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Ensuring Safety through Engineering

Load Test Procedure

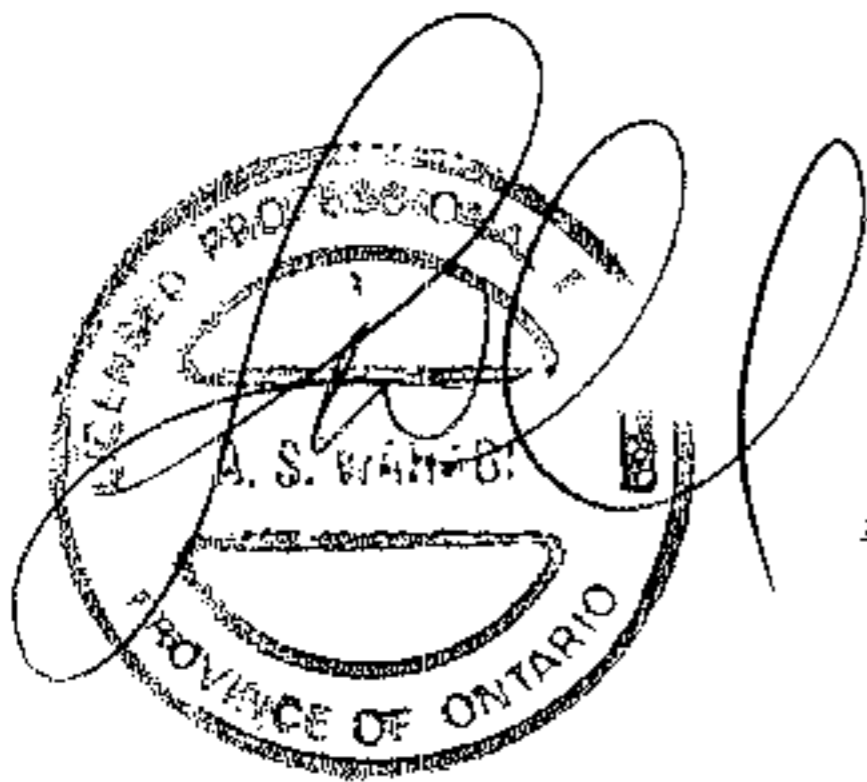
**Proof Load Testing Procedure of
Safe-T-Strap Anchorage Connectors**
For Conformity with OSHA, Regulations & ANSI Z359.1-2007

HITE Project #: 08-5948

Prepared for:

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Executive Summary:

HITE Engineering Corporation was commissioned by Safe-T-Strap to define proof load testing procedures to establish the conformity of the assembly method of the anchorage connectors to the anchorage to ANSI Z359.1-2007.

It is important to note that the results of the prescribed proof load test will only be meaningful if the method of assembly of the anchorage connector to the anchorage is consistent with those tested.

I am pleased to submit the following load test recommendations.

Exclusions:

The scope of this load test procedure does not include the full breadth of testing required to establish anchorage connector conformity, which have already been performed by the manufacturer under a different procedure (document and report are available for the manufacturer). Therefore, the testing recommendation made in this procedure is strictly limited to establishing the integrity and conformity of the method of assembly of existing installed anchorage connector to the anchorage point based on the requirements of ANSI Z359.1-2007. This load testing recommendation excluded any consideration for fatigue life of the assembly method.

In absence of any inspection data confirming the correct method of assembly of the anchorage connectors to the anchorage, the constructor remains responsible for the safety and compliance of the anchorage connectors that have not been tested by this proposed test method. For a Safe-T-Strap to perform as designed and tested, a rebar must pass through the D-ring of the anchorage connector in the reinforced concrete wall or slab.

Recommended method of load testing:

It is HITE Engineering's recommendation that a random sample of anchorage connectors assembled to the concrete slab be subjected to a static pull load of 3600 Lbs and then examined for any signs of distress or failure. The subject anchorage connectors must be taken out of service immediately after the execution of the test procedure by physically cutting them and re-install an engineered fall arrest anchorage connector near the location of the decommissioned Safe-T-Strap.

