



# **SPECIFICATION**

### SECTION 13 11 00

PART 1 - GENERAL

1.01 SUMMARY

A. CONCRETE MATERIALS

B. ADHERED REINFORCED LINER

1.02 RELATED SECTIONS

- A. DIVISION 1 PROJECT MANAGEMENT AND COORDINATION: MECHANICAL AND ELECTRICAL WORK COORDINATION.
- **DIVISION 3 PORTLAND CEMENT CONCRETE** PAVING: POOL DECK CONSTRUCTION, INCLUDING FINISHES, CAULKING, DRAINS.

### 1.03 REFERENCES

- A. ACI 315 MANUAL OF STANDARD PRACTICE FOR DETAILED REINFORCED CONCRETE STRUCTURES.
- ACI 318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
- ASTM A615 SPECIFICATION FOR DEFORMED AND PLAIN BILLET STEEL BARS FOR CONCRETE REINFORCEMENT.
- D. ASTM C31 PRACTICE FOR MAKING AND CURING CONCRETE TEST SPECIMENS IN THE FIELD.
- ASTM C33 SPECIFICATION FOR CONCRETE AGGREGATES.
- ASTM C39 TEST METHOD FOR COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS.
- G. ASTM C94 SPECIFICATION FOR READY-MIXED CONCRETE.
- H. ASTM C143 TEST METHOD FOR SLUMP OF HYDRAULIC CEMENT CONCRETE.
- ASTM C150 SPECIFICATION FOR PORTLAND CEMENT.
- ASTM C172 METHOD OF SAMPLING FRESHLY MIXED CONCRETE.
- K. ASTM C231 TEST METHOD FOR AIR CONTENT OF FRESHLY MIXED CONCRETE BY THE PRESSURE METHOD.
- ASTM C260 SPECIFICATION FOR AIR ENTRAINING ADMIXTURES FOR CONCRETE.
- ASTM C494 SPECIFICATION FOR CHEMICALS М ADMIXTURES FOR CONCRETE.
- N. CRSI CONCRETE REINFORCING STEEL INSTITUTE - MANUAL OF PRACTICE.
- 1.04 DEFINITIONS
  - A. THE TERM "POOL" AS USED IN THIS SECTION SHALL REFER TO THE SPRAY PAD.
  - B. THE TERM "CONCRETE" AS USED IN THIS SECTION SHALL REFER TO CONCRETE POOL CONSTRUCTION ONLY.
  - C. THE TERM "AQUATIC ENGINEER" AS USED IN THIS SECTION SHALL REFER TO THE POOL DESIGN ONLY.
- 1.05 SYSTEM DESCRIPTION
  - PROVIDE ALL LABOR AND MATERIALS NECESSARY FOR CONSTRUCTION OF THE NEW SPRAY PAD ADDITION. THE ABOVE WILL BE COMPLETE WITH ALL EQUIPMENT AS INDICATED ON THE CONSTRUCTION DOCUMENTS. CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATE AND LOCAL CODES.
- 1.06 SUBMITTALS
- A. PRODUCT DATA: PROVIDE MANUFACTURER'S / INSTALLER'S WRITTEN INSTALLATION INSTRUCTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
- 1. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL COMPLETE LISTS, INCLUDING DESCRIPTIONS, CATALOG CUTS, ETC., AND WHERE APPLICABLE DIMENSIONED SHOP DRAWINGS OF ALL MATERIAL, AND EQUIPMENT TO BE FURNISHED AND INSTALLED UNDER THIS SPECIFICATION. SUBMITTAL SHALL ADEQUATELY AND COMPLETELY DESCRIBE THE EQUIPMENT, INCLUDING WHERE NECESSARY OR REQUESTED COMPLETE PERFORMANCE DATA, ALL ACCESSORY AND AUXILIARY EQUIPMENT, AND ALL PERTINENT DETAILS OF MANUFACTURE.
- B. GUARANTEES/WARRANTEES: SUBMIT GUARANTEES / WARRANTEES, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
- 1. STANDARD ONE (1) YEAR.
- MAINTENANCE MANUALS: SUBMIT MAINTENANCE DATA INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
- 1. SUBMIT THREE (3) COPIES AT COMPLETION OF THE PROJECT.CONTRACTOR SHALL DELIVER THREE (3) COMPLETE SETS OF MAINTENANCE INSTRUCTIONS FOR ALL COMPONENT EQUIPMENT TO THE OWNER, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:
- a. BOUND TOGETHER IN A COMPLETE MANUAL
- b. ACCURATE PARTS LIST.
- c. NARRATIVE ON THE PROPER MAINTENANCE OF THE LINER.
- d. TROUBLE SHOOTING INFORMATION.

