

SECTION ____ - GENERAL CONCRETE REQUIREMENTS

____ GENERAL

NOTE TO SPECIFIERS: Conc. 28 (short) may be used either as a concrete section with separate paragraphs as shown or as a single paragraph entitled "Concrete." Use for jobs wherein the amount of concrete is between approximately 100 and 1,000 cubic yards or where the features of the concrete construction are such that detailed control of the concrete operations are impractical, such as concrete work for transmission line footings, small substations, and small buildings. For jobs where the amount of concrete is less than 100 cubic yards, Conc. 31 (very short) should be used.

For quantities between 1,000 and 5,000 cubic yards, or other instances where ready-mix concrete will quite likely be used for fairly detailed concrete construction, a combined use of Conc. 28 and Conc. 11 through 26 may be suitable. Material Requirements of Conc. 28 (through "Composition") and workmanship requirements of the "long" paragraphs can be combined with minor revisions to the "Measurement" and "Payment" paragraphs.

The Contractor shall furnish all materials for use in concrete, including cementitious materials, water, sand, coarse aggregate, and specified admixtures; and shall furnish all reinforcing ¹(bars and fabric) and materials for curing concrete. For the purpose of these specifications, cementitious materials shall be interpreted to mean ²(portland cement only,) portland cement plus a pozzolan, or blended hydraulic cement only.

Thirty days prior to placement of concrete, the Contractor shall submit to the Government the name and manufacturer of each cementitious material, admixture, curing compound, and aggregate source. The Government reserves the right to require submission of manufacturer's test data and certification of compliance with specifications, and to require submission of samples of all concrete materials for testing prior to or during use in concrete.

____ MATERIALS

³(a. Cementitious materials. -)

b. Water. - Water shall be free from objectionable quantities of silt, organic matter, salts, and other impurities.

c. Sand and coarse aggregate. - Sand and coarse aggregate shall consist of clean, hard, dense, durable, uncoated rock fragments that are free from injurious amounts of dirt, organic matter, and other deleterious substances. Sand and coarse aggregate shall meet all requirements of ASTM designation: C 33. Coarse aggregate shall conform to ASTM designation: C 33 gradings for either size No. 467 (1 1/2-inch to No. 4 United States Standard sieve), or size No. 57 (1 inch to No. 4).

The nominal, maximum-size coarse aggregate to be used in concrete shall be as large as practical, consistent with required strength, spacing of reinforcement and embedded items, and placement thickness. The size of coarse aggregate to be used will be determined by the Contracting Officer.

d. Air-entraining admixture. - The air-entraining admixture shall conform to ASTM designation: C 260: Provided, That air-entraining admixture used with type F or G chemical admixture shall be a neutralized vinsol resin formulation. For assistance locating a supplier, the contractor may contact the Bureau of Reclamation Materials Engineering and Research Group.

e. Chemical admixtures. - The Contractor may use chemical admixtures which conform to ASTM designation: C 494 for type A, D, F, or G. Chemical admixtures which will introduce more than 1/10 of 1 percent chloride, by weight of cementitious materials, shall not be used in prestressed concrete, concrete for bridge decks, or concrete in which aluminum, galvanized metalwork, or dissimilar steel is to be embedded. For assistance locating a supplier, the contractor may contact the Bureau of Reclamation Materials Engineering and Research Group.

⁴(In all other concrete, accelerator may be furnished and used during cold weather as hereinafter specified. Accelerator shall conform to ASTM designation: C 494 for type C or E chemical admixtures. In addition, if used as an accelerator, calcium chloride shall meet requirements of ASTM designation: D 98 and shall be no coarser than grade A, class 1 or shall be liquid. The portion of mixing water containing other admixtures shall not come in contact with the calcium chloride before entering the mixer.)

f. Reinforcing bars ¹(and fabric). - Reinforcing bars shall conform to ASTM designation: A 615 or A 617, grade ⁵(40 or 60), including supplementary requirements. ¹(Fabric shall be electrically welded-wire fabric conforming to ASTM designation: A 185 or A 497.)

g. Curing compound. - Wax-base (type I) and water-emulsified, resinbase (type II) curing compounds shall conform to the requirements of Water and Power Resources Service "Specifications for Concrete Curing Compound," dated October 1, 1980.

