

This section applies to all building system concrete work and cast-in-place site structural concrete outside building envelopes.

### **Mix Design and Materials**

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1. Concrete strengths will be specified in accordance with actual requirements. Concrete mix will be specified with minimum cement content, as well as maximum water/cement ratio.
2. All exposed concrete (including precast concrete) will be air entrained according to the following:

#### Maximum Aggregate



## **Placement**

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### **Joints and Concrete Flatwork**

1. Contraction joints shall be tooled during finishing or sawed within 18-hours of concrete placement. If the joint edge ravel, stop, do not proceed until concrete has sufficient cure to saw without damage.  
Contraction joints shall have a minimum depth of 1/4 of the pavement thickness and a minimum  
Transverse contraction joints will be provided at a maximum of 2.5 times the pavement thickness (in inches) in feet for street pavements and 2.0 times for all other pavements.  
Longitudinal joints shall have a maximum separation of 12 feet for streets and 9 feet for sidewalks.  
The ratio of slab width to length should not exceed 1.67 for street pavements and 1.25 for all other pavements.  
Some variance in spacing will be permitted to achieve desired architectural effect.
2. Concrete flatwork will be isolated from columns, existing walls, etc., by use of non-extruding expansion joint material.
3. Base course and under-slab drainage system for slabs will conform to geotechnical engineer recommendations. For projects without a geotechnical report, slabs will be constructed on a minimum 4" base of 3/4"-1" clean rock with a plastic vapor barrier.
4. MU Only: all slabs below grade shall have a sump hole. Provide an electrical outlet by the sump hole. The campus will provide the sump pump.
5. Slab flatness and levelness will be within 1/8" in 10'. ASTM E1155 will not be used to specify flatness and levelness unless the particular use requires a high level of accuracy. Areas having floor drains will have positive slope to the floor drain. Amount and direction of slope for floor drains will be indicated on the drawing.

7. Joint spacing and joint detail will be shown on the drawings.

**Exposed Concrete**

1. Exposed concrete intended as a finish material shall be clearly defined in the drawings and specifications. Areas to be addressed should include special formwork, form liners, acceptable defects (if any), surface repairs and surface treatments (i.e.: sandblast, rubbing, etc.).

*Please note that concrete guidelines for utility tunnel walls and slabs; steam manholes; chases; pre-cast items and other miscellaneous structures associated with underground utilities are in Division 33.*

END OF SECTION