- D. CLOSE OUT DOCUMENTS: SUBMIT CLOSE OUT DOCUMENTS, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:
- 1. MAINTENANCE MANUAL. 2. OWNER'S CERTIFICATION OF INSTRUCTION. 3. EXTRA MATERIALS.
- 1.07 QUALITY ASSURANCE
- A. QUALIFICATIONS OF POOL
- SUB-CONTRACTOR/EQUIPMENT SUPPLIER WORK OF THIS SECTION SHALL BE PERFORMED BY A CONTRACTOR WHO HAS A PROVEN RECORD OF COMPETENCE AND EXPERIENCE IN THE CONSTRUCTION OF SIMILAR FACILITIES OF THIS SIZE AND COMPLEXITY FOR NOT LESS THAN 5 YEARS. CONTRACTOR MUST BE PREQUALIFIED BY THE ILLINOIS DEPT. OF PUBLIC HEALTH. REFERENCES WILL BE REQUIRED BY THE OWNER.
- B. PERFORMANCE CRITERIA: CERTAIN SECTIONS OF THE SPECIFICATIONS CONTAIN PERFORMANCE CRITERIA RATHER THAN PRODUCT DESCRIPTIONS. IT SHALL BE THE OBLIGATION OF THE CONTRACTOR/EQUIPMENT SUPPLIER TO INSURE THAT ALL CRITERIA ARE SATISFIED AND THE BURDEN OF PROOF OF CONFORMANCE SHALL REST WITH THE CONTRACTOR/EQUIPMENT SUPPLIER. THE ENGINEER SHALL REQUIRE COMPLETE CALCULATIONS, PAST PERFORMANCE RECORDS AND, IF REQUIRED, INSPECTION TRIPS OF SIMILAR FACILITIES TO SUBSTANTIATE CONFORMANCE WITH THESE CRITERIA. THE ENGINEER SHALL BE SOLE JUDGE OF CONFORMANCE. THE POOL SUB-CONTRACTOR / EQUIPMENT SUPPLIER IS CAUTIONED THAT HE WILL BE REQUIRED TO PROVIDE A FINISHED PRODUCT MEETING ALL STATED CRITERIA AND MEETING OR EXCEEDING DEPARTMENT OF HEALTH REQUIREMENTS.
- 1.08 REGULATORY REQUIREMENTS
  - A. ALL APPLICABLE LOCAL BUILDING AND HEALTH CODES.
- B. DEPARTMENT OF PUBLIC HEALTH SWIMMING POOL CODE.
- 1.09 REQUIRED PERMITS
  - A. DEPARTMENT OF PUBLIC HEALTH BY AQUATIC ENGINEER/OWNER.
  - B. COUNTY AND LOCAL DEPARTMENTS OF PUBLIC HEALTH BY AQUATIC ENGINEER/OWNER.
- 1.10 DELIVERY, STORAGE AND HANDLING
  - A. DELIVER, STORE, PROTECT AND HANDLE PRODUCTS TO SITE UNDER PROVISIONS OF SPECIFICATIONS.
  - B. DELIVER ALL MATERIALS AND EQUIPMENT TO THE WORK SITE IN ORIGINAL PACKAGES FULLY IDENTIFIED, WITH MANUFACTURER'S LABEL. STORE OFF GROUND AND PROTECT FORM WEATHER WITH A SUITABLE COVERING.
  - C. DELIVER CEMENTITIOUS MATERIALS TO SITE IN MANUFACTURER'S STANDARD PACKAGES. IMMEDIATELY UPON DELIVERY TO WORK SITE, STORE IN WATERPROOF SHEDS. NO CEMENTITIOUS OR OTHER MATERIAL THAT HAS BECOME CAKED OR HARDENED WILL BE PERMITTED IN THE WORK.
- 1.11 WARRANTIES
  - A. WARRANTY: PROVIDE ONE (1) YEAR WARRANTY COVERING ALL WORKMANSHIP, MATERIALS AND EQUIPMENT.
  - B. ALL STANDARD MANUFACTURER'S WARRANTIES SHALL APPLY TO ALL EQUIPMENT AND PRODUCTS PROVIDED BY THIS SUBCONTRACTOR.
  - C. SPECIAL PROJECT WARRANTY ON CONCRETE SPLASH PAD STRUCTURE: THE POOL SUB-CONTRACTOR SHALL GUARANTEE FOR TWO (2) YEARS REPAIR OF THE CONCRETE SPLASH PAD STRUCTURE COVERING ANY DEFECTS AND CRACKS.

