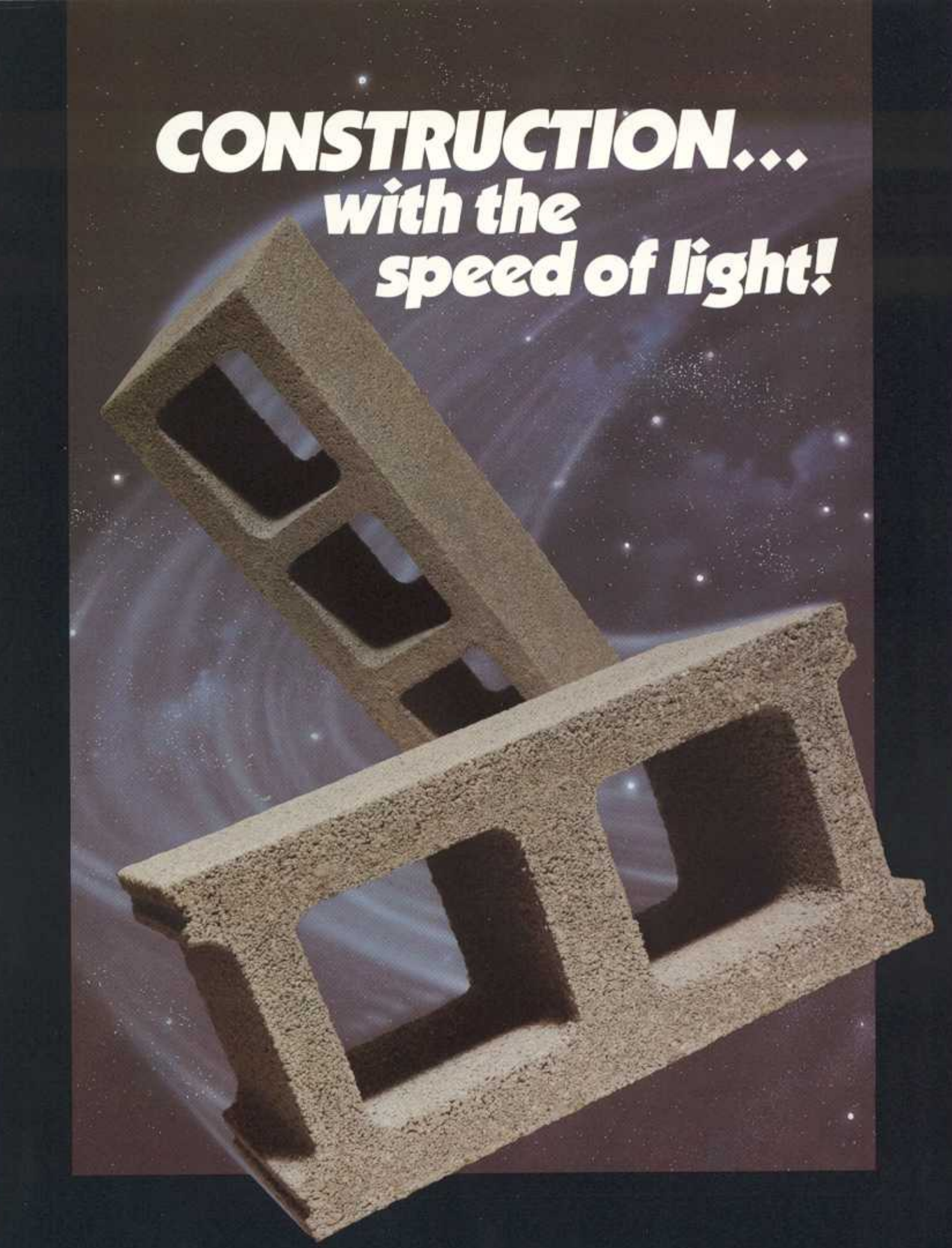
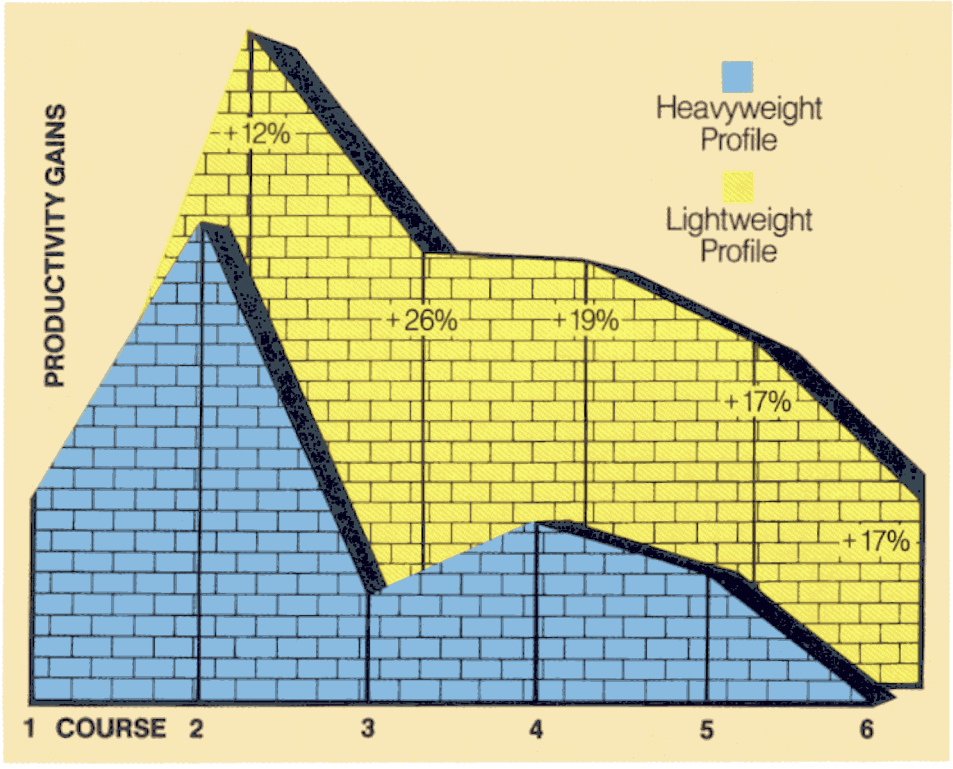