⁵(CRC-101 curing compound shall conform to the requirements of Water and Power Resources Service "Specifications for Clear Resin-Base Curing Compound, CRC-101," dated January 1, 1981.)

⁵(h. Polyethylene film. - Polyethylene film for curing concrete shall be white in color, 0.004 of an inch in thickness, and shall conform to the requirements of ASTM designation: C 171.)

___ COMPOSITION

Pozzolan, as specified, ⁶(may) be used to replace 20 percent, by weight, of portland cement. The net water-cement ratio or water-cement plus pozzolan ratio of the concrete, exclusive of water

absorbed by the aggregates, shall not exceed ⁵(0.52), by weight. Except as hereinafter specified, the slump of the concrete when placed shall not exceed 2 inches plus or minus 1 inch for slabs and 3 inches plus or minus 1 inch for all other concrete. The slump of the concrete when first mixed shall not exceed 5 inches. The compressive strength of the concrete shall be sufficient to ensure that each concrete mix meets the following requirements:

- a. ⁵(Ninety) percent of test cylinders shall have a compressive strength at 28 days in excess of ⁵(4,000) pounds per square inch.
- b. The average compressive strength at 28 days of any six consecutive test cylinders shall exceed ⁵(4,000) pounds per square inch.

The compressive strength of the concrete will be determined by the Government in accordance with ASTM designations: C 31 and C 39 for 6- by 12-inch cast cylinders and may also be determined by the Government in accordance with ASTM designation: C 42 for concrete cores. Concrete in an area represented by core tests shall be considered structurally adequate if the average of three cores is equal to at least ⁵(3,400) pounds per square inch and if no single core is less than ⁵(3,000) pounds per square inch.

The concrete mix will be designed and adjusted by the Government. The proportions of ingredients will be established in accordance with the Eighth Edition - 1981 Revised Reprint of the Bureau of Reclamation "Concrete Manual." The proportions will be adjusted during the progress of the work whenever need for such adjustment is indicated by results of testing of the aggregates and concrete.

Air-entraining admixture shall be used in such amount as will effect the entrainment of from 4 to 6 percent air, by volume, of the concrete as discharged at the placement.

⁴(Type C or E chemical admixtures, including calcium chloride, shall not be used in concrete.)

___ BATCHING, MIXING, AND TRANSPORTING

Concrete shall be manufactured and delivered in accordance with ASTM designation: C 94, "Standard Specifications for Ready-Mixed Concrete."

When bulk cementitious materials and aggregates are dry batched and hauled to where mixing is accomplished, each batch shall be protected during transit to prevent loss and to limit prehydration of the cementitious materials. Separate compartments with suitable covers shall be provided to protect the cementitious materials or they shall be completely enfolded in and covered by the aggregates to prevent wind loss. If cementitious materials are enfolded in moist aggregates or otherwise exposed to moisture and delays occur between batching and mixing, the Contractor shall, at the Contractor's expense, add extra cementitious materials to each batch in accordance with the schedule in table ___ (Additional cementitious materials requirements).

Table ____ - Additional cementitious materials requirements

Hours of contact between cementitious materials and wet aggregate	Additional cementitious materials required
0 to 2	0 percent
2 to 3	5 percent
3 to 4	10 percent
4 to 5	15 percent
5 to 6	20 percent
Over 6	Batch will be rejected

The Government reserves the right to require the addition of cementitious materials for shorter periods of contact during periods of hot weather and the Contractor shall be entitled to no additional compensation by reason of the shortened period of contact.