PART 2 - PRODUCTS

- 2.01 CONCRETE MATERIALS
  - A. PORTLAND CEMENT: ASTM C150, TYPE I.
  - B. COARSE AGGREGATE: REFER TO ASTM C33.
  - C. SAND: REFER TO ASTM C33.
  - D. ADD MIXTURES:
  - 1. AIR ENTRAINING: REFER TO ASTM C260 2. WATER REDUCING: REFER TO ASTM C494, TYPE A OR D.

2.03 GUN GRADE SEALANTS

- A. JUST PRIOR TO INSTALLING THE JOINT SEALANT, THE JOINT CAVITY SHALL BE CLEANED BY SAND BLASTING OR POWER WIRE BRUSHING. INSTALL BOND BREAKER TAPE PER MANUFACTURER'S INSTRUCTIONS.
- B. AFTER THE JOINTS HAVE BEEN PREPARED AS DESCRIBED ABOVE, THE JOINT SEALANT SHALL BE APPLIED. THE PRIMER, IF REQUIRED, AND JOINT SEALANT SHALL BE APPLIED ONLY WITH THE EQUIPMENT AND METHOD RECOMMENDED BY THE JOINT SEALANT MANUFACTURER.
- C. NON-SUBMERGED SEALANTS: VULKEM 45, AS MANUFACTURED BY TREMCO, BEACHWOOD, OHIO. OR APPROVED EQUAL.

## SPECIFICATION

PART 3 - EXECUTION

3.01 CAST-IN-PLACE REINFORCED CONCRETE

INCIDENTAL TO FURNISH AND PLACE ALL ON THE CONTRACT DOCUMENTS, AND

#### B. MATERIALS:

- 1. CONCRETE SHALL BE READY-MIXED EQUIPMENT WILL NOT BE ALLOWED.
- BY MORE THAN 270 REVOLUTIONS. ARCHITECT / ENGINEER WITH THE

a. NAME OF CONCRETE FIRM

- c. DATE d. TRUCK NUMBER
- f. AMOUNT OF CONCRETE
- g. TIME LOADED h. WATER ADD
- i. TIME UNLOADED REVOLUTIONS OF MIXING DRUM LOGGED
- APPROVAL OF OTHER AGGREGATE BEFORE US ON THE PROJECT.
- CONCRETE MIX FOR APPROVAL IN OF ASTM C94.
- NOT EXCEED .5%.

