



**HITE ENGINEERING CORPORATION**  
**CONSULTING ENGINEERS**

**DYNAMIC LOAD TESTING OF SAFE-T-STRAP  
ATTACHED TO A RESIDENTIAL TIMBER TRUSS  
AND USED FOR THE ATTACHMENT OF FALL  
ARREST EQUIPMENT**

**Prepared for:**  
**SAFE-T-STRAP**  
**333 Frankcom Str.**  
**Ajax, Ontario L1S 1R4**

**Prepared by:**



**Ralph Balbaa, M.Eng., P.Eng.,**  
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**May 8, 2002**

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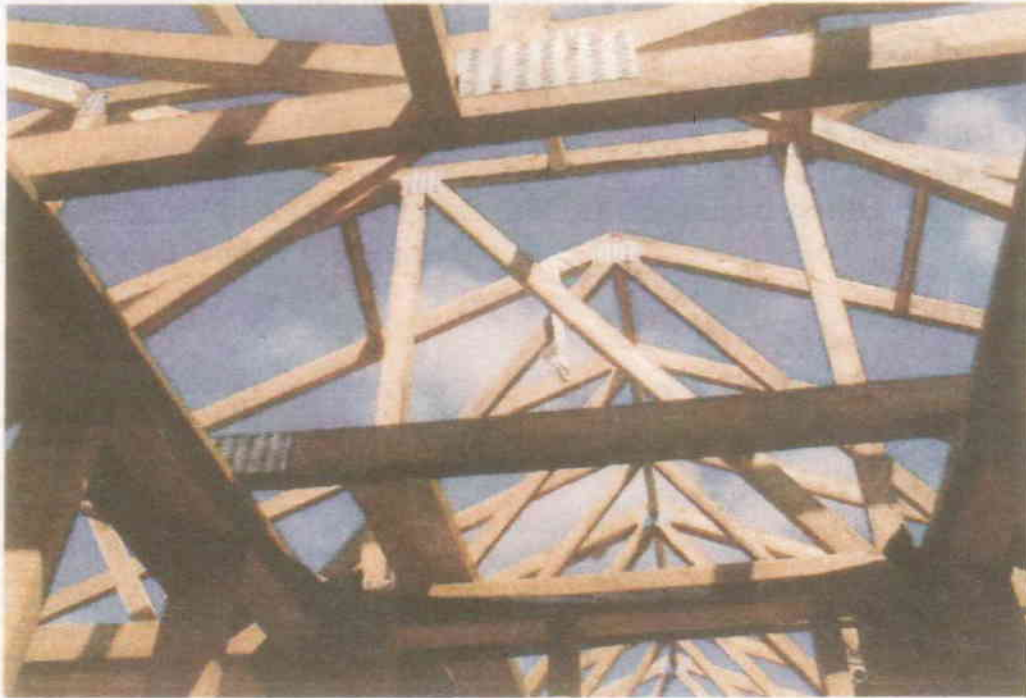
### 1- Purpose of Test

The purpose of the load test was to determine whether a 2" wide Safe-T-Strap attached to a residential timber roof truss close to the truss ridge, would sustain the fall arrest forces of a worker attached to the strap.

The testing was conducted on a residential construction site in Bowmanville on Friday May 3, 2002.

### 2- Test Set-Up & Procedure

A 2" wide Poly Web Safe-T-Strap with a minimum specified tensile strength of 6500 lbs. with a D-clip attached to one end was wrapped around and nailed to the truss top cord using 3- 3" Ardox nails, 8" from the ridge with the D-clip end suspended.



The truss span was measured to be 23'. The top and bottom cords were made of 2 x 4 SPF No. 2 and its chord members were 3 x 2 SPF No. 2.

The trusses were manufactured by Baywood Bowmanville.

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The truss was supported on the 2- 2 x 6 end plate and nailed to the endplates by means of 3- 3 1/2" Ardox nails.



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The distance from the Safe-T-Strap D-ring and the floor was measured to be 144"  
A dynamometer was attached to the D-ring and a 5' lanyard attached to a 225 lb rigid  
mass was in turn attached to the dynamometer.



The weights were then allowed to free-fall a distance of 4'.



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There was noted vibration and movement in the truss but the truss held in position with no signs of failure or distress.

The peak force generated by the impact and registered by the dynamometer was 1198 lbs.

The test was repeated at the same location. The dynamometer registered a peak force of 1196 lbs.

Following each test the truss members and connections were carefully examined by the undersigned with no damage noted.

### **3- Conclusion**

**A Safe-T-Strap nailed to the top chord of a timber residential roof truss within 12" of the ridge will safely sustain the forces generated by the fall of a worker engaged in decking the roof and attached to the strap.**

**The truss must be designed for in accordance with Ontario Building Code requirements and installed in accordance with the requirements of section 9 of the Ontario Building Code.**

**Each truss must be used for the attachment of one worker's fall safety equipment.**

**A worker attached to the Safe-T-Strap must be wearing a full body harness equipped with a shock absorber or shock-absorbing lanyard when the lanyards are 4' or greater.**

**Ensure that the distance below the worker is sufficient and clear of obstructions to allow the worker's arrest without impacting the floor beneath or any object.**