Document Type: Proof Load Test Procedure	Document Purpose: Load test procedure to establish method of assembly conformity to ANSI Z359.1-2007
Created For: Safe-T-Strap 333 Francom Street, Ajax, ON	Scope: Nylon Safety Straps assembled to concrete slab
Document Created By: Sam Wahabi, P.Eng. HITE Engineering Corp.	Document Version: Version 1
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1. Scope:

This procedure is designed specifically to assist Safe-T-Strap in conducting proof load testing of installed safety straps to concrete slabs.

The purpose of the procedure is to establish the method and minimum load testing requirements for examining the integrity and conformity of the method of assembly of the safety strap anchorage connectors to the anchorage (concrete slab) and assist the employer meet their responsibilities under the Occupational Health and Safety Act, Regulations and applicable standards.

2. Responsibilities:

- 2.1. Employer must ensure that the anchorage connectors assembled to the concrete slab are complete and in good condition per the specifications of the manufacturer.
- 2.2. Employer must ensure all employees are provided with full PPE where required and are provided with full training and instructions in use of the PPE to ensure health and safety of all workers and others at the work site.
- 2.3. A competent person must inspect the PPE before each use to ensure the all components of the system are in good operating condition and are safe for use and are assembled as per the instructions of the manufacturer.
- 2.4. Employer must ensure that all hazard risks during the load testing exercise are mitigated through proper planning and careful execution.
- 2.5. Employer must ensure that an emergency rescue procedure is available and workers are trained in its use in the event of an emergency.

3. Hazards:

The hazards that are prevalent and significant during the load testing activities, but not limited to, the following:

- Fall from heights
- Falling Objects
- Falling components of the test system

- Localized wind gusts
- Manual handling of equipment and tools.

4. Test Apparatus:

- 4.1. Calibrated load cell rated for a minimum of 4000 Lb force.
- 4.2. Mechanical winch to assist in applying the static load.
- 4.3. Chain with quick snap hooks for ease of assembly.

5. Procedure:

- 5.1. The test must be conducted under the supervision of a professional engineer.
- 5.2. A competent worker must inspect the test apparatus components before each test set up and ensure that all components of the system are complete and in good operating condition.
- 5.3. The test operators must be in full PPE gear where required by OSHA.
- 5.4. The operator must review the instructions on this procedure document, all relevant safety procedures, all specific instructions provided by the manufacturer.
- 5.5. The operators must use the test apparatus in accordance with the requirements of this procedure and good safety practices.
- 5.6. To set up the test apparatus for the static load test, the following procedure (or equivalent) must be followed:
 - a. Attach one end of chain to the subject anchorage connector and the opposite end to the load cell.
 - b. Attach one end of the winch chain to the opposite connector of the load cell and the opposite end to another anchorage connector or another structure capable of withstanding the applied loads. Ensure the pull test layout is setup such that the pull load is in the axial direction of the anchorage connector (pullout direction).
 - c. Ensure all loose tools and components and connections are secured in place to prevent fall over and potential injury to operators or others.
 - d. Check test setup to ensure all connections are appropriate and examine the initial pre-test condition of the anchorage connector and the anchorage, take photos of the test set up and conditions.
 - e. Slowly crank the winch until the tension in the chains induce a static load of 3600 lbs in the load cell.
 - f. Maintain the load for a minimum of 1 minute and then release the load.
 - g. Remove load cell and chains safely out of the way to prevent any tripping hazards.
 - h. Examine the subject anchorage connector for any signs of distress and/or failure and document the observations, take photos of the post test conditions.

- i. Remove anchorage connector from service by cutting the strap to prevent accidental use.
- j. Repeat steps for all other samples selected for load testing.

6. References:

#	Doc Type	Name
1	STD	ANSI Z359.1-2007
2	Reg.	OSHA