OF SIZES SHOWN ON THE CONTRACT DOCUMENTS

- 1. BAR SUPPORTS: BOLSTERS, CHAIRS, SPACERS, AND OTHER DEVICES FOR SPACING, STRENGTH THAN CONCRETE.
- D. FORM: MATERIALS SHALL PRODUCE TIGHT FINISH.
- E. FORM TIES:
- FORMS TO ACCEPTABLE LIMITS.
- OF THE TIE HOLD.
- ADMIXTURE: PROVIDE AIR-ENTRAINING CONTAIN NO CHLORIDES. FURNISH TO USE.
- SATISFIES ALL REQUIREMENTS OF THIS

A. GENERAL: THIS OF THE SPECIFICATION COVERS THE FURNISHINGS OF ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND THE PERFORMANCE OF ALL WORK AND SERVICES NECESSARY OR CONCRETE NECESSARY FOR A CONCRETE REINFORCED CAST-IN-PLACE POOL AS SHOWN COMPLETELY COORDINATED WITH THE WORK OF ALL OTHER TRADES.

> CONFORMING TO ASTM C 94 AND THESE SPECIFICATIONS. PORTLAND CEMENT SHALL BE TYPE IA. THE USE OF NON-AGITATING

2. CONCRETE SHALL BE AGITATED BY AT LEAST 70 REVOLUTIONS OF THE MIXING DRUM NOT CONCRETE SHALL BE PLACED WITHIN 1 1/2 HOURS AFTER THE CEMENT HAS BEEN ADDED TO THE MIX. A DELIVERY TICKET SHALL BE FURNISHED TO THE LANDSCAPE FOLLOWING INFORMATION:

b. SERIAL NUMBER OF TICKET

e. SPECIFIC CLASS OF CONCRETE

3. MINIMUM ALLOWABLE 28-DAY COMPRESSIVE FIELD STRENGTH SHALL BE 4000 PSI WHEN CURED AND TESTED IN CONFORMANCE WITH ASTM C31 AND C39. SIZE OF COARSE AGGREGATE SHALL BE 3/4" WITH NO FINES. GRADATIONS MUST BE RECEIVED IN WRITING

4. SLUMP RANGE SHALL BE 2" TO 5" AND THE AIR ENTRAINMENT BETWEEN 4% AND 6% BY THE WATER-CEMENT RATION SHALL NOT EXCEED .49 BY WEIGHT AND THE MINIMUM CEMENT CONTENT SHALL BE 517 POUNDS PER CUBIC YARD. SUBMIT COMPLETE DATA ON THE CONFORMANCE WITH THE REQUIREMENTS

5. FINE AGGREGATES: CONFORM TO ASTM C33. MATERIALS FINER THAN THE 200 SIEVE SHALL

C. REINFORCING STEEL: PROVIDE DEFORMED BARS

SUPPORTING, AND FASTENING REINFORCING BARS AND WELDED-WIRE REINFORCEMENT IN PLACE, MANUFACTURE BAR SUPPORTS FROM STEEL WIRE, PLASTIC OR PRECAST CONCRETE ACCORDING TO CRSI'S "MANUAL OF STANDARD PRACTICE", OF GREATER COMPRESSIVE

FORMS AND AN ACCEPTABLE FINISH, CONFORM TO ACI 301-84 CHAPTER 10; 10.2.2 SMOOTH FORM

1. FORM TIES SHALL BE CONSTRUCTED SO THAT THE TIE REMAINS EMBEDDED IN THE WALL. EXCEPT FOR A REMOVABLE PORTION AT EACH END. FORM TIES SHALL HAVE CONICAL OR SPHERICAL TYPE INSERTS. INSERTS SHALL BE FIXED SO THAT THEY REMAIN IN CONTACT WITH FORMING MATERIAL, AND SHALL BE CONSTRUCTED SO THAT NO METAL IS WITHIN 1" OF THE CONCRETE SURFACE WHEN TIES WILL NOT BE PERMITTED. TIES SHALL WITHSTAND ALL PRESSURES AND LIMIT DEFLECTION OF

