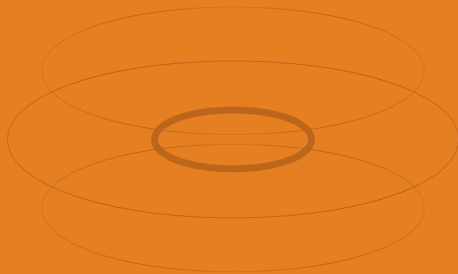


OWNER

Cast-in-Place Concrete and Reinforcement



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ISSUE SUMMARY AND APPROVAL

This page records each issue of SPC-SPC-003. The preparer, reviewer and approver sign for each revision.

Rev.	Date	Issue purpose	Description
A	2026-09-29	Issued for Review	First issue

Contributors

Rev.	Discipline	Prepared by	Reviewed by	Approved by
A	Specifications			

SECTION PC-SPC-003
CAST-IN-PLACE CONCRETE AND REINFORCEMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section includes furnishing, forming, reinforcing, placing, finishing, curing, testing and grouting of all cast-in-place concrete for the station:

1. Equipment foundations for V-101, H-101, SK-110, PR-101, FG-101, G-101, VS-101 and the T-101 containment, at the positions of MEC-DWG-001, Plot Plan. The VS-101 foundation includes the support for the portable collection pan at the stack base drain.
2. Pipe support foundations, as spread footings or drilled piers.
3. Building foundations for B-101 and B-102.
4. The XF-101 transformer pad to the electric cooperative's standard (HOLD H-10), valve and instrument stand footings, and fence post footings (fence footings are paid under SPC-SPC-005).
5. Drilled piers where STR-DWG-001 to STR-DWG-006, Foundation Drawings, show them, including pier length adjustments.
6. Placement of anchor bolts, embedded items, grounding stubs and conduit stub-ups cast into concrete. Electrical materials are furnished under SPC-SPC-013.
7. Non-shrink grout under base plates and equipment.
8. The liquid-tight concrete containment floor and walls around T-101, to the Foundation Drawings and REG-RPT-004, SPCC Plan Framework.

B. Related sections: SPC-SPC-001, General Requirements; SPC-SPC-002, Site Preparation, Clearing and Earthwork (subgrade and bearing release); SPC-SPC-004, Structural Steel; SPC-SPC-013, Electrical Installation; SPC-SPC-017, Mechanical Equipment Setting.

C. Work by others: foundation design, by the EOR in STR-CAL-002, Foundation Design.

1.02 REFERENCES

A. Codes and standards:

1. ACI 318-19, Building Code Requirements for Structural Concrete; ACI 301-20, Specifications for Concrete Construction; ACI 117-10, Tolerances for Concrete Construction and Materials.
2. ACI 305.1-14, Hot Weather Concreting; ACI 306.1-90 (R2002), Cold Weather Concreting, with the cold weather definition of ACI 306R-16; ACI 308.1-11, Curing Concrete; ACI 347R-14, Guide to Formwork; ACI 336.1-01, Drilled Piers; ACI 350-20 as guidance for containment joints and waterstops.

3. CRSI Manual of Standard Practice; ACI 315R, Detailing Manual.
4. ASTM C33 (aggregates), C94 (ready-mixed concrete), C150 and C595 (cement), C618 (fly ash), C260 and C494 (admixtures), C1107 (non-shrink grout), C309 and C1315 (curing compounds), C920 (sealants), D1751 (joint filler).
5. ASTM C172, C31, C39, C143, C231, C1064, C138, C42, C109 and C1077 (sampling, testing and laboratories); C1260 and C1293 (alkali-silica reactivity).
6. ASTM A615 and A706 (reinforcing bars), A1064 (welded wire reinforcement), F1554 (anchor bolts), A563 and A194 (nuts), F436 (washers), F2329 and A153 (galvanizing).
7. AISC 303-22, Code of Standard Practice for Steel Buildings and Bridges (anchor rod tolerances).
8. 29 CFR 1926 Subpart Q, Concrete and Masonry Construction.

B. Project documents: GEN-RPT-002, Design Decisions Register; GEN-DB-001, Basis of Design; MEC-DWG-001, Plot Plan; MEC-LST-002, Mechanical Equipment List (weights); STR-CAL-002, Foundation Design; STR-DWG-001 to STR-DWG-006, Foundation Drawings; ELE-CAL-005 and ELE-DWG-004, Grounding; REG-RPT-004, SPCC Plan Framework; CIV-RPT-003, T-101 Secondary Containment.

