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TD 832205-CA V-Compression Post Certification Report

Date: March 18, 2019 **No. Pages:** 2
Project: TD 832205-CA V-Compression Post Review Care Eng. No. 19-723
Client: Vertemax Inc.
Dist.: Jesus Munoz, Managing Director Jesus.munoz@vertemax.com

Background:
Care Engineering was retained by Vertemax Inc. to review supporting documentation and test results for the TD 832205-CA V-Compression Post and certify it for use on construction sites in Ontario. This review is limited to the TD 832205-CA V-Compression Post only.

Overview:

The review was conducted as per the Ontario Regulation (O. Reg.)213/91 Occupational Health and Safety Act and Regulation for Construction Projects. This regulation states that a guardrail system shall be capable of resisting anywhere along the length of the system the following loads when applied separately, without exceeding the allowable unit stress for each material used:

1. A point load of 675 N applied in a lateral direction to the top rail.
2. A point load of 450 N applied in a vertical downward direction to the top rail.
3. A point load of 450 N applied in a lateral or vertical downward direction to the intermediate rail, or midway between the top rail and the toe board.
4. A point load of 225 N applied in a lateral direction to the toe board. O. Reg. 145/00, s.14.

This regulation additionally states the distance between any two (2) adjacent posts of the guardrail system may be greater than 2.4 meters only if the system is capable of resisting the loads specified above increased in proportion to the greater distance between posts. O. Reg. 443/09, s.2 (2).

Discussion:

The following are minimum requirements for the TD 832205-CA V-Compression Post:

- Specified compressive strength of concrete slab: 25 MPa
- Concrete thickness: 203 mm
- Clear distance to any edge: 100 mm

The governing load (675 N lateral shear force) applied horizontally to the top rail (Mesh barrier 2078840/2078842, 1100 mm tall Vertemax barrier) and onto to the TD 832205-CA V-Compression Post is the load requirement 1 listed above. The post spacing is 2.7 m (center to center) that is 12.5 % more than 2.4 m spacing required by 213/91 OHSA. Thus, the applied load is increased by 12.5 % to 675 [N] x1.125 = 759.4 [N].

Based on the product documentation provided by Vertemax Inc. the TD 832205-CA V-Compression Post have a height of 2.75 m (9'-0 ¼") (test #1) and extended to 3.35 m (10'-11 7/8") (test # 2).

The maximum lateral load applied during the load test (before the posts lose grip completely) were 2200 [N] (test # 1) and 1984 [N] (test # 2) respectively listed in the test documents provided by Vertemax Inc. A factor of safety of 2.6 (1984 [N] /759.4 [N] = 2.6) has been recorded as per testing data provided. Therefore, the loads meet and exceed the requirements of O. Reg. 213/91.

Conclusion:

The TD 832205-CA V-Compression Post meets and exceeds the requirements of O. Reg. 213/91 and can be used on construction sites in Ontario when installed as described above and as per Vertemax's installation instructions. Ensure product is used, maintained and inspected according to Vertemax's recommendations.

Report by: Azmin Khosravi P.Eng.

Encl.: TD 832205-CA V-Compression Post product specifications and test results