

TENSILE BOND STRENGTH OF 60 MILS LIQUID BOOT® VAPOR BARRIER TO CONCRETE

EXECUTIVE SUMMARY

A series of flatwise tensile bond strength laboratory tests were conducted on samples of CETCO LIQUID BOOT® 60 mils vapor barrier and concrete. The results showed an average maximum load of 80 lbs and an average tensile/bond strength of 7 psi. All failures were seen within the specimen and not at the bonded seam.

OBJECTIVE

The objective of this experiment is to test the tensile bond strength of LIQUID BOOT® 60 mils vapor barrier to concrete.

PROCEDURE

Samples were submitted to the lab of 6" × 12" × 1 ½" thick concrete blocks covered with 60 mil thick LIQUID BOOT® vapor barrier and BASEFABRIC™ geotextile. The samples were prepared by first spraying LIQUID BOOT® vapor barrier onto BASEFABRIC™ geotextile and allowed to cure. The concrete was then poured over LIQUID BOOT® vapor barrier with BASEFABRIC™ geotextile backing.

A flatwise tensile bond strength test was performed on the specimen under the procedure of ASTM C 297-94. To begin the test, five 3-inch square steel plates were adhered to the top surface of the specimen. The membrane was then cut along the steel plates through to the concrete surface resulting in a specimen test area of 9 square inches. The LIQUID BOOT® vapor barrier/BASEFABRIC™ geotextile specimens were partially separated from the concrete block a length of 1 inch and individually secured to an Instron UTM (Universal Testing Machine) with the 'flap' in one grip, the concrete block affixed to the other grip and pulled in tension at a constant rate of crosshead separation of 0.02 inches per minute until failure.

RESULTS AND DISCUSSION

TABLE 1. RESULTS OF THE INSTRON UTM TEST		
SPECIMEN NUMBER	MAXIMUM LOAD (LBS)	TENSILE/BOND STRENGTH (PSI)
1	93	10
2	84	9
3	57	6
4	75	8
5	92	10
AVERAGE:	80	7

All five specimens tested resulted in 100% cohesive failure within the membrane. Failures were not seen at the bonded area.

ATTACHMENT

SGS United States Testing Company, Inc., Report No. 94760-R3, dated September 21, 2004



CLIENT: LBI TECHNOLOGIES INC.
1001 S. Linwood Avenue
Santa Ana, CA 92705
Attn: James Wang

Test Report No: 94760-R3

Date: September 21, 2004

SAMPLE ID: The following test material was submitted and identified by the Client:
Flatwise tensile bond strength samples consisting of eight, 6-inch by 12-inch by 1¼-inch thick concrete blocks with 60 mil thick Liquid Boot® with Geotextile applied to one surface.

DATE OF RECEIPT: Entered into SGS U.S. Testing Company sample tracking system on April 28, 2004 and was assigned Sample Tracking Number 37863.

TESTING PERIOD: May 5 through 27, 2004.

AUTHORIZATION: Signed Order Confirmation dated April 30, 2004.

TESTS REQUESTED: Perform flatwise tensile bond strength tests per ASTM C 297-94 (Reapproved 1999), "Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions".

TEST RESULTS: See pages 2.

Prepared By

Larry Burmer
Project Engineer

**Signed for and on behalf of
SGS U.S. Testing Company Inc.**

Greg Wrona
Manager Hardlines

Page 1 of 2

This report is issued by SGS U.S. Testing Company Inc. under its General Conditions for Testing Services (copy available upon request). SGS U.S. Testing's responsibility under this report is limited to proven negligence and will in no case be more than the amount of the testing fees. Except by special arrangement, samples are not retained by SGS U.S. Testing for more than 30 days. The results shown on this test report refer only to the sample(s) tested unless otherwise stated, under the conditions agreed upon. Anyone relying on this report should understand all of the details of the engagement. Neither the name, seals, marks nor insignia of SGS U.S. Testing may be used in any advertising or promotional materials without the prior written approval of SGS U.S. Testing. The test report cannot be reproduced, except in full, without prior written permission of SGS U.S. Testing Company Inc.