1.03 DEFINITIONS

- A. Strength test: the average compressive strength of at least two 6 x 12 in or at least three 4 x 8 in cylinders from the same sample, tested at 28 days, as ACI 318-19 Section 26.12.1.1 defines it.
- B. Placement: a continuous pour of one mix class.
- C. Critical foundation: the foundations of H-101 (6.0 MMBtu/h heater, about 34 ft x 9.5 ft, operating weight per MEC-LST-002), V-101 (42 in ID two-barrel vessel at plot coordinates (84, 40)), SK-110, PR-101, and the T-101 containment (tank 9 ft 6 in OD x 8 ft).

1.04 SUBMITTALS

- A. The Contractor shall submit the items in Table 1-1.

Table 1-1: Submittal Schedule

No.	Submittal	Timing	Action
003-01	Mix design for each class with trial batch or field strength records under ACI 301; aggregate test reports including alkali-silica reactivity (C1260 or C1293); cement and fly ash mill certificates; admixture data	21 days before the first placement	EOR approval
003-02	Ready-mix plant certification (NRMCA or equivalent) and truck certifications	With 003-01	Owner review
003-03	Reinforcing steel shop drawings and bar lists	21 days before fabrication	EOR approval

No.	Submittal	Timing	Action
003-04	Reinforcing steel mill certificates with heat numbers tied to bundles	At delivery	Owner review
003-05	Anchor bolt certificates, templates and setting drawings	21 days before the first pour with anchors	EOR approval
003-06	Formwork and shoring drawings for pedestals over 6 ft or walls over 8 ft, sealed where 29 CFR 1926 Subpart Q requires	14 days before forming	EOR review
003-07	Hot and cold weather concreting plans	14 days before the first placement in the season	Owner approval
003-08	Curing method and materials	With 003-01	Owner approval
003-09	Grout product data and the manufacturer's installation procedure	14 days before grouting	EOR approval
003-10	Waterstop, joint sealant and containment coating data	14 days before the containment placement	EOR approval
003-11	Testing laboratory accreditation (ASTM C1077) and field technician ACI Grade I certification	14 days before the first placement	Owner approval
003-12	Pre-pour checklist and pour record with batch tickets, weather and placement times	Each placement	Owner review
003-13	Fresh and hardened concrete test reports	Within 24 hours of the test; 7 and 28 day results within 48 hours	Owner and EOR review
003-14	As-built survey of anchor bolts and top of concrete for critical foundations	Within 3 days of form removal	EOR review
003-15	Drilled pier log for each pier	Within 24 hours	EOR review

1.05 QUALITY ASSURANCE

- A. Field testing shall be performed by ACI Concrete Field Testing Technician Grade I certified technicians of a laboratory accredited to ASTM C1077.
- B. Ready-mixed concrete shall come from a plant certified by NRMCA or equivalent.
- C. Hold and witness points are listed in 3.11 and compiled in SPC-SPC-019.

1.06 MEASUREMENT AND PAYMENT

- A. Pay items are listed in Table 1-2. Testing, surveys, hot and cold weather measures and repair of defective concrete are incidental. Lean concrete replacement of unsuitable bearing material ordered by the Owner shall be paid as undercut under pay item 02.04.

Table 1-2: Concrete Pay Items

Pay item	Unit	Measurement and inclusions	Exclusions
03.01 Equipment foundations	Lump sum per foundation	V-101, H-101, SK-110, PR-101, FG-101, T-101 containment, G-101 and VS-101, each complete, including excavation beyond the earthwork pay lines, forms, reinforcement, concrete, anchor bolts, embedments, grout, curing, testing and the containment leak test	Subgrade undercut (02.04)
03.02 Pipe support foundations	Each	Each foundation of the type shown, complete	Pier length beyond design (03.04)
03.03 Building foundations, B-101 and B-102	Lump sum each	Complete foundation and slab or piers for the building vendor's reactions (HOLD H-15)	Building setting (16.01, 16.02)
03.04 Drilled pier length adjustment	Linear foot	Difference between as-built and design tip elevation, plus or minus, ordered by the EOR at HP-03-04; includes concrete, reinforcement extension and casing	

PART 2 PRODUCTS

2.01 CONCRETE MIXES

A. Concrete shall be Contractor-furnished and shall meet the classes of Table 2-1. Exposure classes follow ACI 318-19 Table 19.3.1.1: freezing and thawing class F1 for foundations and pedestals exposed to weather with limited water contact, and F2 for slabs, aprons, the containment and any surface frequently in contact with water.

