

**4781-6-03.2 Site preparation.****(A) Soil conditions.**

To help prevent settling or sagging, the foundation shall be constructed on firm, undisturbed soil or fill compacted to at least ninety per cent of its maximum relative density. In any site, all organic material such as grass, roots, twigs, and wood scraps shall be removed from the underneath of the manufactured home and in areas where footings are to be placed. In an existing site, all organic material such as grass, roots, twigs, and wood scraps shall have been removed in areas where footings were placed. The home site shall be graded or otherwise prepared to ensure adequate drainage in accordance with this rule.

**(B) Soil classifications and bearing capacity.**

The soil classification and bearing capacity of the soil shall be determined before the foundation is constructed and anchored. The soil classification and bearing capacity shall be determined by one or more of the following methods:

- (1) Soil tests. Soil tests that are in accordance with generally accepted engineering practice;
- (2) Soil records. Soil records of the applicable authority having jurisdiction;
- (3) Soil classifications and bearing capacities. If the soil class or bearing capacity cannot be determined by test or soil records, but its type can be identified, the soil classification, allowable pressures, and torque values shown in the following table may be used;

**Soil Classification Table 2.1 of 4781-6-03.2**

Soil Classification No.	Soil Classification ASTM D2487 or D2488	Soil Description	Allowable Bearing Pressure (psf) <sup>1</sup>	Blow Count ASTM D1586	Anchor Torque Probe <sup>3</sup> Value <sup>4</sup> (inch-pounds)
1	-	Rock or hard pan	4000+	-	-
2	GW, GP, SW, SP, GM, SM	Sandy gravel and gravel; very dense and/or cemented sands; coarse gravel/cobbles; preloaded silts; clays and coral.	2000	40+	( <sup>6</sup> )
3	GC, SC, ML, CL	Sand; silty and; clayey sand; silty gravel; medium dense coarse sands; sandy gravel; and very stiff silt, sand clays.	1500	24-39	351-650
4A	CG, MH <sup>2</sup>	Loose to medium dense sands; firm to	1000	18-23	276-350

		stiff clays and silts; alluvial fills.			
4B	CH, MH <sup>2</sup>	Loose sands; firm clays; alluvial fills.	1000	12-17	175-275
5	OL, OH, PT	Uncompacted fill; peat; organic clays.	( <sup>7</sup> )	0-11	( <sup>5</sup> )

Notes:

1. The values provided in this Table have not been adjusted for overburden pressure, embedment depth, water table height, or settlement problems.
2. For soils classified as CH or MH, without either torque probe values or blow count test results, selected anchors must be rated for a 4B soil.
3. The torque test probe is a device for measuring the torque value of soils to assist in evaluating the holding capacity of the soil in which the ground anchor is placed. The shaft must be of suitable length for the full depth of the ground anchor.
4. The torque value is a measure of the load resistance provided by the soil when subject to the turning or twisting force of the probe.
5. Less than 175.
6. More than 550.
7. Refer to 4781-6-03(B)(5).

Soil Classification Table 2.1 of 4781-6-02.2

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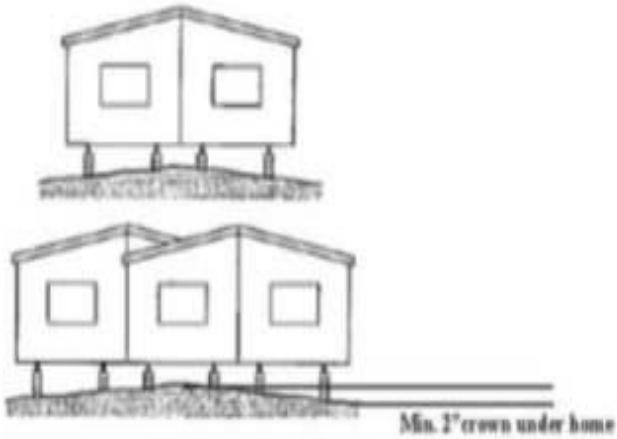
- (4) The pocket penetrometer and ground auger torque tests shall be completed in accordance with proper test procedures and under proper testing conditions for use with auger style ground anchors; or
- (5) If the soil appears to be composed of peat, organic clays, or uncompacted fill, or appears to have unusual conditions, a registered professional geologist, registered professional engineer, or registered architect must determine the soil classification and maximum allowable soil bearing capacity.

#### (C) Site drainage.

- (1) Purpose. Drainage shall be provided to direct surface water away from the home and to prevent water build-up under the home, and all vegetation shall be removed from the underneath of the manufactured home.
- (2) The home site shall be graded as shown in figure 2A of ~~rule 4781-6-02.2 of the Administrative Code~~ [this rule](#), or other methods, such as a drain tile and automatic sump pump system, shall be provided to remove any water that may collect under the home.
- (3) All drainage shall be diverted away from the home and shall slope a minimum of one-half inch per foot away from the foundation for the first ten feet. Where property lines, walls, slopes, or other physical conditions prohibit this slope, the site shall be provided with drains or swales or otherwise graded to drain water away from the structure.