2. FLAT BAR TIES FOR PANEL FORMS SHALL HAVE PLASTIC OR RUBBER INSERTS HAVING A MINIMUM DEPTH OF 1" AND SUFFICIENT DIMENSIONS TO PERMIT PROPER PATCHING

F. CONCRETE ADD MIXTURES: AIR-ENTRAINING ADMIXTURE IN ALL CONCRETE. ADMIXTURE SHALL CONFORM TO ASTM C260, EXCEPT IT SHALL BE NONTOXIC AFTER 30 DAYS, AND SHALL MANUFACTURER'S COMPLIANCE STATEMENT FOR THESE REQUIREMENTS TO LANDSCAPE ARCHITECT / ENGINEER FORTY [40] DAYS PRIOR

G. WATER-REDUCING ADMIXTURES: ALL CONCRETE SHALL CONTAIN A WATER-REDUCING ADMIXTURE. THE ADMIXTURE SHALL CONFORM TO ASTM C 494, TYPE A OR TYPE D; EXCEPT IT SHALL CONTAIN NO CHLORIDES, SHALL BE NONTOXIC AFTER 30 DAYS, AND SHALL BE COMPATIBLE WITH THE AIR-ENTRAINING ADMIXTURES. THE AMOUNT OF ADMIXTURE ADDED TO THE CONCRETE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. FURNISH A COMPLIANCE STATEMENT THAT THE ADMIXTURE USED SPECIFICATION TO LANDSCAPE ARCHITECT /ENGINEER FORTY [40] DAYS PRIOR TO USE.

H. FORMS: CONSTRUCT FORMS ACCURATELY TO DIMENSIONS AND ELEVATIONS REQUIRED AND TO BE STRONG AND UNYIELDING. CONSTRUCT FORMS WITH TIGHT JOINTS TO PREVENT THE ESCAPE OF MORTAR AND TO AVOID THE FORMATION OF FINS. BRACE AS REQUIRED TO PREVENT DISTORTION DURING CONCRETE PLACEMENT.

- PLACING REINFORCING STEEL: PLACE REINFORCING STEEL IN CONFORMANCE WITH THE INFORMATION ON THE CONTRACT DOCUMENTS AND CRS1 RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS, EXCEPT AS MODIFIED HEREIN. MINIMUM LENGTH OF SPLICES SHALL BE AS SHOWN IN TABLE ON CONTRACT DRAWINGS. TIE SPLICES WITH 18-GAUGE ANNEALED WIRE AS SPECIFIED IN THE REFERENCED CRSI STANDARD.
- J. PLACING CONCRETE: PRIOR TO PLACING CONCRETE, REMOVE WATER FROM EXCAVATION AND ALL DEBRIS AND FOREIGN MATERIAL FROM FORMS. CHECK THE REINFORCING STEEL FOR PROPER PLACEMENT AND CORRECT ANY DISCREPANCIES.
- K. PLACE CONCRETE AS SOON AS POSSIBLE AFTER LEAVING MIXER, WITHOUT SEGREGATION OR LOSS OF INGREDIENTS, WITHOUT SPLASHING FORMS OR STEEL ABOVE. THE VERTICAL DROP TO FINAL PLACEMENT SHALL NOT EXCEED 6 FEET. PLACEMENT SHALL CONFORM TO THE REQUIREMENTS OF ACI 318, EXCEPT AS MODIFIED HEREIN.
- DO NOT PLACE CONCRETE WHEN THE AMBIENT TEMPERATURE IS BELOW 40 DEGREES F AND FALLING, WITHOUT SPECIAL PROTECTION AS APPROVED BY THE AQUATIC ENGINEER. ANY CONCRETE DAMAGED BY FREEZING SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
- M. COMPACTION: APPLY APPROVED VIBRATOR AT POINTS SPACED NOT FARTHER APART THAN VIBRATOR'S EFFECTIVE RADIUS. APPLY CLOSE ENOUGH TO FORMS TO VIBRATE SURFACE EFFECTIVELY BUT NOT DAMAGE FORM SURFACES. VIBRATE UNTIL CONCRETE BECOMES UNIFORMLY PLASTIC. VIBRATOR MUST PENETRATE THE FRESH PLACED CONCRETE AND INTO THE PREVIOUS LAYER OF FRESH CONCRETE BELOW.
- N. CONSTRUCTION JOINTS/EXPANSION JOINTS: LOCATE AS SHOWN OR AS APPROVED IN WRITING BY LANDSCAPE ARCHITECT / ENGINEER. CAULK ALL EXPANSION JOINTS WITH POLYURETHANE CAULK.
- O. FINISHING:
- 1. SCREED SURFACES OF FLOOR SLABS TO TRUE LEVEL PLANES. AFTER THE INITIAL WATER HAS BEEN ABSORBED, FLOAT AND TROWEL WITH A STEEL TROWEL TO A SMOOTH FINISH FREE FROM TROWEL MARKS. PROVIDE NON-SLIP LIGHT BROOM FINISH ON FLOOR SLABS.
- 2. DO NOT ABSORB WET SPOTS WITH NEAT CEMENT.
- P. REMOVAL OF FORMS: REMOVE AFTER CONCRETE HAS SET SUFFICIENTLY TO CARRY THE DEAD LOAD AND CONSTRUCTION LOAD IT HAS TO SUSTAIN AND WHEN APPROVED BY THE AQUATIC ENGINEER. REMOVE FORMS WITH CARE TO PREVENT SCARRING AND DAMAGING THE SURFACE.