Table 2-1: Concrete Mix Classes

Class	Use	f'c, psi	Max. w/cm	Exposure	Air, %	Slump, in	Max. aggregate, in
A	Equipment, pedestal, building and pipe support foundations	4,000	0.45	F1, S0, W0, C1	5.0 ± 1.5	4 ± 1	3/4 or 1
B	T-101 containment, slabs on grade, aprons, transformer pad	4,500	0.45	F2, S0, W1, C1	6.0 ± 1.5	4 ± 1	3/4
C	Drilled piers	4,000	0.45	F0 below frost; F1 in the top 3 ft	0 to 3 below 3 ft; 5.0 ± 1.5 in the top 3 ft	7 ± 1	3/4

Class	Use	f'c, psi	Max. w/cm	Exposure	Air, %	Slump, in	Max. aggregate, in
D	Lean concrete fill, mud mat, over- excavation fill	2,000	None	F0	Not required	4 ± 1	1
E	Fence post footings, bollards	3,000	0.50	F1	5.0 ± 1.5	4 ± 1	3/4

Note 1: f'c at 28 days. Air contents are those of ACI 318-19 Table 19.3.3.1 for the maximum aggregate size; with 1 in aggregate in Class A, the target is 4.5 ± 1.5 %.

Note 2: For Classes A and B, slump may be increased to 8 in maximum where a high-range water reducer is used.

- B. The sulfate exposure class is taken as S0. Because the red-bed soils of the area may contain gypsum, the class shall be confirmed by soluble sulfate testing in the geotechnical investigation (HOLD H-07). If S1 or S2 is found, the mix designs shall be revised by change to Type II/V cement and the w/cm limit of ACI 318-19 Table 19.3.2.1.
- C. Cement shall be ASTM C150 Type I/II or ASTM C595 Type IL. Class F fly ash to ASTM C618 may replace up to 25 % of the cementitious content.
- D. Aggregates shall meet ASTM C33, class 4S or better for F1 and F2 exposure, and shall be shown non-reactive (C1260 expansion under 0.10 % at 14 days) or be mitigated with fly ash.
- E. Water-soluble chloride ion shall not exceed 0.30 % by mass of cementitious materials, the C1 limit for reinforced concrete. Calcium chloride shall not be used. Water reducers shall meet ASTM C494 Types A, D or F, and air-entraining admixtures ASTM C260.
- F. Concrete temperature at discharge shall be 50 to 90 °F, or up to 95 °F under an approved hot weather plan.
- G. Concrete shall be discharged within 90 minutes or 300 drum revolutions of batching, whichever comes first, as ASTM C94 requires. The limit may be extended to 120 minutes only with a retarder in an approved mix.
- H. Water may be added at the site only up to the amount withheld on the batch ticket, without exceeding the approved w/cm, with the Owner's Inspector notified, and followed by 30 revolutions of mixing.

2.02 REINFORCEMENT AND EMBEDMENTS

- A. Reinforcing bars shall be ASTM A615 Grade 60 deformed bars, or ASTM A706 Grade 60 where welding of bars is shown. Bars shall be uncoated. Welded wire reinforcement shall meet ASTM A1064.
- B. Bar supports against earth shall be concrete blocks of strength equal to the concrete. Supports for formed surfaces shall be plastic or plastic-tipped chairs. Brick, stone and wood shall not be used.
- C. Tie wire shall be 16 gauge black annealed.

- D. Anchor bolts shall be ASTM F1554 Grade 36 unless Grade 55 with supplement S1 (weldable) or Grade 105 is shown, with ASTM A563 Grade DH or A194 Grade 2H heavy hex nuts and F436 washers. All exterior anchor bolts shall be hot-dip galvanized to ASTM F2329, threads chased after galvanizing and nuts overtapped to A563.
- E. Anchor bolt sleeves, where shown, shall be HDPE or steel pipe, grouted after alignment.
- F. Grounding stubs and conduits shall meet SPC-SPC-013 and ELE-DWG-004, and shall be installed before the pre-pour hold.