____ FORMS, PREPARATION FOR PLACING, AND PLACING

Forms shall be sufficiently tight to prevent loss of mortar from the concrete and shall be maintained rigidly in position until the concrete has hardened sufficiently to prevent damage by form removal. All surfaces of foundations upon or against which concrete is to be placed shall be free from standing water, mud, and debris. Earth foundations shall be free from frost or ice when concrete is placed upon or against them. The surfaces of absorptive foundations against which concrete is to be placed shall be moistened thoroughly so that moisture will not be drawn from the freshly placed concrete. The surfaces of construction joints shall be clean, rough, and surface dry when covered with fresh concrete. Cleaning shall consist of the removal of laitance, loose or defective concrete, coatings, sand, curing compound, and other foreign material. The surfaces of the construction joints shall be wet sandblasted or bushhammered, washed thoroughly, and surface dried prior to placement of adjoining concrete. A mortar layer shall not be used on concrete construction joints.

The methods and equipment used for transporting concrete, and the time that elapses during transportation shall be such as will not cause appreciable segregation of concrete ingredients or slump loss in excess of 2 inches in the concrete as it is delivered to the work. Aluminum pipes and chutes shall not be used for placing of concrete or for the delivery of pumped concrete. Retempering of concrete will not be permitted. Any concrete which has become so stiff that proper placing cannot be assured shall not be used. The temperature of the concrete when it is being placed shall be not more than 90 EF and not less than 50 EF.

Formed concrete shall be placed in continuous, approximately horizontal layers, the depths of which generally shall not exceed 20 inches. Concrete shall be vibrated until it has been consolidated to the maximum practicable density, is free from pockets of coarse aggregate, and closes snugly against all surfaces of forms and embedded materials.

⁵[Surfaces of concrete floors shall be worked to a smooth, uniform, level, steel-trowel finish free from blemishes and trowel marks. Surfaces of concrete upon which cable trench covers rest shall be brought to level uniform surfaces and given a steel-trowel finish such that the trench covers will lie flat without rocking. Exposed unformed surfaces of ⁵(other) concrete shall be brought to level uniform surfaces and worked with suitable tools to a reasonably smooth, wood-float or steel-trowel finish as directed. Concrete in the tops of foundations in which stub angles are embedded shall be sloped to provide drainage away from the stub angles.]

____ REINFORCEMENT

Steel reinforcing bars ¹(and fabric) shall be placed where shown on the drawings. Before being placed, surfaces on reinforcement shall be cleaned of heavy flaky rust, loose mill scale, dirt, grease, and other foreign substances. Reinforcement shall be placed to meet the following tolerances:

- a. The amount of concrete cover protecting reinforcement shall not deviate from that specified by more than 1/2 inch if the specified cover is more than 2-1/2 inches, nor by more than 1/4 inch if the cover specified is 2-1/2 inches or less.
- b. The spacing of reinforcing bars shall not deviate from the required spacing by more than 1 inch.

Reinforcement shall be accurately placed and secured in position so that it will not be displaced during the placing of the concrete. ⁶(Welding or tack welding of grade 60 reinforcing bars will not be permitted except at locations shown on the drawings.)

Where portions of the reinforcement supports will be exposed to view on concrete surfaces, the exposed portion of the supports shall be galvanized or other corrosion-resistant material, except that reinforcement supports made of concrete will not be permitted. Unless otherwise shown on the drawings, the reinforcement shall be placed so that there will be a clear distance of at least 1 inch between the reinforcement and anchor bolts, form ties, or other embedded metalwork.

The Government will not furnish supplemental bar-placing diagrams, bar lists, and bar-bending diagrams. Supplemental diagrams and bar lists of this type which the Contractor may require to facilitate the fabrication and placement of reinforcement shall be provided by the Contractor. The cost of preparing supplemental diagrams and bar lists, if provided, shall be included in the unit price per pound bid in the schedule for furnishing and placing the reinforcement or in the items of the schedule which include the concrete in which the reinforcement is used. Reinforcement will be inspected for compliance with requirements as to size, shape, length, splicing, position, and amount after it has been placed.