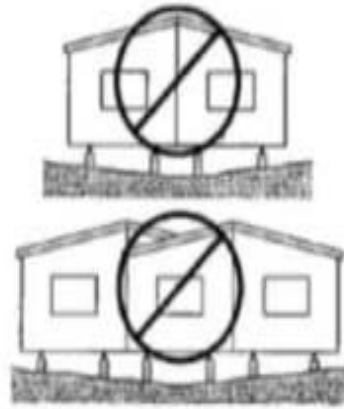
- (4) Sloped site considerations. The home, where sited, shall be protected from surface runoff from the surrounding area.
- (5) Refer to paragraph (B)(3) of rule ~~4781-6-02.9~~[4781-6-03.9](#) of the Administrative Code regarding the use of drainage structures to drain surface runoff.

Site Grading Figure 2A



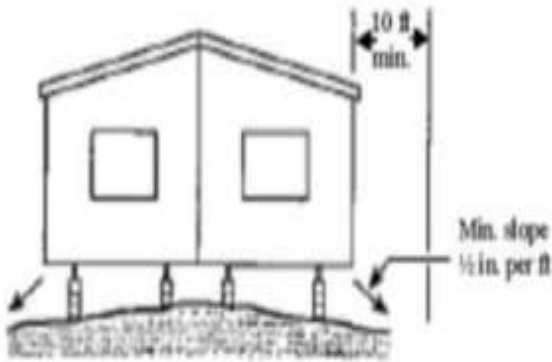
Crown and grade site to slope away from the home.

Minimum crown of 2" under the home.

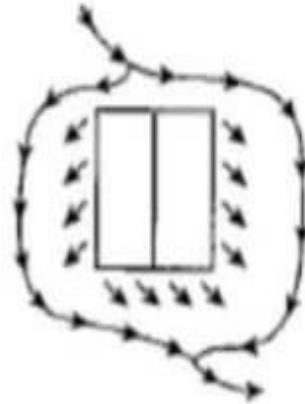


Do not grade site or set the home so

water collects beneath the home.



Home sites must be prepared so that there will be no depressions in which surface water may accumulate beneath the home. The area of the site covered by the manufactured home must be graded, sloped or designed to provide drainage from beneath the home or to the property line.



Natural drainage must be diverted around and away from the home.

(6) Gutters and downspouts. If gutters and downspouts are installed, the runoff shall be directed a minimum of eighteen inches away from the home.

- (7) Prohibited drainage. Roof drains and downspouts shall not be connected to the foundation system. They shall be independent and not interconnected.
- (8) Concrete and masonry foundations. Drains shall be provided around all concrete or masonry foundations that retain earth and enclose habitable or usable spaces located below grade or unused spaces ~~which~~that are in wet areas. Drainage tiles, gravel or crushed stone drains, perforated pipe, or other approved systems or materials shall be installed below the area to be protected and shall discharge by gravity or mechanical means to drain away from the home or into an approved drainage system. A drainage system is not required when the foundation is installed on well-drained ground or sand-gravel mixture soils according to standard soils classification. An additional interior drainage system may be required in especially wet areas.
- (9) Concrete and masonry foundation damp-proofing. Foundation walls that retain earth and enclose habitable or useable spaces located below grade or unused spaces ~~which~~that are in wet areas shall be damp-proofed from the top of the footing to the finished grade. Except, a foundation shall not be required to be damp-proofed where a supplemental interior foundation drainage system is tied to a sump pump.
- (10) Where a concrete or masonry wall is used, the crawlspace or basement slabs shall have a foundation drain that shall be separate from the perimeter drain until the point of discharge by gravity or mechanical means into an approved drainage system.

(D) Ground moisture control.

- (1) Vapor retarder. If the space under the home is to be enclosed with solid skirting or other solid materials, a vapor retarder shall be installed on the ground, to cover the ground under the home. If the space under the home is to be enclosed with vented perforated skirting or other perforated materials, vapor retarder is not required.
- (2) Vapor retarder material. A minimum of six mil polyethylene sheathing or its equivalent shall be used.
- (3) Proper installation.
  - (a) The entire area under the home shall be covered with the vapor retarder as noted in this rule except for areas under open porches, decks, and open recessed entries. Joints in the vapor retarder shall be overlapped at least twelve inches and sealed.
  - (b) The vapor retarder may be placed directly beneath footings, or otherwise installed around or over footings placed at grade, and around anchors or other obstructions.
  - (c) Any voids or tears in the vapor retarder shall be repaired.
  - (d) Where a masonry exterior perimeter wall is installed, two inches of crushed stone, clean washed gravel, or ~~its~~their equivalent shall cover the vapor barrier or be covered by the vapor barrier.

Effective: 1/20/2020

Five Year Review (FYR) Dates: 8/27/2019 and 01/20/2025

CERTIFIED ELECTRONICALLY

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Certification

11/04/2019

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Date

Promulgated Under: 119.03  
Statutory Authority: 4781.04, 4781.14  
Rule Amplifies: 4781.04, 4781.14  
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