2.03 GROUT, JOINTS AND ACCESSORIES

- A. Non-shrink grout shall meet ASTM C1107 Grade B or C, non-metallic, with 7,000 psi or more at 28 days and a flowable consistency for base plates. Epoxy grout shall be used only where the Foundation Drawings show it for vibrating equipment; none is expected, because G-101 is a packaged unit on its own base.
- B. Waterstops at containment construction joints shall be PVC ribbed dumbbell, 6 in wide and 3/8 in thick (CRD-C 572), or a hydrophilic strip waterstop approved by the EOR.
- C. Joint sealant for the containment and slabs shall be multi-component polyurethane to ASTM C920 Type M, Grade P or NS, Class 25, hydrocarbon resistant in the containment.
- D. Where REG-RPT-004 or the Foundation Drawings show a containment interior coating, it shall be a hydrocarbon-resistant epoxy of at least 20 mils dry film thickness.
- E. Expansion joint filler shall meet ASTM D1751. Form release shall be non-staining and VOC compliant. Curing compound shall meet ASTM C309 Type 2 (white pigmented), or ASTM C1315 where a coating or sealer will be applied, with compatibility confirmed.

PART 3 EXECUTION

3.01 FORMWORK

- A. Forms shall be true to line and grade, mortar tight, and braced for placement pressures. Exposed edges shall be chamfered 3/4 in.
- B. Earth forming shall be allowed only for footings and piers below grade where the excavation stands vertically and cleanly, and the specified cover on earth-formed faces shall then be increased by 1 in.
- C. Side forms shall remain at least 24 hours after placement, and until the concrete is strong enough not to be damaged. Where the ambient temperature falls below 50 °F, the period shall be extended to 48 hours.

3.02 REINFORCEMENT

- A. Bars shall be fabricated to ACI 315 and the CRSI manual, cold bent only. Bars shall not be heated, and Grade 60 bars partly embedded in concrete shall not be rebent.

B. Concrete cover shall be at least the values of Table 3-1, from ACI 318-19 Table 20.5.1.3.1.

Table 3-1: Minimum Concrete Cover

Condition	Minimum cover
Cast against and permanently exposed to earth	3 in
Exposed to earth or weather, No. 6 bars and larger	2 in
Exposed to earth or weather, No. 5 bars and smaller	1-1/2 in
Not exposed to weather or earth (interior slabs, if cast in place)	3/4 in
Drilled piers, to spirals or ties	3 in

C. Placing tolerances shall meet ACI 117: for member depth up to 8 in, $\pm 3/8$ in; over 8 in, $\pm 1/2$ in; cover shall not be reduced by more than one-third of the specified cover; bar spacing ± 1 in with the bar count maintained; bar end and bend locations ± 2 in.

D. Laps shall be as drawn, or where not shown, Class B tension laps under ACI 318-19 Section 25.5. Mechanical splices shall be ACI 318 Type 2 and used only where shown.

E. All perimeter intersections and alternate interior intersections shall be tied, and bars secured against displacement during placement. Bars shall be free of mud, loose rust, oil and form release before the pre-pour hold.

3.03 ANCHOR BOLTS AND EMBEDDED ITEMS

A. Anchor bolts shall be set with rigid steel or plywood templates fixed to the forms. Wet-setting shall not be allowed, because it cannot hold the tolerances below.

B. Anchor bolts shall meet the tolerances of Table 3-2, based on AISC 303 Section 7.5 and tightened for equipment bearing.

Table 3-2: Anchor Bolt Tolerances

Item	Tolerance
Center to center of any two bolts in a group	$\pm 1/8$ in
Center of a group to the established centerline	$\pm 1/4$ in
Top of bolt projection	+1/2 in, -0 in
Plumbness	1/16 in in 12 in
Accumulated tolerance between groups along a line	1/4 in per 100 ft, 1 in maximum
Sole plate and slide plate elevation (V-101 and H-101 saddles, SK-110 bearing)	$\pm 1/8$ in before grouting

C. Threads shall be protected with tape or caps. At the V-101 and H-101 sliding saddles, the anchor bolt shall be centered in the saddle slot at the installation temperature, as the vendor drawings show (HOLD H-15).

D. Anchor bolts shall be surveyed after the pour. A bolt out of tolerance shall be corrected only by a repair the EOR approves through a nonconformance report.

3.04 PRE-POUR INSPECTION

- A. Before each placement, the Contractor's quality control inspector shall check the subgrade release (HP-02-04), forms, reinforcement (size, count, spacing, laps and cover), anchor bolts and templates, embedments, sleeves, conduits, grounding stubs, waterstops, construction joint preparation, cleanliness and water removal, and the Owner's Inspector shall release the placement (HP-03-02). For critical foundations the EOR or its delegate shall review the checklist before release.

