

## \_\_\_ PREPARATIONS FOR PLACING

a. General. - No concrete shall be placed until all formwork, installation of items to be embedded, and preparation of surfaces involved in the placement have been approved.

The Contractor shall supply concrete placement checkout cards satisfactory to the Government, and shall provide a watertight container for such cards at a convenient location near each individual concrete placement site. The cards shall list all the various work items, for example, "Cleanup" and "Embedded items," required prior to placement of concrete. After each work item for an individual placement has been completed, that item on the card shall be signed by the Contractor or his representative signifying completion of the required work. Authorized Government personnel will inspect the work during and after completion of each phase of the preparations; and if the work is satisfactory, will sign the checkout card. Approval of preparations for placement will not be complete until the Contractor or his representative and authorized Government personnel have approved, by signature, all applicable items for that placement. The use of placement checkout cards may be waived by the Government where their use is impracticable.

All surfaces of forms and embedded materials shall be free from curing compound, dried mortar from previous placements, and other foreign substances before the adjacent or surrounding concrete placement is begun.

Prior to beginning concrete placement, the Contractor shall make ready a sufficient number of properly operating vibrators and operators, and shall have readily available additional vibrators to replace defective ones during the progress of the placement. The Government inspector at the placement may require that the Contractor delay the start of the concrete placement until the number of working vibrators available is acceptable.

b. <sup>1</sup>[Tunnel surfaces. - The surfaces of tunnels against which concrete is to be placed shall be prepared in accordance with paragraph \_\_\_ (Preparations for Placing Concrete in Tunnel Lining).]

c. Foundation surfaces. - All <sup>1</sup>(other) surfaces upon or against which concrete is to be placed shall be free from frost, ice, water, mud, and debris.

(1) Rock surfaces shall be free from oil, objectionable coatings, and loose, semidetached, and unsound fragments. Immediately prior to placement of concrete, surfaces of rock shall be washed with an air-water jet and shall be brought to a uniform surface-dry condition.

(2) Earth foundations shall be damp when concrete is placed against them. Surfaces shall be thoroughly moist but not muddy to a depth of 6 inches, or to impermeable material, whichever is less.

d. Construction joints. - A construction joint is defined as a planned joint where two placements of concrete meet, across which development and maintenance of bond are required, and through which any reinforcement that may be present is not interrupted. All construction joints <sup>2</sup>(except \_\_\_\_\_) shall be roughened and all laitance removed in preparation for placing adjoining concrete. <sup>3</sup>(In addition, all construction joints of the \_\_\_\_\_ shall be roughened to a full amplitude of one-fourth inch.) Methods of roughening surfaces and removing laitance may include mechanical abrasion or cutting, sandblasting, acid etching, or high-pressure water jetting of hardened (not green) concrete. Water jetting will normally be at pressures of at least 6000 pounds per square inch. All methods are subject to the approval of the Contracting Officer. Construction joints <sup>2</sup>(including \_\_\_\_\_) shall be thoroughly cleaned of loose or defective concrete, coatings, sand, curing compound, and other foreign material on the surface.

After this initial cleanup and at the last opportunity prior to placing concrete, concrete surface shall be thoroughly washed with water or airwater jets, and shall be uniformly surface dried.

<sup>4</sup>e. Type B control joints and contraction joints. - Type B control joints and contraction joints serve to provide for volumetric shrinkage of monolithic concrete and for movement between monolithic units at established joints, thus preventing formation of objectionable shrinkage cracks elsewhere in the concrete. Prior to application of wax-base curing compound to type B control joints and contraction joints, the surfaces of all joints shall be cleaned thoroughly of accretions of concrete or other foreign material by scraping, chipping, or other means approved by the Contracting Officer. Curing compound shall not be removed, but shall remain on these joints and be kept intact until adjoining concrete is placed. Waterstops, reinforcing bars, and other embedded items shall be free of curing compound when adjoining concrete is placed.)

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<sup>1</sup>Delete if there will be no tunnel surfaces, and renumber remaining subparagraphs as required.

<sup>2</sup>In the blank space provided, list applicable structures or parts of structures for which construction joint preparation will not include roughening the surface and removing laitance. Generally, this is not required in free-flow tunnels.

<sup>3</sup>In the blank space provided, list applicable structures or parts of structures for which joint preparation includes roughening the surface to a minimum of one-fourth inch. This will only be required when the shear friction design method assumes the coefficient of friction to be 1.02.

<sup>4</sup>Delete or revise as required.

7-3-86 Revisions: Revised second sentence of subparagraph d.