

Date: January 16, 2020
File #: 20-047-CG-13

Wilcore Anchors Inc.
10 Lighthouse Point
Winnipeg, MB R3X 1G9

Attention: Mr. Doug White, President

Re: Wilson Ground Anchors

Wilcore Anchors Inc. retained Beach Rocke Engineering Ltd. to assess and review the allowable capacity of five different ground anchors manufactured by Wilcore Inc. Anchors A and B were tested by M.Block and Associates Ltd. November 1, 1996. Anchors 2, 4, and 6 were tested by Industrial Technologies Centre December 18, 2009. Reports prepared by M.Block and Associates, The National Testing Laboratories, and Industrial Technologies Centre are attached in the appendix. Both testing procedures followed ASTM D1143-07 – “Standard Test Method for Deep Foundations Under Static Compressive Load”.

The anchors described below list their ultimate and allowable static axial compressive resistances. The allowable axial load capacity is based upon load at failure with a factor of safety of 2.5, and, the load that produces a displacement of 0.1 inch.

Anchor A in report prepared by M.Block and Associates

Shaft: 1 ¼" x 8' long solid square structural steel rod.
Augur Flight: 7 gauge plate 8 1/2" O.D. ribbon x 1 round with 8" pitch.
Ultimate load: 7.23 kips
Allowable load: 2.26 kips (Governed by Ultimate Load as shown in section 5.0)
Product code: OW2300-8

Anchor B in report prepared by M.Block and Associates

Shaft: 1 ¼" x 8' long solid square structural steel rod.
Augur Flight: 7 gauge plate 8 1/2" O.D. ribbon x 2 round with 8" pitch.
Ultimate load: 8.86 kips
Allowable load: 2.92 kips (Governed by Ultimate Load as shown in section 5.0)
Product code: OW3000-8

Anchor C in report prepared by Industrial Technologies Centre (Refer to Anchor 6 in Report)

Shaft: 1 1/2" x 1 1/2" x 3/16" x 8' long structural steel tube.
Augur Flight: 7 gauge plate 9" O.D. ribbon x 2 round with 8" pitch.
Ultimate load: 12.0 kips
Allowable load: 4.0 kips (as per report prepared by National Testing Laboratories)
Product code: OW4000-8

Anchor D in report prepared by Industrial Technologies Centre (Refer to Anchor 2 in report)

Shaft: 2" x 2" x 3/16" x 8' long structural steel tube.
Augur Flight: 1/4" x 12" O.D. ribbon x 2 round with 8" pitch.
Ultimate load: 13.0 kips
Allowable load: 5.0 kips (as per report prepared by National Testing Laboratories)
Product code: OW5000-8

NOTES:

1. This report has been prepared based on testing data prepared by third party consultants listed above. Anchors shall only be installed in areas where the soil stratigraphy consists of stiff clay, such as the Red River Valley.
2. Allowable load values are for anchors installed only in stiff clay, any variation in soil condition shall be reviewed by the engineer responsible for the foundation design.
3. Typical applications for these anchors include and are limited to residential decks, three season sunrooms, and ramps.
4. Stabilizers shall be used at the top of all anchors to prevent rotation and reduce the potential for heaving.
5. All steel used to manufacture the steel anchors listed above shall conform with CAN/CSA-G40.21, "Structural Quality Steel". All welding shall be performed in accordance with the latest edition of CSA W59 or W55.3 by welders certified for structural welding by the Canadian welding bureau to CSA W47.1.
6. All anchors shall have their ribbon continuously weld around the structural steel rod/tube. Weld shall be of at least 1/4" thick all around. If any burning or excessive heat causes damage to the ribbon or base rod/tube, the anchor shall be discarded.
7. Where anchors are installed in soils corrosive to steel such as the Red River Valley, adequate protection of exposed steel shall be provided. A minimum two coats of rust paint shall be applied to all exposed steel surfaces.
8. The design basis for these anchors is described in clause 4.2.4.1. 1) c) and 9.4.1.1.1) c) i).
9. Product code shall be visible and permanently marked on the anchors by either etching on the face of steel or with permanent stickers.
10. The owner shall be aware that vertical displacement may cause damage to the structure. These anchors are prone to movement associated with variable soil conditions, excessive groundwater, freeze thaw cycles, poor workmanship during installation, etc.

Trusting this is satisfactory,

Yours truly,

John L. Roche, P. Eng.
Beach Roche Engineering Ltd



APPENDIX

- Wilson Ground Anchor Brochure
- The National Testing Laboratories Report (February 26, 2010)
- M. Block and Associates Report (November 28, 1996)
- Industrial Technologies Centre Report (January 7, 2010)
- ASTM D1143-07 – “Standard Test Method for Deep Foundations Under Static Compressive Load”.