3.05 PLACEMENT

- A. Concrete shall be placed within the time limit of 2.01 G, with free fall of no more than 5 ft unless a drop chute or tremie is used.
- B. Concrete shall be placed in horizontal layers no deeper than 18 in and consolidated with internal vibrators of at least 8,000 vibrations per minute, inserted at about 18 in spacing and 6 in into the layer below. Forms and reinforcement shall not be vibrated to move concrete.
- C. Cold joints shall be avoided. If a delay exceeds 45 minutes (30 minutes in hot weather), a construction joint shall be formed as the EOR instructs. Construction joints shall be made only where shown or approved, roughened to 1/4 in amplitude, cleaned and brought to a saturated surface-dry condition before the next placement.
- D. Concrete shall not be placed in standing water, on frozen subgrade, or in rain unless protected.
- E. Drilled piers shall be constructed to ACI 336.1. Each shaft shall be inspected for plumbness (no more than 2 % of its length out of plumb), diameter (not less than design), bottom cleanliness (no more than 1 in of loose material over 90 % of the base) and bearing stratum, by the EOR or the geotechnical engineer. Concrete shall be placed on the day the excavation is completed and within 4 hours of it. Where water at the bottom exceeds 2 in, concrete shall be placed by tremie kept embedded at least 5 ft. Temporary casing shall be used where the shaft caves and withdrawn with at least 5 ft of concrete head above its bottom. A pier log shall be kept for each pier.

3.06 FINISHING

- A. Tops of foundations and pedestals shall be wood-float finished, level within 1/8 in in 10 ft, and sloped 1/8 in per ft away from equipment where shown.
- B. Surfaces to receive grout shall be roughened to 1/4 in amplitude and cleaned of laitance by bush-hammering or chipping after curing.
- C. Slabs and aprons shall receive a broom finish perpendicular to traffic. The containment floor shall be steel troweled, lightly broomed and sloped to the sump.

3.07 CURING AND PROTECTION

- A. All concrete shall be cured for at least 7 days, or until field-cured cylinders reach 70 % of f'c, by wet burlap, curing blankets, ponding, or curing compound applied at the manufacturer's rate immediately after finishing, under ACI 308.1.
- B. In hot weather, when the ambient temperature is above 90 °F or the evaporation rate exceeds 0.2 lb/ft²-h, the Contractor shall use chilled water or ice, a retarder, fog spray and windbreaks, and shall start curing immediately, under ACI 305.1.
- C. In cold weather, defined by ACI 306R-16 as air temperature that has fallen, or is expected to fall, below 40 °F during the protection period, the Contractor shall heat materials; place concrete at no less than 55 °F for sections under 12 in thick and 50 °F for sections 12 to 36 in thick; and keep the concrete surface at 50 °F or more for 3 days (or 2 days with an accelerating admixture) with insulated blankets or enclosures, under ACI 306.1. Unvented combustion heaters shall not be used inside enclosures, because the carbon dioxide they produce carbonates fresh surfaces. The surface temperature shall not fall by more than 50 °F in the first 24 hours after protection is removed, and surface temperatures shall be recorded at least twice a day during protection.

3.08 GROUTING

- A. Grout shall be placed under base plates, sole plates and skids after the steel or equipment has been aligned, shimmed and bolted snug, and the EOR or the vendor has accepted the alignment (for SK-110 and H-101, see SPC-SPC-017).
- B. Grout shall be at least 1 in thick and typically 2 in, within the manufacturer's limits. For cementitious grout the concrete shall be pre-soaked for 24 hours and be saturated surface-dry at placement.
- C. Grout shall be placed from one side, or two adjacent sides, with a head box, to drive out air, and shall not be vibrated. It shall be cured to the manufacturer's instructions.
- D. Shims shall be flat steel, no more than three per location. Wedges and leveling nuts shall be removed only where the vendor or the EOR requires it.

3.09 T-101 CONTAINMENT

- A. The containment shall be built as a monolithic floor and wall pour where practicable, otherwise with waterstops at all construction joints.
- B. No penetration of the containment floor or walls shall be made except those shown, including the normally closed and locked drain valve required by REG-RPT-004. Pipe penetrations through the wall shall use a sleeve with a modular seal and hydrocarbon-resistant sealant.
- C. After at least 7 days of curing, and before any coating or backfill, the containment shall be filled with water to at least 12 in depth, or to the full design liquid height if the EOR specifies it, and held for 24 hours. It is accepted when the exterior face shows no leakage or damp spots and the water level drops no more than 1/8 in, corrected for evaporation and rain against a companion

evaporation pan. Test water shall be released to grade through sediment controls. The test is hold point HP-03-05.

