
CONSTRUCTION SPECIFICATION
INSTRUCTION FOR USE
CS-I-OR-035 CONCRETE REPAIR

035.1 APPLICABILITY

Construction Specification CS-OR-035 is applicable to the usual types of concrete repair entailed in NRCS operations. Supplementary specifications are required for works of a special nature, such as:

- a) Placing concrete repair under water.
- b) Concrete repair exposed to sea or salt water.
- c) Concrete repair exposed to alkali soils or alkaline water.
- d) Special surface finishes.

035.2 MATERIAL SPECIFICATIONS

The following specifications complement Construction Specification CS-OR-035:

- a) MS-OR-522—Aggregates for Portland Cement Concrete
- b) MS-OR-531—Portland Cement
- c) MS-OR-532— Supplementary Cementitious Materials (fly ash)
- d) MS-OR-533—Chemical Admixtures for Concrete (waterreducing, set-retarding admixtures)
- e) MS-OR-534—Concrete Curing Compounds

035.3 INCLUDED ITEMS

Items to be included in contract specifications and drawings:

- a) Complete engineering and structural detail drawings of the repair.
- b) Notation of the type and quality of concrete, including:
 - 1. Strength of concrete repair material if other than 4,000 pounds per square inch.

2. Type of cement.
 3. Types of admixtures, if any.
 4. Nominal size of coarse aggregate; or specification for aggregate if Material Specification MS-OR-522 Aggregates for Portland Cement Concrete does not apply.
 5. Authorization for a design mix that includes pozzolan as a partial substitute for cement.
 6. For fly ash, specify supplementary optional physical requirements listed in ASTM C618 if applicable. For example, if fly ash is required to control alkali-silica reaction, specify, "In Section 035.2 Material, fly ash shall meet the supplemental optional physical requirement for effectiveness in controlling alkali-silica reaction as stated in ASTM C618." If it is required to improve resistance to moderate sulfate attack, specify, "In Section 035.2 Material, fly ash shall meet the supplemental optional physical requirement for effectiveness in contributing to sulfate resistance, Procedure A for moderate sulfate exposure after 6 months exposure as stated in ASTM C618."
 7. Deviations from the air content, if any.
 8. If replacement concrete is permitted, specify slump of the nonplasticized concrete mixture.
- c) Notation of which strength test procedure is to be used when ASTM C 684 is used.
- d) If volumetric batching and continuous mixing is not permitted, include statement to that effect.
- e) Deviations, if any, from specifications requiring:
1. Placement of concrete repair in a single continuous pour.
 2. Consolidation of concrete repair material with vibrators.
- f) Finish requirements for unformed surfaces if other than float finish is designated.
- g) Section 035.13 Curing, specify type and class of curing compound. Refer to Table 031-1 in the instructions for Construction Specification CS-OR-220, Reinforced Concrete, for guidance in selecting the curing compound (ASTM C309) or curing and sealing compound (ASTM C1315). Include the type and class as applicable. For example state, "In Section 035.2 Material, curing compound shall comply with ASTM C309, Type 2 or ASTM C1315, Type II."

035.4 ITEMS OF WORK AND CONSTRUCTION DETAILS

Starting at the top of page 035-11, prepare and outline job specific "Items of Work and Construction Details" (IWCD) in accordance with these instructions.