Q. FINISHING FORMED SURFACES:

- 1. AREAS NOT SUBJECT TO WATER: CUT OUT ALL HONEYCOMBED AND DEFECTIVE AREAS. CUT EDGES PERPENDICULAR TO SURFACE AT LEAST 1 INCH DEEP, NO FEATHER EDGE ALLOWED, AND PATCH. USING BONDING AGENT FILL HOLES FLUSH WITH CEMENT MORTAR COMPOSED OF 1 PART CEMENT AND 2 PARTS SAND. RUB SURFACE WITH WOOD FLOAT AND BURLAP. KEEP PATCHES DAMP FOR A MINIMUM OF 7 DAYS. FILL ALL FORM TIE HOLES IN SAME MANNER.
- 2. AREAS SUBJECT TO WATER: CUT OUT ALL HONEYCOMBED AND DEFECTIVE AREAS, CUT EDGES PERPENDICULAR TO SURFACE AT LEAST 1 INCH DEEP, NO FEATHEREDGE ALLOWED, SOAK AREA TO BE PATCHED FOR 24 HOURS, THEN ALLOW SURFACE TO DRAIN FREE OF STANDING WATER, THEN PATCH WITH COLOR MATCHED NON-SHRINK GROUT:
- a. UPCON HIGH FLOW, THE UPCO COMPANY, CLEVELAND, OHIO; MASTER FLOW 713, THE MASTER BUILDER COMPANY, CLEVELAND, OHIO, CRYSTEX, L & M CONSTRUCTION CHEMICALS, INC., OMAHA, NFBRASKA.
- 3. THE GROUT USED SHALL BE CURED AS RECOMMENDED BY GROUT MANUFACTURER.
- 4. AS SOON AS FORMS ARE REMOVED, REMOVE FINS OR PROJECTIONS FROM SURFACE OF EXPOSED AREAS AND RUB SURFACES WITH WOOD FLOAT OR BURLAP SACK TO PROVIDE A UNIFORM SURFACE TEXTURE. FINISH SHALL CONFORM TO ACI 301. CHAPTER 10, 2.2: SMOOTH FORM FINISH.
- R. PROTECTION AND CURING: PROTECT FRESH CONCRETE FROM DIRECT RAYS OF THE SUN, DRYING WINDS, AND WASH BY RAIN. WET CURE SHALL BE USED CONFORMING TO ACI 308. KEEP CONCRETE SLABS CONTINUOUSLY WET FOR A 7-DAY PERIOD. INTERMITTENT WETTING IS NOT ACCEPTABLE. ANY PRODUCT USED SHALL BE COMPATIBLE WITH PAINT BOND REQUIREMENTS.