3.10 TOLERANCES

A. Concrete work shall meet the tolerances of Table 3-3, based on ACI 117 and tightened where equipment requires.

Table 3-3: Concrete Tolerances

Item	Tolerance
Plan location of a foundation centerline	±1/2 in
Top of footing elevation, below grade	+1/2 in, -2 in
Top of pedestal or equipment foundation	+0 in, -1/4 in, keeping the grout space
Formed surface plumbness	1/4 in in 10 ft, 1 in maximum overall
Cross-section of pedestals and walls	+1/2 in, -1/4 in
Footing plan dimensions	+2 in, -1/2 in
Slab and pad flatness	1/4 in in 10 ft
Conduit stub-up plan location	±1 in
Grounding stub location	±2 in

3.11 FIELD QUALITY CONTROL

A. Testing shall be performed at the frequencies of Table 3-4. The strength testing frequency is more stringent than the minimum of ACI 318-19 Section 26.12.2.1 because most placements on this project are small foundations.

Table 3-4: Testing Frequencies

Test	Frequency	Standard
Sampling	Each strength test sample, from the middle of the load	ASTM C172
Slump, air content, temperature, unit weight	First truck of each placement, with every strength test sample, and whenever consistency appears to change	C143, C231, C1064, C138
Strength test	One per 100 CY or fraction, at least one per class per day and one per critical foundation placement; at least five per class for the project	C31, C39
Cylinder set	Five 4 x 8 in cylinders: one at 7 days, three at 28 days, one spare (or 56 days for an approved fly ash mix)	C31
Field-cured cylinders	Two extra per placement in cold weather, or for early form removal or loading decisions	C31
Containment leak test	Each containment	3.09
Anchor bolt survey	Every anchor group after the pour	Survey

Test	Frequency	Standard
Drilled pier inspection	Every pier	ACI 336.1
Reinforcement inspection	Every placement	Drawings and CRSI

B. The hold and witness points in Table 3-5 apply.

Table 3-5: Hold and Witness Points

ID	Activity	C	O	E	W	Record
HP-03-01	Mix designs approved before the first placement of each class	P	R	H	-	Submittal 003-01
HP-03-02	Pre-pour inspection of forms, reinforcement, anchors, embedments, grounding and conduits (EOR review for critical foundations)	P	H	R	-	QF-03-01 pre-pour checklist
WP-03-03	Concrete placement and fresh concrete testing	P	W	-	-	QF-03-02 pour record
HP-03-04	Drilled pier bottom inspection before concrete	P	H	R	-	QF-03-03 pier log
HP-03-05	T-101 containment leak test	P	H	R	-	QF-03-04 containment test record
HP-03-06	Anchor bolt as-built survey accepted before equipment or steel is set	P	H	R	-	QF-03-05 anchor bolt survey
WP-03-07	Grouting of equipment and base plates	P	W	-	-	QF-03-06 grout record
HP-03-08	28-day strengths accepted, or low-strength investigation closed, before critical foundations are loaded with hydrotest water or operating loads	P	H	R	-	QF-03-07 strength summary

3.12 ACCEPTANCE

A. Concrete work is accepted when it meets Table 3-6.

Table 3-6: Acceptance Criteria

Parameter	Criterion	Method
Compressive strength	Every average of three consecutive strength tests at least f'c, and no strength test more than 500 psi below f'c (ACI 318-19 Section 26.12.3.1)	ASTM C39
Low-strength investigation	Three cores per suspect area; acceptable if their average is at least 0.85 f'c and no core is below 0.75 f'c (ACI 318-19 Section 26.12.4)	ASTM C42
Slump and air content	Within Table 2-1; a load out of tolerance is rejected after one retest	ASTM C143, C231
Concrete temperature	50 to 90 °F at discharge	ASTM C1064

Parameter	Criterion	Method
Cover	Within the ACI 117 tolerance; cover meter check where in doubt	Measurement
Dimensions	Within Table 3-3 and Table 3-2	Survey and tape
Surface defects	Honeycomb deeper than 1 in, or exposing reinforcement, is a nonconformance, repaired by a method the EOR approves under ACI 301	Visual
Containment tightness	Per 3.09	Water test
Grout	Full bearing with no voids by sounding; 7,000 psi at 28 days in cubes, one set per 10 bags or per day	Sounding; ASTM C109

END OF SECTION