Bar-placing diagrams, bar lists, and bar-bending diagrams prepared by the Contractor shall conform to the requirements shown on drawing ___ (40-D6263) unless otherwise shown on the drawings.

___ PROTECTION AND CURING

The Contractor shall protect all concrete against injury until final acceptance by the Government. Concrete shall be protected against freezing temperatures by being kept at a temperature not lower than 50 EF for at least 72 hours after it is placed. In addition, concrete which is water cured shall be protected against freezing temperatures for the duration of the curing period. Then after discontinuance of the water curing, this concrete shall be maintained at a temperature of not less than 50 EF for 72 hours. Where artificial heat is employed, special care shall be taken to vent the heater and to prevent the concrete from drying.

Concrete and concrete-curing compound shall be protected against heavy foot traffic and other construction activities by covering with plywood, sand, or other suitable material. After the danger of damage has diminished, the Contractor shall remove and dispose of such covering and all other foreign materials as directed by the Contracting Officer.

⁵{Concrete in floors, stair treads, risers, and landings, and entrance slabs of the ⁷(_____) building, shall be cured with polyethylene film. Exposed surfaces of ⁵(the) cable entry box(es), ⁷(_____) and exposed surfaces and top surfaces of the ⁸(_____) building concrete foundation walls, shall be cured with water or polyethylene film.

⁹[(Exposed formed surfaces of concrete foundations) ¹⁰(_____) shall be cured with water; clear water-emulsified, resin-base curing compound; or polyethylene film.]} All other concrete shall be cured with water, polyethylene film, or white pigmented wax-base or white pigmented water-emulsified, resin-base curing compound. Surfaces of construction joints, surfaces on which mortar is to be placed, and surfaces of concrete upon which equipment or metalwork will be grouted in place shall be cleaned thoroughly of all curing compound by wet sandblasting or bushhammering prior to placing concrete, mortar, or grout against these surfaces.

Concrete cured with water shall be kept wet for at least 14 days from the time the concrete has attained sufficient set to prevent detrimental effects to the concrete surfaces. The concrete surfaces to be cured shall be kept wet by covering them with water-saturated material; by using a system of perforated pipes, mechanical sprinklers, or porous hose; or by other methods which will keep all surfaces continuously (not periodically) wet. All curing methods are subject to approval by the Contracting Officer.

Curing with wax-base or water-emulsified, resin-base ¹¹[or clear resinbase (CRC-101)] compound shall be by application to designated concrete surfaces to provide a water-retaining film. The curing compound shall be reapplied as necessary to maintain a continuous, water-retaining film on the surfaces for 28 days. The curing compound shall be mixed thoroughly and spray applied to the concrete surfaces in one coat to provide a continuous,

uniform film over the concrete. The coverage rate shall not exceed 150 square feet per gallon (3.7 square meters per liter) ¹¹[for waxbase or water-emulsified, resin-base curing compound and 200 square feet per gallon (4.9 square meters per liter) for clear resin-base (CRC-101) compound]. On rough surfaces, the coverage rate shall be decreased as necessary to obtain the required continuous film. Special care shall be taken to ensure ample coverage with the compound at edges, corners, and rough surfaces; and to keep curing compound off waterstops and reinforcing bars. Equipment for applying curing compound and the method of application shall be in accordance with the provisions of chapter VI of the Eighth Edition - 1981 Revised Reprint of the Bureau of Reclamation "Concrete Manual."

¹¹[In applying clear resin-base (CRC-101) curing compound, care shall be taken to produce a uniform, continuous film, and to avoid sagging and puddling of liquid compound and excessive, unsightly thickness. To prevent sagging of compound on surfaces which are not horizontal, application shall consist of two or more passes over each point on the surface using a cross-spraying technique, and with a time interval between passes not exceeding 30 minutes. The compound shall be applied in a manner conformed with safe control proceedings outlined in the Bureau of Reclamation Occupational Health and Safety data sheet on CRC-101 curing compound].

