

## THERMAL PERFORMANCE OF Q-LITE® CONCRETE MASONRY UNITS

Concrete masonry construction provides a unique combination of load carrying capability and excellent thermal performance in a cost competitive wall system. With Q-LITE concrete masonry units, the benefits are even greater. Q-LITE concrete masonry units are manufactured using lightweight aggregates produced by Arcosa Lightweight.

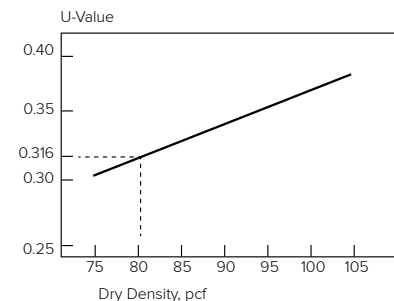
Arcosa Lightweight aggregates are the PREMIUM choice, manufactured in compliance with A.S.T.M. C 331, "Specification for Lightweight Aggregates for Concrete Masonry Units". The superior quality of Arcosa Lightweight gives the Q-LITE units their excellent thermal characteristics. Because the insulating value of concrete is largely a function of concrete density, the lightweight Q-LITE units have a built-in advantage. An 8X8X16 Q-LITE unit weighs only 23 pounds – less than other "lightweight" blocks – resulting in an "R" value that is 27% higher than that of 28 pound units. And because lightweight aggregates themselves have better thermal qualities than other aggregates, Q-LITE units have an extra advantage.

Tests conducted by an independent laboratory show Rotary Kiln lightweight aggregate has an Apparent Thermal Conductivity of 0.794 BTU in/hr °F ft<sup>2</sup>, or a Thermal Resistance of 1.26 hr °F ft<sup>2</sup>/BTU in. The values for typical lightweight aggregates are 1.0 and 1.0, respectively. The chart on the right shows the effect of concrete density on the thermal resistance of 8X8X16 concrete masonry units, based on calculations using the Series Parallel Method. This is the calculation method recommended by ASHRAE and the National Concrete Masonry Association.

### Suggested Specifications

Lightweight Concrete Masonry Units (CMUs) shall be Q-LITE CMUs conforming to the requirements of ASTM C 90, "Specification for Load-Bearing Concrete Masonry Units". The units shall be Type II, Nonmoisture Controlled Units. The producer of the Q-LITE lightweight concrete masonry units shall supply a current certification that all concrete masonry units use rotary kiln expanded clay, shale or slate aggregates produced by Arcosa Lightweight., conforming to ASTM C 331, "Specification for Lightweight Aggregates for Concrete Masonry Units". Natural aggregates shall conform to ASTM C 33 "Specification for Aggregates for Concrete". The mix design used in manufacturing the Q-Lite concrete masonry units shall include not less than 70% expanded clay aggregate (all gradations) and not more than 30% local natural aggregates (all gradations), by volume.

### U-Values for 8-Inch Hollow CMU



Reference: NCMA Concrete Masonry R Value Program



[www.arcosalightweight.com](http://www.arcosalightweight.com)