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**Ready Mix Concrete**

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July 18, 2023	Modification of Section 6.1 b

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Item No.: 038-44668

Asset Suite: 56209

Originating Department: Distribution Engineering



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## **Ready Mix Concrete**

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### **1. Introduction**

This is a general specification of the mixed concrete used in the distribution system in Puerto Rico. Further information will be provided by LUMA Energy at the time of order placement and will provide information on site specific conditions, quantity, and other requirements. This document includes the general electrical and mechanical characteristics of the material.

### **2. Special Requirements**

This material will be received at the place indicated by LUMA and will include transportation and unloading.

### **3. Literature**

Descriptive and technical literature must be supplied by vendor at time of bidding. This literature may include, but is not limited to details of material, documented testing, and instructions for use and installation. Failure to submit documents on time will cause bidder disqualification. For products described in this specification as requiring qualification, awards will be made only for such products that, prior to the time for opening of bids, had been tested and/or approved by LUMA.

### **4. Compatible with**

- 4.1. Star Ready Mix
- 4.2. Promix Planta
- 4.3. Concrete Tech Inc.
- 4.4. Quality Concrete-Mix Inc.
- 4.5. Cemex Puerto Rico
- 4.6. Master Concrete

### **5. Acceptance Criteria**

- 5.1. Test required: certified by external qualified laboratories.
- 5.2. Latest applicable codes, standards, and other regulations and local standards by utilizing statistical control of established internal chemical and physical quality objectives.

ASTM            American Society for Testing and Materials

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AASHTO American Association of State Highway and Transportation Officials

ACI American Concrete Institute

**6. Description**

- 6.1. Concrete Mixes shall be proportioned to produce the strength, durability and workability required by the approved mix design. The manufacturer shall submit his proposed mix designs to LUMA for approval at least six weeks before manufacturer is due to commence. LUMA may direct the manufacturer to undertake trial mixes and strength, durability, and workability tests to prove that the proposed mixes are acceptable. Such trial mixes and tests shall be carried out prior to placement of concrete in the works and their costs shall be borne by the manufacturer. Unless otherwise specified or approved by LUMA, concrete shall have the following properties:
- a. Maximum Water Cement Ratio by Weight: 0.40.
  - b. The minimum characteristic compressive strength for  $F'c$  at 28 days from about 3,000 psi (minimum).
- 6.2. The manufacturer shall keep at the mixing site, records showing for each batch of concrete produced, the time and date of water addition, the weight of cement, weight of each grade of aggregate, weight of added water, results of tests made to determine the water contained in the aggregate, the results of any strength tests and the location of concrete in the works. These records shall be made available to LUMA.
- 6.3. The proportions of aggregate and cement for any concrete shall be such as to produce a mix which will work readily into corners and angles of the forms and around reinforcement, if applied, with the method of placing employed on the work, but without permitting the materials to segregate or water to collect on the surface.
- 6.4. Water shall be accurately measured by a calibrated tank or by an approved type of calibrated water meter attached to the mixer. Certification of water meter calibration shall be supplied to LUMA upon request.
- 6.5. Mixing shall be by an efficient type of batch mixer operated at the speeds recommended by the manufacturer with particular regard to the use of low slump concrete. All concrete shall be mixed for a period of not less than 2 minutes after all materials including water are placed in the mixer.
- 6.6. No concrete that has reached its initial set (partially hardened) or that has left the mixer or agitator for more than 30 minutes shall be placed in the structure. Remixing shall not be permitted.

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- 6.7 Ready-mixed concrete complying with ASTM C94 - Ready Mixed Concrete and the requirements of this Specification, whether manufactured in a plant operated by the manufacturer or approved Subcontractors, may be used.

**7. Formwork**

- 7.1. All forms shall be built mortar-tight, of sufficient rigidity and adequately supported to prevent distortion or displacement due to the pressure of the concrete and other loads incidental to the construction operations. Forms shall be constructed and maintained to prevent warping and the opening of joints due to shrinkage of the timber.
- 7.2. Forms shall be built with provision for easy inspection and cleaning out immediately before concrete is placed.
- 7.3. A high standard of finish is required, and surfaces of precast, spun, and prestressed concrete members shall be true, hard, smooth, and free from any defects due to leakage of mortar from the molds.
- 7.4. Every care shall be taken to ensure that no marks or fins appear on the finished surface.
- 7.5. The inside of forms shall be thoroughly wetted or coated with non-staining form release oil or other approved material. Where oil or surfacing material is used, it shall be applied before the reinforcement is placed.
- 7.6. When forms have become warped, damaged, or burred so that in the opinion of the Superintendent the surface or dimensional tolerances of the concrete will not be satisfactory, the manufacturer shall, when so directed by LUMA, remove such forms, and replace them with forms or form panels satisfactory in all respects.
- 7.7. Forms shall be removed so as not to damage the concrete.

**8. Delivery of material:**

The manufacturer shall coordinate with LUMA date, time, and place to ensure a smooth and efficient delivery of ready-mixed concrete. These deliveries will be coordinated and approved.

**9. Inspection**

The acceptance of any material or equipment shall in no way relieve the vendor from his responsibility to meet all the requirements of this specification, and it would not prevent subsequent rejection if such materials were found later to be defective.

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### **10. Proposal Information**

10.1. Submitted proposals must include:

- a. Technical information
- b. Table of Compliance completed by the bidder with reference. (See Appendix 1)

**— End of Specification —**

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**Appendix**

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**Appendix 1: Table of Compliance**

Line	Criteria	Description	Pass/Fail (P/F)	Comments
1	Specification	The Proponent complies with the corresponding specification document.		
2	Industry Standards	The Proponent complies with the industry standards established in the specification document. (ASTM 694, AASHTO, ACI)		
3	Maximum Water Cement Ratio by Weight	0.40		
4	Compressive Strength at 28 days	3,000 PSI (minimum)		











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Final Audit Report

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