Spray equipment and its performance will be subject to approval; and when so directed, the Contractor shall repair or replace equipment as required to make it acceptable to the Contracting Officer. The application shall be performed by personnel qualified, as determined by the Contracting Officer, in using the specified spray techniques.

Curing with polyethylene film shall be by completely covering the designated concrete surfaces with polyethylene film to provide an airtight, water-retaining film over the entire concrete surface for at least 14 days. As soon as the concrete has hardened sufficiently to prevent damage, all surfaces shall be thoroughly moistened by spraying them lightly with water and then covering them completely with the polyethylene film. Edges of the polyethylene strips shall be lapped to effect a seal to adjacent strips and, at the extreme edge of the curing area, held tightly against the concrete surface. The polyethylene film shall be secured adequately to withstand wind and to prevent circulation of air inside the curing film.

____ REPAIR OF CONCRETE

NOTE TO SPECIFIERS: Do not use epoxy-bonded epoxy mortar to repair surfaces to receive cement base coating.

All concrete that is damaged or defective from any cause; concrete that is honeycombed, fractured, or otherwise defective; and concrete which, because of excessive surface depressions, must be excavated and built up to bring the surfaces to the prescribed lines shall be removed and replaced; and imperfections and irregularities on concrete surfaces shall be corrected. The repair of damaged or defective concrete and the correction of surface imperfections and irregularities shall be made with ⁵(concrete, dry pack, cement mortar, epoxy-bonded concrete, epoxy-bonded epoxy mortar, or injected epoxy resin) where and as applicable for the type of repair involved, in

accordance with Bureau of Reclamation "Standard Specifications for Repair of Concrete," dated January 4, 1982; except that epoxy-bonded epoxy mortar shall not be used for outdoor repairs having a surface area greater than 1 square foot. The cost of furnishing all materials and performing all work required for the repair of concrete and the correction of surface imperfections and irregularities shall be borne by the Contractor.

¹²{ ____ MEASUREMENT AND PAYMENT

¹³[Measurement, for payment, of reinforcing bars ⁵(for concrete foundations and footings) ¹⁴(and _____) will be made only of the weight of the bars placed in the concrete, in accordance with the drawings or as directed. Payment for furnishing and placing reinforcing bars ⁵(for concrete foundations and footings) ¹⁴(_____) will be made at the unit price per pound bid in the schedule for furnishing and placing reinforcing bars.]

No measurement for payment will be made of concrete in footings for switch-operating platforms, gate stops, gatekeepers, and fenceposts.

¹⁵[(Measurement, for payment, of concrete in circular portions of auger-, and auger-pier-type foundations and footings with bells will be made on the basis of the concrete having the dimensions shown the drawings; except that for the bells, measurement, for payment, of concrete in the bells will be made on the basis of the bells having a 45E bell angle and a 6inch toe height regardless of the bell angle and toe height actually constructed.) Measurement, for payment, of ⁵(all other) concrete ⁵(in foundations and footings) ¹⁶(and _____) will be made on the basis of the concrete having the dimensions shown on the drawings or where dimensions are not shown on the drawings then as prescribed by the Contracting Officer.

Payment for concrete in circular portions of auger- and auger-pier-type foundations and footings will be made at the unit price per cubic yard bid therefor in the schedule. Payment for ⁵(all other) concrete in ⁵(foundations and footings) ¹⁶(and _____) will be made at the unit price per cubic yard bid ⁵(therefor) in the schedule ⁵(for concrete in foundations and footings, except concrete in circular portions of auger- and auger-pier-type foundations and footings.)]

¹⁷{Except as otherwise provided below, the quantities of reinforcing bars and concrete for each type of concrete foundation and footing for which payment will be made are shown on drawings ¹⁸[____ (_____) and ____ (_____)]; and regardless of the amount of reinforcing bars and concrete placed, payment will be made only on the basis of the quantities of reinforcing bars and concrete shown on these drawings.