CONSTRUCTION...
with the
speed of light!

Rotary Kiln Lightweight Aggregate Masonry

Field Test: 8"x 8"x 16" Productivity



Laboratory Test: Productivity Comparison Tables

1. Size Factor: 24" Blocks vs. 16" Blocks

SIZE	TYPE	COURSES	SEC./UNIT	BLK/HR.	RATE (SQ. FT./HR)	RATE CHANGE
16"	LW	Avg. of 6	41.6	86.5	76.9	
24"	LW	Avg. of 6	43.5	82.8	110.4	+43.6%
16"	HW	Avg. of 6	47.8	75.3	66.9	
24"	HW	Avg. of 6	51.6	69.8	93.1	+39.0

2. Weight Factor: Lightweight vs. Heavyweight

SIZE	TYPE	COURSES	SEC./UNIT	BLK/HR.	RATE (SQ. FT./HR)	RATE CHANGE
24"	HW	Avg. of 6	51.6	69.8	93.1	
24"	LW	Avg. of 6	43.5	82.8	110.4	+18.6
16"	HW	Avg. of 6	47.8	75.3	66.9	
16"	LW	Avg. of 6	41.6	86.5	76.9	+14.9

3. Size & Weight Factors Combined: 24" Lightweight vs. 16" Heavyweight

SIZE	TYPE	COURSES	SEC./UNIT	BLK/HR.	RATE (SQ. FT./HR)	RATE CHANGE
16"	HW	Avg. of 6	47.8	75.3	66.9	
24"	LW	Avg. of 6	43.5	82.8	110.4	+64.9

Average lightweight unit density is 93 lbs/cf • Average heavyweight unit density is 130 lbs/cf

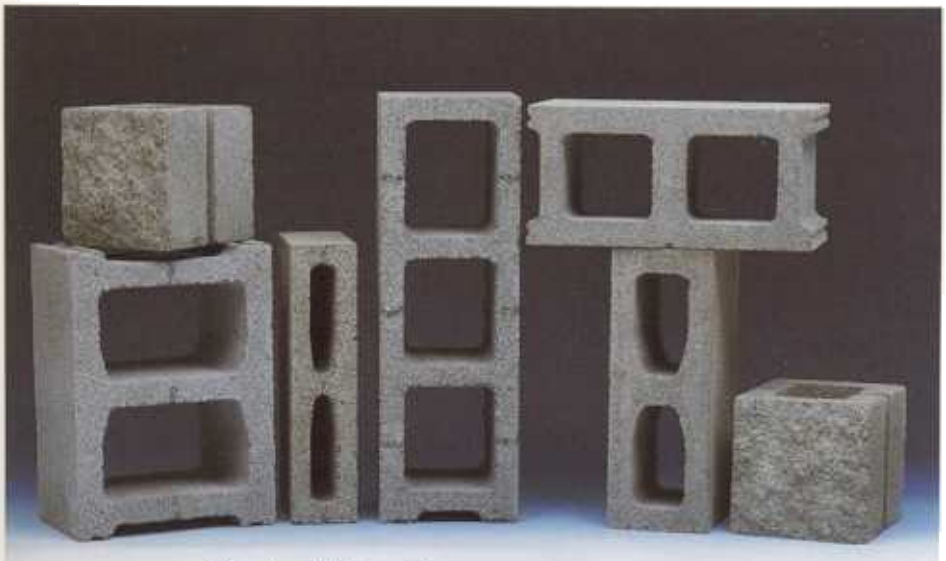
The masonry process is perceived to be one of the most labor intensive aspects of construction today. Since masonry units (blocks) must be handled and placed one-by-one, increased mason productivity is the key to effective management of masonry construction. In tests conducted both in the field and at the National Concrete Masonry Association Research and Development Laboratory, it has been dramatically shown that the size and weight of masonry units are primary factors influencing the speed at which blocks can be laid.

