

Guide Specifications For 100% Lightweight Masonry Units (Less than 93 pcf)

PART 1-GENERAL

A. Concrete masonry units shall be of modular dimension, shall be of uniform appearance and shall be delivered to the project site in an air-dried condition. Units shall be manufactured with cement and 100% STALITE Expanded Slate Lightweight Aggregate conforming to ASTM C 331 and C 330.

1. LEED OR RECYCLED CONTENT PROJECTS: As directed by the Architect. Units shall be manufactured complying to the 500 mile job site radius with 100% STALITE Expanded Slate Lightweight Aggregate. Lightweight aggregates shall be certified by an independent testing facility recognized by USGBC verifying that the lightweight aggregate meets all requirements for 100% pre-consumer recycled waste aggregate content. The use of recycled concrete block, waste concrete without proper independent testing of the crushed material as an aggregate conforming to ASTM C 331 and/or ASTM C 330 shall not be allowed.

B. LIGHTWEIGHT CONCRETE MASONRY UNITS: Concrete masonry units shall comply with referenced standards as follows:

1. Load-Bearing Units: ASTM C 90 latest edition. Units shall not exceed 93 pcf density using 100% STALITE Expanded Slate Lightweight Aggregate conforming to ASTM C 331 and C 330, or ESCSI SmartWall System using approved rotary kiln expanded shale, clay or slate aggregates.
2. Size: Standard units with nominal face dimensions of 8 inches high x 16 inches long and nominal depths as indicated on the drawings for specific locations.
3. Special Shapes: Provide non-standard blocks configured for corners, lintels and other detailed conditions.
4. Job Site Testing: Per the request of the Architect, a random sample of the concrete masonry units may be taken from the job site to be tested for compliance with the specifications.

C. LIMITS OF CONCRETE MASONRY UNITS MATERIAL USE: WARNING

1. All units shall be free of organic impurities that will cause rusting, staining or pop outs and shall contain NO combustible matter. The use of coal ash aggregate/bottom ash, cinders or similar waste products SHALL NOT be allowed. The use of Fly Ash contained within the cement paste may be used at the manufacturer's discretion.
2. All 8 inch deep or larger units shall meet ACI 216 requirements for a two-hour or greater fire rating (as required).
3. Aggregate: 100% Stalite rotary kiln expanded slate conforming to ASTM C 331 and C 330 with 12% maximum absorption when tested in accordance with ASTM C 128.

4. CERTIFICATION: The producer of the lightweight concrete masonry units shall furnish a letter of certification stating:
 - a. All lightweight aggregate used in the manufacture of the units was expanded slate produced by the rotary kiln process, STALITE or approved equal conforming to ASTM C 331 and C 330 with 12% maximum absorption when tested in accordance with ASTM C 128.
 - b. ASTM C 90 test and certification
 - c. Submit with Certification, a Certificate by an independent testing facility recognized by USGBC that the lightweight aggregate is 100% pre-consumer recycled waste aggregate content.
 - d. ACI 216 fire rating calculations
- D. CONCRETE BRICK: ASTM C 55
 1. Cored or solid
 2. Size: As indicated on drawings

PART 2-REFERENCES

ACI 216.1/TMS 0216.1 – Standard Method for Determining Fire Resistance of Concrete and Masonry Construction Assemblies

ACI 530/ASCE 5/TMS 402 – Building Code Requirements for Masonry Structures

ACI 530.1/ASCE6/TMS 602 – Specification for Masonry Structures

ASTM C 55 – Standard Specification for Concrete Brick

ASTM C 90 – Standard Specification for Loadbearing Concrete Masonry Units

ASTM C 128 – Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate

ASTM C 140 – Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units

ASTM C 330 – Standard Specification for Lightweight Aggregates for Structural Concrete

ASTM C 331 – Standard Specification for Lightweight Aggregates for Concrete Masonry Units

NOTE: Typical Jobsite Block Weights for 100% Lightweight Concrete Masonry Units:

4x8x16 -- 18 lbs.

6x8x16 -- 23 lbs.

8x8x16 -- 26 lbs.

12x8x16 -- 36 lbs.