The quantities of reinforcing bars and concrete for which payment will be made for each of the concrete foundations listed below will be added to drawings ¹⁹[____ (_____) and ____ (_____)] after the Government has completed the design of ⁵(this) (these) concrete foundation(s) in accordance with paragraph ____ (Concrete Structures).

¹⁹(a. _____.

- b. _____.
- c. _____.
- d. _____.
- e. _____.)

⁵(The bidding schedule items "Furnishing and placing reinforcing bars," "Concrete in circular portions of auger- and auger-pier-type foundations and footings," and "Concrete in foundations and footings, except concrete in circular portions of auger- and auger-pier-type foundations and footings" include estimated quantities of reinforcing bars and concrete for the above-listed foundations.)

The quantities of concrete for the various concrete foundations and footings shown on drawings ¹⁸[____ (_____) and ____ (____)] are based on the concrete having the dimensions shown on the drawings; except that for auger bells, the quantities of concrete in the bells are based on the bells having a 45E bell angle and a 6-inch toe height. The quantities of concrete for the concrete foundations to be added to the above drawings will also be based on the concrete foundations having the dimensions that will be shown on the drawings; except that for auger bells, the quantities of concrete in the bells are based on the bells having a 45E bell angle and a 6-inch toe height. }

Payment for furnishings and placing reinforcing bars ⁵(for concrete foundations and footings) ¹⁴(and _____) will be made at the unit price per pound bid in the schedule for furnishing and placing reinforcing bars.

Payment for concrete in circular portions of auger- and auger-pier-type foundations and footings will be made at the unit price per cubic yard bid therefor in the schedule. Payment for ⁵(all other) concrete ⁵(in foundations and footings) ¹⁷(and _____) will be made at the unit price per cubic yard bid ⁵(therefor) in the schedule ⁵(for concrete in foundations and footings, except concrete in circular portions of auger- and auger-pier-type foundations and footings.)

The prices bid in the schedule for furnishing and placing reinforcing bars ⁵[and for items which include the cost of furnishing and placing reinforcing bars ¹(and fabric)] shall include the cost of furnishing and attaching wire ties and metal or other approved supports, if used, and of cutting, bending, cleaning, and securing and maintaining in position all reinforcement as shown on the drawings or as directed.

Except as otherwise provided in this paragraph, the prices bid in the schedule for concrete ⁵(and for items which include the cost of concrete) shall include the cost of performing all work required in the concrete construction, of supplying, and of furnishing all other materials required in the concrete construction. If the Government requires the Contractor to use cementitious materials in excess of the amounts specified in paragraph ____ (Composition), such additional

cementitious materials will be paid for as extra work in accordance with the clause in subsection I.4 entitled "Changes." }

²⁰{ _____ MEASUREMENT

a. Concrete. - Measurement, for payment, of concrete required to be placed directly upon or against surfaces of excavation will be made to the lines for which payment for excavation is made. Measurement, for payment, of all other concrete will be made to the neatlines of the structures, unless otherwise specifically shown on the drawings or prescribed in these specifications.

In measuring concrete for payment, the volume of all openings, recesses, embedded pipes, and metalwork, each of which is larger than 100 square inches in cross section, will be deducted.

b. Cementitious materials. - Measurement for payment for furnishing and handling cementitious materials will be made on the basis of batch weights and batch counts at the batch plant. When determined by the Contracting Officer, cementitious materials, either bulk or in bags, used for concrete will be measured for payment in the most practicable manner. One bag of cement will be considered as 0.047 ton.

c. Reinforcing bars. - Measurement, for payment, of reinforcing bars will be based on the weight of the bars placed in the concrete in accordance with the drawings or as directed.

_____ PAYMENT

a. Concrete. - Payment for concrete in the various parts of the work which are not listed in subparagraph d. below will be made at the unit price per cubic yard bid in the schedule for concrete, which unit price shall include the cost of furnishing all materials and performing all work required for the concrete construction, except that payment for furnishing and placing cementitious materials and payment for furnishing and placing reinforcing bars will be made at the respective unit prices bid therefor in the schedule.

