

March 22, 2006

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Freight House Road
West Brookfield, MA 01585-1000

**Subject: Flexural design consideration of 8" Hi-R insulated masonry walls
vs. 8" Korfil insulated CMU walls.**

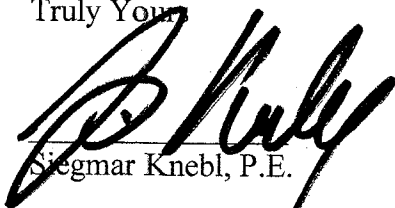
Dear Mr. Nickerson,

As requested we reviewed a research report titled "Research Investigation of the Structural Properties of Korfil Hi-R Concrete Masonry", dated March 1986, only in regards to recommended flexural design considerations. Our comments are as follows:

1. The report indicates that 4' x8' wall panels were tested based on simple span condition with out-of-plane uniform loads applied against the wall faces. These flexural wall tests were conducted in 4 sets consisting of three tests each. Two sets were reinforced with #4 @ 24" and reinforcement depths of 2.5" and 5" respectively. The other two sets were similar except the reinforcement was #6 @ 24".
2. Test results showed that flexural wall capacity depends on the direction of applied load.
 - a. **Load applied against grouted side:** A lower flexural strength resulted due to a smaller reinforcement depth (d). With Korfil II $d=3.8"$ vs. $d=2.5"$ for Hi-R. Rational engineering design may be used to adjust for required loads (increasing steel ratio etc.). Assuming the same reinforcement, the Hi-R insulated wall has approximately a 34% lower flexural capacity. The test indicated a flexural failure mode.
 - b. **Load applied against insulated side:** A higher flexural wall strength resulted due to a larger reinforcement depth (d). With Korfil II $d=3.8"$ vs. $d=5"$ for Hi-R. Assuming the same reinforcement, the Hi-R insulated wall has approximately a 31% higher flexural capacity. The test indicated a shear failure mode. Ultimate failure happened at the compression side. Face shells spalled off where the reduced block webs connect to the face shells.

A copy of the flexural wall test results is herewith attached. If you have any questions, let us know.

Truly Yours



Siegmар Knebl, P.E.

Attachments: (1) page

sk/0614/CBIS

KORFIL Hi-R WALLS
 01-28-86

ENGLEKIRK & HART INC.
 JOB #: 85-G138

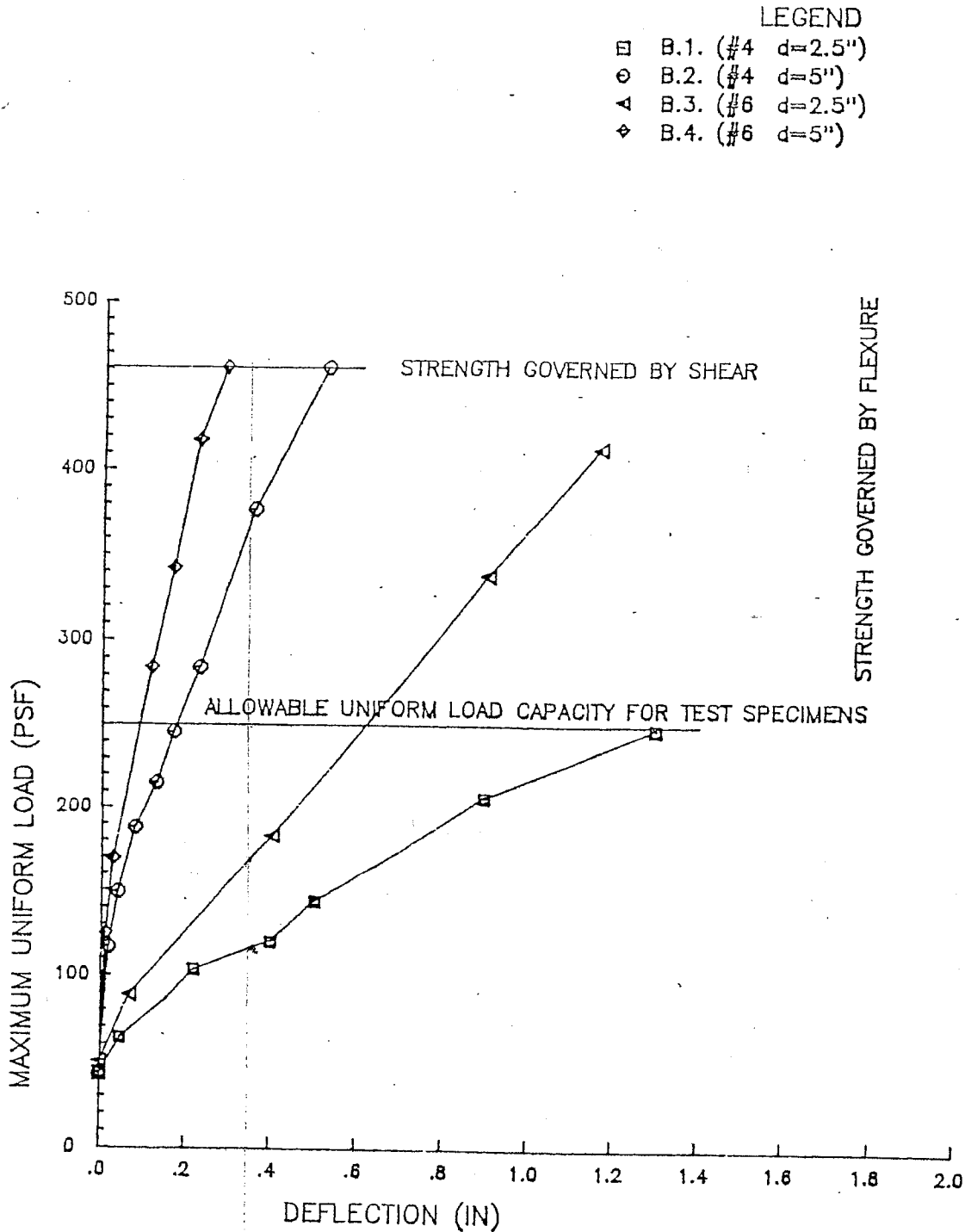


FIG 5.2.1 FLEXURAL WALL TESTS (B)