Inchcape Testing Services
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DATE	February 16, 1994
Revised:	February 14, 1996
REPORT NO.	284-4328-1 Revised
CLIENT NO.	L19154
DESCRIPTION	Dynamic (Drop) Tests on Safety Line Straps
CLIENT	Safe-T-Strap 20 Bermondsey Road Toronto, Ont. M4B 1Z5 ATTN: Mr. Richard Vallance

INTRODUCTION

This report covers dynamic (drop) tests carried out on nine (three sets of three) safety line straps (fastened to sections of either single 2 x 4's, 2 x 6's doubled up or 2 x 6's doubled up with 5/8" plywood samples, submitted by the client) and tested on February 14 to 16, 1994 in our laboratory. Testing was performed in basic accordance with the procedures outlined in CAN/CSA-Z91-M90 Section 7.2.2.2 (b).

TEST SPECIMENS

The safety line straps were 38" in length by 1-13/16" (2" nominal) wide webbing with a 3/8" thick, 2-1/2" nominal "D" ring held by a stitched loop formed by the webbing. The other end of the strap was folded and stitched in place. Nails were driven through this end of the strap to anchor the strap to the wood.

TEST SET NO. 1

Three safety line straps were tested nailed to 20" long pieces of spruce 2 x 4. The straps were fastened using 3" ardox nails. Two nails were used to fasten the start of the strap to the wood (4" face). The protruding ends of the nails were bent over, and the strap wrapped once around the 2 x 4. A third nail was used to fasten the ends of the first loop to the wood, passing through both strap surfaces, the protruding end of the nail being bent over. The strap was wrapped another half time around the 2 x 4 before the wood was clamped into a rigid steel test fixture. The 2 x 4 was orientated with the 4" face vertical and the free end of the strap hanging downward in the test position (see illustration).

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TEST SET NO. 2

A second set of three safety line straps were tested nailed to 20" long pieces of doubled up spruce 2 x 6. The two pieces of 2 x 6 were nailed together using four 3" ardox nails. The end of a strap was then fastened to the wood (6" face) using two 3" ardox nails through the stitched fold of the strap. The strap was wrapped once around the doubled up 2 x 6's and a third nail used to fasten the end of the first loop to the wood, the nail passing through both strap surfaces. The strap was wrapped another quarter turn before it was clamped into the test fixture. The doubled up 2 x 6 was orientated with the 6" face horizontal and the free end of the strap hanging downwards in the test position (see illustration).

TEST SET NO. 3

The third set of three safety line straps were tested nailed to doubled up 2 x 6's as above, but with a layer of 5/8" plywood nailed (using four 3" ardox nails) to the 6" face of the 2 x 6 that the straps were fastened to (simulating installation on a floor).

A 3" ardox nail was inserted through the folded stitched end (small loop present at end of fold). Four double headed 3" common nails were then driven through this end (see illustration). The strap was not wrapped around the wood in this case. The wood was clamped into the steel test fixture with the 6" face horizontal and plywood side upwards. The free end of the strap hung vertically downward off the edge of the wood in the test position (see illustration).

TEST APPARATUS

The test apparatus consisted of the steel test fixture mentioned above which consisted of two horizontal sections of 4" channel spaced 16" apart on center onto which the test samples were clamped, the fixture being rigidly fixed to a steel column at a height of 12 feet above the floor, a 3/8" wire rope measuring 6 feet in length which was attached to the "D" ring of the safety line strap, a 225 lb lead weight (attached to the other end of the wire rope), a means of raising the 225 lb weight 4 feet above its 'at rest' hanging position, and a release mechanism to instantly drop the weight from its suspended position.

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PROCEDURE

Each test specimen was set-up in the steel test fixture. The weight was attached to the safety line strap via the wire rope. The distance of the weight above the floor was measured at this hanging 'at rest' position. The weight was then raised 4 feet from this position and dropped. The test criteria were met if the safety line strap, along with its fastening means, could support the falling weight.

RESULTS

Test No.	Type of Set-up	Fasteners	Number of Wraps	Comment
1	Single 2" x 4"	Three 3" ardox	1 1/2	Passed
2	Single 2" x 4"	Three 3" ardox	1 1/2	Passed
3	Single 2" x 4"	Three 3" ardox	1 1/2	Passed
4	Double 2" x 6"	Three 3" ardox	1 1/4	Passed
5	Dobble 2" x 6"	Three 3" ardox	1 1/4	Passed
6	Double 2" x 6"	Three 3" ardox	1 1/4	Passed
7	Double 2" x 6" 5/8" sheathing	Four 3" double headed, one 3" ardox through loop	1/4	Passed
8	Double 2" x 6" 5/8" sheathing	Four 3" double headed, one 3" ardox through loop	1/4	Passed
9	Double 2" x 6" 5/8" sheathing	Four 3" ardox headed, one 3" ardox through loop	1/4	Passed

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COMMENTS

The safety line straps submitted for dynamic (or drop) testing in basic accordance with CAN/CSA-Z91-M90 Section 7.2.2.2 (b) were able to support the dynamic loads imposed on them and therefore met the requirements of CAN/CSA-Z91-M90 Section 7.2.2.2. (b). The wood was supplied and the straps fastened to the wood by the client.

Respectfully submitted
INCHCAPE TESTING SERVICES NA LTD.

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