

LISTING & TESTING DIVISION

PRODUCT: CONCRETE, ROCK, AND SOIL GROUND ANCHORS

Issued: Aug 2012
Reissued: Jan 2019

MANUFACTURER: **Minute Man Anchors, Inc.**
305 W. King St.
East Flat Rock, NC 28726

Subject to Renewal:
Jan 2020

PLANT LOCATION: 305 W. King St.
East Flat Rock, NC 28726

APPLICATION: HUD Code Manufactured Homes & Modular Structures

1. INTRODUCTION

At the request of Minute Man Anchors, Inc., RADCO investigated the possibility of listing ground anchors produced by Minute Man Anchors, Inc., for approval of ground anchors in accordance with RADCO's Listing Requirements for Ground Anchors.

RADCO's Listing Requirements for Ground Anchors defines the classification and performance requirements of each respective ground anchor model. The requirements are in general accordance with those developed by the MHI Ground Anchor Task Force and adopted by HUD's MHCC on March 9, 2011 after accepting minor revisions offered by HUD staff.

2. DESCRIPTION

There are two categories of ground anchors that are specified in this listing. The first group is soil ground anchors, which pertain to all anchors designated for soil classes 2, 3, 4, and 5. The second group is rock and concrete (non-soil) ground anchors, which are designed for installation into class 1 conditions.

All Minute Man Ground Anchors are manufactured using steel in conformance with ASTM A-36. The models under this listing vary with respect to shaft diameter, number and location of helixes, length of shaft and stabilizer device. Table 1 shows a complete description of each ground anchor model, as well as a corresponding stabilizer device.

All ground anchors have a minimum working load of 3,150 lbs and a minimum ultimate load of 4,725 lbs.

3. INSTALLATION

The Installation of the ground anchors is to be in accordance with the Manufacturer's Installation Instructions. In addition, each anchor must be installed in accordance with the following:

- a) The proper soil class. (Tables 2 & 3, and notes)
- b) Minimum angle of pull to the horizontal. (Tables 2 & 3)

4. EVIDENCE SUBMITTED

- 4.1 Testing has been conducted to verify the compliance of Minute Man ground anchors to the RADCO Listing Requirements for Ground Anchors.

- 4.2 The quality and process control system used in the manufacture has been submitted to RADCO. An adequate method of traceability is maintained by the manufacturer. A follow-up quality assurance audit program is maintained by RADCO.

5. RECOMMENDATIONS

RADCO recommends that Minute Man Anchors, Inc. ground anchors be accepted for use with HUD code manufactured homes and modular structures provided that:

- 5.1 Each ground anchor will be marked with a label, a facsimile of which is shown in figure 1. The label for each facility denotes the model number, RADCO name, and Listing #1344.
- 5.2 All products are produced only at the facility referenced in this listing.
- 5.3 The Quality control procedures are maintained by the manufacturing facility as submitted.
- 5.4 The audit system of RADCO is maintained.
- 5.5 All products are installed per the manufacturers installation instructions and section 3 of this listing.

6. APPROVAL

This listing is subject to approval on an annual basis by RADCO. Updating and further information will be included and/or resubmitted as necessary.

Figure 1: Sample Label

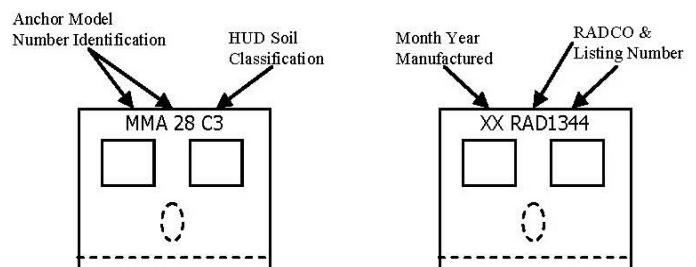


Table 1: Properties of Ground Anchors

Model	Shaft Diameter	Shaft Length (in)	Helix	Minimum Stabilizer Device (See Note 2)
MMA-2 650 DH	5/8"	48	1 / 6" dia	12" plate
MMA-4 650 DH	3/4"	48	1 / 6" dia	12" plate
MMA-6 4430 DH	3/4"	30	2 / 4" dia	12" plate
MMA-28 636 DH	3/4"	33	1 / 6" dia	12" plate
MMA-30 4430 DH	5/8"	30	2 / 4" dia	12" plate
MMA-52 4636 DH	3/4"	33	1 / 4" & 1 / 6" dia	12" plate
MMA-55 4450 DH	3/4"	48	2 / 4" dia	12" plate
MMA-71 1060 DH	3/4"	60	1 / 10" dia	12" plate
MMA-75 760 DH	3/4"	60	1 / 7" dia	17" plate
MMA-85 860 DH	3/4"	60	1 / 8" dia	17" plate
MMA-92 4430 EZDH	3/4"	30	2 / 4" dia	6" cap
MMA-93 4636 EZDH	3/4"	33	1 / 4" & 1 / 6" dia	6" cap
MMA-94 636 EZDH	3/4"	33	1 / 6" dia	6" cap
MMA-96 650 EZDH	3/4"	48	1 / 6" dia	6" cap
MMA-GW2NU	3/4"	20	1 / 4" dia	(See note 3)
MMA-8 48 XDH	3/4"	48	none	X drive (48" rods)
MMA-14 PDH	5/8"	10	none	none
MMA-42S JDH	5/8"	6	none	none
MMA-35 36 XDH	3/4"	30	none	X drive (30" rods)
MMA-35s 36 XDH	3/4"	30	none	X drive (30" rods)
MMA-18 THDH	5/8"	3.5	none	none

Table 2: Soil Anchor Requirements

Model	Minimum Soil Class (See Note 1)	Min. Angle of Pull to Horizontal
MMA-2 650 DH	4a	45 deg
MMA-4 650 DH	4a	45 deg
MMA-6 4430 DH	3	45 deg
MMA-28 636 DH	3	45 deg
MMA-30 4430 DH	3	45 deg
MMA-52 4636 DH	4a	45 deg
MMA-55 4450 DH	4a	45 deg
MMA-71 1060 DH	4b	45 deg
MMA-75 760 DH	4b	48 deg
MMA-85 860 DH	4b	46 deg
MMA-92 4430 EZDH	3	45 deg
MMA-93 4636 EZDH	4a	45 deg
MMA-94 636 EZDH	3	vertical only
MMA-96 650 EZDH	3	vertical only
MMA-GW2NU	3	45 deg

Table 3: Rock/Concrete Anchor (Soil Class 1) Requirements

Model	Max Test Load (lbs)	Min. Angle of Pull (horiz.)
MMA-8 48 XDH	10,000	vertical only
MMA-14 PDH	5,000	45 deg
MMA-42 JDH	5,000	45 deg
MMA-35 36 XDH	4,725	45 deg
MMA-35s 36 XDH	4,725	45 deg
MMA-18 THDH	5,000	45 deg

Note 1: See 24 CFR Part 3285 Model Manufactured Home Installation Standards, section 202: Soil Classification and Bearing Capacity & Table 3285.202 for an explanation of soil classification numbers. Please note that anchors approved for use in soil class 4 may be used in soil classes 3 or 2, and anchors approved for use in soil class 3 may be used in soil class 2.

Note 2: The stabilizer plates are available in 12" or 17" width. The stabilizer caps are 6" diameter. "X drive" refers to cross-driven anchors which utilize two rods angled at 45 degrees from the vertical.

Note 3: Anchor model MMA-GW2NU has a 6" stabilizer cap as well as a 32" long stabilizer rod which is driven through the stabilizer cap and downward at 45 degrees from the horizontal.