

# FIRE RESISTANCE OF Q-LITE® CONCRETE MASONRY UNITS

Concrete masonry walls have long been recognized for their superior fire resistance. With Q-LITE concrete masonry units, superior fire resistance is guaranteed. Building codes are very specific in the degree of fire protection required in various areas of buildings.

One of the most common fire ratings for walls of commercial, industrial and multifamily residential buildings is the TWO-HOUR fire rating. Q-LITE 8X8X16 concrete masonry units have been tested and certified by Underwriters' Laboratories, Inc. to have a TWO-HOUR fire resistance rating with a minimum equivalent thickness of 3.8 inches. The method of test is described in A.S.T.M. E 119, "Standard Method of Fire Tests of Building Construction and Materials".

Copies are available on request. Q-LITE concrete masonry units of other sizes can be shown to have similarly superior fire resistance using the National Concrete Masonry Association's "Standard Method of Determining the Fire Resistance Rating of Concrete Masonry".

Table 1 shows the fire resistance rating for various sized of Q-LITE concrete masonry units. Q-LITE concrete masonry units are manufactured using rotary kiln expanded clay, slate and shale lightweight aggregates produced by Arcosa Lightweight, America's Leader in Lightweight Aggregate, are the PREMIUM lightweight aggregates, manufactured in compliance with A.S.T.M. C-331, "Specification for Lightweight Aggregates for Concrete Masonry Units".

## 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.

| Unit Size               | Minimum Equivalent Thickness, Inches | Fire Rating, Hours |
|-------------------------|--------------------------------------|--------------------|
| 4 X 8 X 16              | 2.7                                  | 1                  |
| 6 X 8 X 16              | 2.7                                  | 1                  |
|                         | 3.8                                  | 2                  |
| 8 X 8 X 16 & 8 X 8 X 24 | 3.8                                  | 2                  |
|                         | 4.7                                  | 3                  |
|                         | 5.4                                  | 4                  |
| 12 X 8 X 16             | 5.4                                  | 4                  |

Reference: NCMA TEK 7-1A, Fire Resistance Rating of Concrete Masonry Assemblies.

## Calculating Equivalent Thickness

Equivalent thickness is the solid thickness that would be obtained if the same amount of concrete contained in a hollow unit were re-cast without core holes. If this hollow unit is 50% core voids:



Its equivalent solid thickness is 4"

