposure; Porous CMU

Coat	Tnemec Product	DFT (Mils)
Surface Prep	Clean and Dry	
1st Coat	130-Envirofill	75 to 100 sq.ft. / gal.
2nd Coat	114-Color H.B. Tneme-Tufcoat	2.0 to 3.0
3rd Coat	114-Color H.B. Tneme-Tufcoat	2.0 to 3.0

7. Interior Exposure, Porous CMU (Previously Painted)

Coat	Tnemec Product	DFT (Mils)
Surface Prep	Scarify to Clean	
Spot Fill	130 Envirofill	75 to 100 sq.ft. / gal.
Spot Patch	130-6603 Envirofill PC	---
1st Coat	114-Color H.B. Tneme-Tufcoat	2.0 to 3.0
2nd Coat	114-Color H.B. Tneme-Tufcoat	2.0 to 3.0

E. PVC Pipe

1. Exterior Atmospheric Exposure

Coat	Tnemec Product	DFT (Mils)
Surface Prep	Scarify by Sanding	
1st Coat	66-Color Hi-Build Epoxoline	2.0 to 3.0
2nd Coat	1074-Color Endura-Shield II	2.0 to 4.0

2. Interior Exposure

Coat	Tnemec Product	DFT (Mils)
Surface Prep	Surface shall be clean and dry	
1st Coat	66-Color Hi-Build Epoxoline	2.0 to 3.0
2nd Coat	66-Color Hi-Build Epoxoline	2.0 to 4.0

F. Wood

1. Exterior Atmospheric Exposure

Coat	Tnemec Product	DFT (Mils)
Surface Prep	Surface shall be clean and dry	
1st Coat	36 Undercoater	2.0 to 3.5
2nd Coat	23-Color Enduratone	1.5 to 3.5
3rd Coat	23-Color Enduratone	1.5 to 3.5

2. Interior Wood Ceilings and Decks

Coat	Tnemec Product	DFT (Mils)
Surface Prep	Surface shall be clean and dry	
1st Coat	35 Undercoater	2.0 to 3.5
2nd Coat	113-Color Tneme-Tufcoat	3.0 to 5.0
3rd Coat	113-Color Tneme-Tufcoat	3.0 to 5.0

G. Gypsum Wallboard

1. Interior Exposure

Coat	Tnemec Product	DFT (Mils)
Surface Prep	Surface shall be clean and dry	
1st Coat	51-792 PVA Sealer	1.0 to 2.0
2nd Coat	113-Color TnemeE-Tufcoat	2.0 to 3.0
3rd Coat	113-Color Tneme-Tufcoat	2.0 to 3.0

END OF SECTION