## SPECIFICATION

3.03 DECK, CLEANING AND SAFETY EQUIPMENT

- A. INSTALL ALL DECK, CLEANING, AND SAFETY EQUIPMENT IN COMPLIANCE WITH MANUFACTURE'S **RECOMMENDATIONS; AS REQUIRED BY** ILLINOIS DEPARTMENT OF PUBLIC HEALTH, AND ANY OTHER AUTHORITIES WITH JURISDICTION, AND AS APPROVED BY LANDSCAPE ARCHITECT/ENGINEER.
- 3.04 TESTING/FIELD QUALITY CONTROL
  - A. THIS SECTION REQUIRES THE FOLLOWING TESTS TO BE PERFORMED BY THE CONTRACTOR.
  - B. CONCRETE: TEST TO MEASURE SLUMP, ENTRAINED AIR CONTENT AND COMPRESSIVE STRENGTH SHALL BE CONDUCTED BY INDEPENDENT TESTING LABORATORY OF THE CONTRACTOR
  - 1. COMPRESSIVE STRENGTH TEST: PROVIDE MINIMUM OF 4 TEST CYLINDERS PER 50 CUBIC YARD OR FRACTION THEREOF FOR EACH CLASS OF CONCRETE POURED EACH DAY. COMPLY WITH ACI-318, SUB-SECTION 4.3 (SAMPLES SECURED - ASTM C172, CYLINDERS PREPARED AND CURED - ASTM C31, AND TESTED -ASTM C39), IDENTIFY SAMPLES. MOIST CURE AT 70 DEGREES F FOR FIVE DAYS AND SHIP SAMPLES TO THE LABORATORY.
  - 2. SLUMP AND AIR CONTENT TESTS: PERFORM THESE TESTS ON CONCRETE FROM THE SAME BATCH AS SAMPLED FOR STRENGTH TESTS AND WHENEVER THERE IS CONSISTENCY OF CONCRETE. SLUMP TEST SHALL BE MADE IN ACCORDANCE WITH ASTM C143. AIR CONTENT TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM C231. IF MEASURED SLUMP OR AIR CONTENT FALLS OUTSIDE SPECIFIED LIMITS, CHECK SHALL BE MADE IMMEDIATELY ON ANOTHER PORTION OF SAME SAMPLE. IN EVENT OF A SECOND FAILURE, CONCRETE SHALL NOT BE USED.
  - 3. COMPLIANCE:
  - a. AVERAGE OF ANY THREE CONSECUTIVE STRENGTH TESTS FOR EACH CLASS OF CONCRETE SHALL BE EQUAL TO OR GREATER THAN SPECIFIED STRENGTH, AND NO INDIVIDUAL TEST SHALL FALL MORE THAN 500 PSI BELOW SPECIFIED STRENGTH.
  - b. WHEN TESTS RESULTS ARE BELOW SPECIFIED REQUIREMENTS OR WHEN TESTS OF FIELD CURED CYLINDERS INDICATE DEFICIENCIES IN PROTECTION AND CURING, LANDSCAPE ARCHITECT/ENGINEER MAY REQUIRE ADDITIONAL TESTS IN ACCORDANCE WITH ACI-318. SUBSECTION 4.3.

3.05 CLEAN UP AND PROTECTION

A. AFTER WORK OF THIS SECTION HAS BEEN COMPLETED, CLEAN-UP WORK AREAS AND REMOVE ALL EQUIPMENT EXCESS MATERIALS AND DEBRIS. PROTECT POOL FROM DAMAGE UNTIL TIME OF FINAL ACCEPTANCE. REMOVE AND REPLACE FINISHES WHICH ARE CHIPPED, CRACKED, ABRADED, IMPROPERLY ADHERED, OR OTHERWISE DAMAGED.