The item of the schedule for concrete includes all concrete required under these specifications except for the items listed in subparagraph d.

b. Cementitious materials. - Payment for cementitious materials in the various parts of the work which are not listed in subparagraph d. below will be made at the unit price per ton bid in the schedule for furnishing and handling cementitious materials, which unit price shall include the cost of purchasing, transporting, handling, and storing cementitious materials. One ton will be considered as 2,000 pounds.

c. Reinforcing bars. - Payment for reinforcing bars in the various parts of the work which are not listed subparagraph d. below will be made at the unit price per pound bid in the schedule for furnishing and placing reinforcing bars, which unit price shall include the cost of

furnishing and attaching wire ties and other approved supports, if used, and of cutting, bending, cleaning, and securing and maintaining in position all reinforcement as shown on the drawings or as directed.

d. Cost. - The cost of the following items of concrete, including cement or cementitious materials as applicable and reinforcing bars, shall be included in the prices bid in the schedule for work where they are required:

- (1) Concrete in pipe and pipe joints.
- (2) Concrete in precast prestressed concrete bridge beams, tee beams, and curbs.
- (3) Concrete in encasements and blocking for miter bends not shown on the drawings.
- (4) Concrete required for erecting chain link fence.
- (5) Concrete required for erecting woven-wire fence.
- (6) Concrete required for cattle guards.
- (7) Concrete in encasements and blocking for miter bends shown on the drawings and not required because the Contractor, at the Contractor's option, used other approved methods for providing curves and bends in pipelines.
- (8) Concrete in instrument houses.
- (9) _____.

¹Delete if fabric is not involved.

²Delete if Conc. 28D is used.

³Include Conc. 28A, 28B, 28C, or 28D as applicable for subparagraph a.

⁴Delete if Conc. 28C or Conc. 28D is being specified, if the concrete is primarily for substation and transmission line foundations, or if the use of set-accelerating admixtures will otherwise be prohibited.

⁵Revise or delete as required.

⁶Change "may" to "shall" when Conc. 28D is used.

⁷Insert other concrete to be cured by water curing or polyethylene-film curing.

⁸Insert name of building.

⁹Use this curing only where foundations extend several feet or more above the finished grade and appearance is important.

¹⁰Insert designation or name of foundations.

¹¹Use this when curing by CRC-101 curing compound is required or allowed.

¹²Use these measurement and payment provisions for foundation and footings when all or a portion of the reinforcing bars will be paid for on a unitprice basis.

- ¹³Use this option when measurement for payment of reinforcing bars will be made in the field.
- ¹⁴Insert name of other concrete in which reinforcing bars will be paid for on a unit-price basis.
- ¹⁵Use only where auger- and pier-type foundations have bells.
- ¹⁶Insert name of other concrete that should be included in the pay item description, such as transmission line footings, etc.
- ¹⁷Use this option where the quantities of concrete for which payment will be made are shown or will be shown on the drawings.
- ¹⁸Insert foundation quantities drawing numbers.
- ¹⁹List concrete foundations that cannot be designed until after receipt of Contractor-furnished data on the equipment.
- ²⁰Use these measurement and payment provisions for structures as appropriate.

3-15-85 Revisions: Revised throughout.

NOTE TO SPECIFIERS: Complete this attachment

To: Reviewer and Solicitation/Specifications file (D-1353)

Subject: Consideration of the Use of Fly Ash and Materials Containing Fly Ash

In accordance with 40 CFR Part 249, "Guideline for Federal Procurement of Cement and Concrete Containing Fly Ash," the use of fly ash and of materials containing fly ash has been considered for the cement and concrete specified in these specifications for *

_____,
and found to be technically inappropriate for this particular construction application **
_____, for the following reasons:

1. _____.
2. _____.
- . _____.

Consequently, cement and concrete which do not contain fly ash or materials containing fly ash are the appropriate materials for the above items.

Responsible Engineer Date

* Indicate concrete items, structure, etc.
** Indicate specifications title, project, feature, etc.