

Helical, augured and screw piles in housing applications

Augured piles, also referred to as screw piles and helical piles, have limited applications. The table and its associated notes below demonstrate the City of Winnipeg requirements when augured piles are used for foundations in housing applications. For the purposes of this bulletin, “housing” refers to single dwellings, duplexes and row housing.

Requirements for augured piles installations					
Application	Typical construction applications	Evaluation ⁽¹⁾	Sealed plans	Engineer's certification ⁽²⁾	Geotechnical report ⁽³⁾
Up to a maximum allowable 5000 lbs./pile ⁽⁴⁾	1-storey additions ⁽⁵⁾	✓	✓ ⁽⁷⁾	X	X
	Accessory structures ⁽⁶⁾				
	Decks	✓	X ⁽⁹⁾		
	Ramps				
House foundations	Constructing a new house	✓ ⁽⁸⁾	✓ ⁽⁷⁾	✓ ⁽⁸⁾	✓ ⁽⁸⁾
	Underpinning of an existing house ⁽¹⁰⁾				
2-storey additions	1-storey plus basement	✓ ⁽⁸⁾	✓ ⁽⁷⁾	✓ ⁽⁸⁾	✓ ⁽⁸⁾
	2-storeys with no basement				
Greater than 5000 lbs./pile	Any housing applications	✓ ⁽⁸⁾	✓ ⁽⁷⁾	✓ ⁽⁸⁾	✓ ⁽⁸⁾

Table notes:

- Augured piles that are evaluated by the Canadian Construction Materials Centre (CCMC) must be evaluated in cohesive soils and must bear the CCMC evaluation number and manufacturer's identification (including model). Installation must be carried out in conformance with the CCMC evaluation's "conditions and limitations." (See also below section "Supplementary information for non-CCMC evaluated augured pile manufacturers.")
- "Engineer's certification" is a letter of certification for the foundation provided and sealed by the foundation design engineer. (See [Professional Designer's Certificate for Housing](#).)
- A geotechnical report must be a site-specific engineering report, sealed and signed by a professional engineer licensed to practice in the Province of Manitoba. The structural design shall be in keeping with the recommendations of the report.
- The referenced construction types may be separate or attached to the main dwelling.

5. Single-storey additions with no basement, also includes 3- and 4-season sunrooms, mudrooms, porches, etc.
6. Accessory structures may include carports, gazebos, sheds, etc. These structures are single-storey only.
7. “Sealed plans” are drawings sealed and signed by a professional engineer licensed to practice in the Province of Manitoba. They must indicate the manufacturer, model number and capacity of the piles. (See also below section “Supplementary information for non-CCMC evaluated augured pile manufacturers.”)
8. As many of these types of piles, greater than 5000 lbs. are specifically manufactured based on the geotechnical report, they may not hold a current CCMC evaluation. Enough detail on the engineer’s certification drawings/documents should be recorded to provide the reviewer sufficient information to determine compliance of the augured pile for the project and site that is being constructed. This can include, but is not limited to information such as;
 - a. Augured pile to follow geotechnical recommendations.
 - b. Negate shaft diameter for ultimate capacity/friction capacity
 - c. Multiple flights are cumulative for end bearing resistance
 - d. Installation should be below frost/or address possible frost jacking
 - e. Reference any test data that is available (actual load testing)
 - f. Reference design manuals (such as Perko, DFI)
 - g. Other information to coordinate the overall design (i.e. pile caps, connections, etc.)
 - h. Each augured pile evaluation must be site specific, designed according to the associated geotechnical report and as per the project engineer’s design.
9. Sealed plans are required for augured piles used for supporting concentrated loads from uncovered, single-storey decks and ramps in housing applications where the structure size is more than 27.9 m² (300 ft²) or loading exceeds 22 kN (5,000 lbs.) per pile.
10. Foundation underpinning means, underpinning full foundation/walls or partial foundation/walls. Grade beams 203mm x 610mm (8” x 24”) are not considered foundation walls.

Supplementary information for non-CCMC evaluated augured pile manufacturers

(refer to notes above)

- 1) If a product does not carry a CCMC evaluation, the product’s specifications (including manufacturer’s identification and model number) must be submitted under the seal of a professional engineer licensed to practice in Manitoba, and indicate that the piles have been tested to ASTM D 1143, ASTM D 3689 and/or ASTM D 3966 (latest editions), for maximum load(s) of____, and is acceptable for use in cohesive soils. In addition to specifying the conditions and limitations of the product, the engineer should also indicate that the piles comply to the 2024 MBC for:
 - a. Clause 4.2.3.8.(1)(e)
 - b. Sentence 4.2.3.10.(1)

- c. Sentence 4.2.4.1.(1)
 - d. Subclause 9.4.1.1.(1)(c)(i)
- 2) When sealed plans include products which are not CCMC evaluated, or do not have the equivalent information provided under note 1), the engineer will be responsible to certify that the specified piles have been tested to ASTM D 1143, ASTM D 3689 and/or ASTM D 3966 (latest editions), for the applicable loads and are acceptable for use in the soil located at the site. In addition to specifying the conditions and limitations of the product, the engineer should also indicate that the pile(s) comply to the 2024 MBC for:
 - a. Clause 4.2.3.8.(1)(e)
 - b. Sentence 4.2.3.10.(1)
 - c. Sentence 4.2.4.1.(1)
 - d. Subclause 9.4.1.1.(1)(c)(i)