The test results confirm that *lightweight block made with expanded shale, clay or slate aggregate significantly increased mason productivity* over heavyweight units, especially when 24" units were used. These facts alone make lightweight block walls cost competitive with any other wall system. But considering the reduced structural loading, better fire rating, greater strength, and much better thermal insulating and sound absorbing properties, lightweight concrete blocks are more than cost competitive. They are cost effective.

Aesthetically

The productivity gained with 8"x 8"x 16" (standard size) lightweight block is represented by the "Field Test" graph. Although pro-

. . . the smart way to conquer time and space.



Standard lightweight masonry units

ductivity improvement varied from course to course, the graph shows there was a significant overall increase in productivity with the lightweight units.

The Productivity Comparison Tables are based on laboratory data compiled during the construction of four wall sections. The figures shown reflect averages for all six courses of each wall section.

Table 1 (Size Factor) compares 24" masonry units to 16" units. The table shows that the use of 24" masonry units significantly increases mason productivity: 39% with heavyweight units; 43.6% with lightweight units.

easing surface

In Table 2 (Weight Factor) the gains in productivity attributed to lighter weight are shown. Productivity increased 14.9% with 16" lightweight units, and 18.6% with 24" lightweight units as compared to heavyweight units of the same sizes.

The test firmly establishes that masonry units of lighter weight and greater length dramatically increase mason productivity. Table 3 (Size & Weight Factor) compares the use of heavyweight 16" units to lightweight 24" units over the same time period. The result is an amazing 64.9% increase in productivity.

Although not specifically identified in the test, it is logical to believe that the use of lightweight units reduces the long term fatigue experienced by masons during the life of a job. This should result in even greater increases in productivity and improved mason morale.

In short, the use of expanded shale clay or slate lightweight masonry units is better business 100% of the time.

Construction with the speed of light. It's the smart way to conquer time and space.

Comments

"Using lightweight block, rather than heavyweight, has increased our production and quality of work, as well as created a better attitude and higher morale among our masonry crews. We also have less breakage with lightweight."

Danny A. Batten, President
Consolidated Masonry Systems, Inc.
Garner, North Carolina

"As structural engineers for Wal-Mart Corporation it is our responsibility to help choose construction systems that are no compromise to quality or safety, and which lend themselves to rapid and economical construction. Concrete masonry units are attractive, economical, and provide fire safety, longevity, and lower insurance rates. They also have the structural capacity to carry gravity, wind and earthquake loads without backup support.

"We specify lightweight concrete masonry units for all Wal-Mart stores because masons may handle many more units per day without fatigue. Lightweight units weigh about 1/3 less than heavyweight units, so productivity is naturally increased. Maximum productivity is an advantage that we desire in each store built."

Tom Wallace, P.E.
Wallace Engineering
Structural Consultants Inc.
Tulsa, Oklahoma

"With 8x8x16 inch lightweight masonry units we can see at least a 15% increase in mason productivity. With 12x8x16 inch lightweight units the increase is more like 35-40%. Time is money, and lightweight saves both."

Bill Merillat
Jayhawk Masonry
Topeka, Kansas

For more information about the advantages of lightweight concrete masonry, or the tests referenced in this brochure, contact your local producer of Expanded Shale, Clay or Slate lightweight aggregate.

For more information on the advantages of lightweight masonry made with expanded shale, clay or slate, contact any member listed above or:

Expanded Shale Clay & Slate Institute

2225 East Murray Holladay Road, Suite 102, Salt Lake City, Utah 84117
(801) 272-7070 / FAX (801) 272-3377

The National Concrete Masonry Association, the Expanded Shale, Clay and Slate Institute, and Masonry Consultants make no claims, express or implied, as to the relevance of production rates determined as a result of this limited investigation to actual production rates which may be expected under actual job site conditions.
Results of this study shall not be used for estimating purposes and may not be reproduced without written approval of the sponsoring organizations.