

MINUTE MAN ANCHORS

305 WEST KING STREET
EAST FLATROCK, NC 28726
PH: (800) 438-7277

ENGINEERED TIE DOWN SYSTEM DESIGN & GENERAL NOTES

DESIGN LOADS:

- *WIND-----15 PSF (70 MPH EXPOSURE "C") CAC T-25 and COMPLIES WITH THE 2019 CBC
Vult = 110 MPH EXT "C" AND THE 2018 IBC Vult = 115 MPH EXP "C"
- *SOIL BEARING-----1500 PSF
- *TIE DOWN STRAP-----3150# WORKING LOAD
- *SEISMIC-----CAC T-25 AND 2019 CBC. $S_s=1.5$ $F_a=1.4$ S_{ds} 1.41 Site Class D
- TIE DOWN STRAPS TO BE MIN. 1 1/4" WIDE X 0.035 THICKNESS ZINC PLATED AND MEET ASTM D-395391
- EARTH AUGERS-----3150# (tested to 4725# min) CROSS DRIVES (soil)---1575# Stabilizer Plate Required
- CROSS DRIVES (asphalt)---1800# (tested to 3600#) asphalt min 2.5" thick
- CROSS DRIVES (solid rock)---3150# (tested to 4725# min)
- CONCRETE SLAB ANCHORS---3150# (tested to 4725# min) drill proper size pilot hole min 4" from any edge

GENERAL NOTES:

1. THE CHARTS SHOWN HEREIN ARE FOR THE REQUIRED NUMBER OF TIE DOWNS ON THE SIDES OF THE MANUFACTURED HOME.
2. TIE DOWNS ARE REQUIRED AT EACH CHASSIS BEAM, EACH END OF EACH TRANSPORTABLE SECTION OF THE MANUFACTURED HOME AND CAN BE ANY OF THE TYPES SHOWN HEREIN.
3. COMBINATIONS OF THE DIFFERENT TYPES OF THE TIE DOWNS CAN BE USED.
4. IN THE EVENT AN EARTH AUGER CANNOT BE INSTALLED DUE TO AN OBSTRUCTION, USE OF CROSS DRIVE ANCHORS IS PERMITTED, PROVIDED (2) CROSS DRIVES ARE INSTALLED FOR EACH EARTH AUGER THAT CANNOT BE INSTALLED.
5. FOR ALL TIE DOWN INSTALLATIONS, THE MFG'D HOME CHASSIS MEMBERS ARE SHOWN AS "I" BEAMS. FOR ILLUSTRATION PURPOSES ONLY. CHASSIS BEAMS CAN ALSO BE "C" SHAPED OR "RFC" SHAPED.
6. END TIE DOWNS CAN BE LOCATED WITHIN 24" OF EITHER SIDE OF CHASSIS BEAM AXIS AS SHOWN.



7. THE SIZES, TYPES, LENGTHS, ETC. OF MATERIAL SHOWN HEREIN ARE MINIMUM. LARGER, LONGER, HEAVIER MATERIALS SUPPLIED BY MINUTE-MAN PRODUCTS MAY BE USED AT THE SAME SPACING & LOCATION SHOWN.
8. ALL PARTS ARE STAMPED MMA- WITH THE APPROPRIATE PART NUMBER.
9. THIS TIE DOWN SYSTEM CAN BE USED WITH 10' WIDE MANUFACTURED HOME SECTIONS WITH 100" CHASSIS CENTERS PROVIDED THE HEIGHT FROM GRADE TO THE BOTTOM OF THE CHASSIS BEAM DOES NOT EXCEED 19".
10. TIE DOWN STRAPS IN THE LONGITUDINAL OR TRANSVERSE DIRECTION CAN BE BOLTED TO THE HITCH ATTACHMENT PLATE THAT IS WELDED TO THE CHASSIS BEAM.

ENGINEER APPROVAL
SEE PAGE "2" FOR LISTING INFORMATION

David C. Dahmen

1-4-21

PACIFIC CONSULTING ENGINEERS
9739 North Vista Drive, Kingman, AZ 86401
PH. (916) 296.7376

STATE APPROVAL
ENGINEERED TIEDOWN SYSTEM
APPROVED

Approved does not authorize or approve any omission or deviation from requirements of applicable State laws and regulations.

State of California
Department of Housing and Community Development
DIVISION OF CODES AND STANDARDS

By *[Signature]* Date 1/11/21
(Signature)

SPANO ETS 119

This Plan Approval Expires 2/23/23

INSTALLATION INSTRUCTIONS

FIRST CHECK FOR UNDERGROUND UTILITY LOCATION:

EZDH EARTH AUGERS

1. SEE DETAIL THIS BOOKLET FOR INSTALLATION INSTRUCTIONS.

EARTH AUGERS

1. INSTALL AUGERS INTO SOIL WITH CONSTANT DOWNWARD PRESSURE TO MINIMIZE SOIL DISTURBANCE LEAVING APPROX. 12" OF SHAFT EXPOSED.
2. INSTALL STABILIZER PLATE - DRIVE FLUSH WITH GROUND SURFACE.
3. COMPLETE TURNING AUGER INTO GROUND UNTIL AUGER HEAD IS FLUSH WITH GROUND SURFACE AND TOP OF STABILIZER PLATE.

CROSS DRIVE ANCHORS

1. CROSS DRIVES ARE USED WHERE HARD ROCKY SOIL OCCURS. IF THE GROUND SURFACE IS OTHER THAN ROCK OR MIN 2.5" ASPHALT, INSTALL MMA-SD2 STABILIZER PLATE, OR PLACE 12"x12"x12" DEEP CONCRETE.

CONCRETE SLAB ANCHORS

1. CONCRETE SLAB TO BE MINIMUM 3 1/2" THICK AND IN GOOD CONDITION.
2. MINIMUM SLAB AREA REQUIRED FOR EACH ANCHOR IS 28 SQ. FEET.
3. DRILL PROPER SIZE HOLE IN SLAB MINIMUM 4" FROM ANY EDGE.

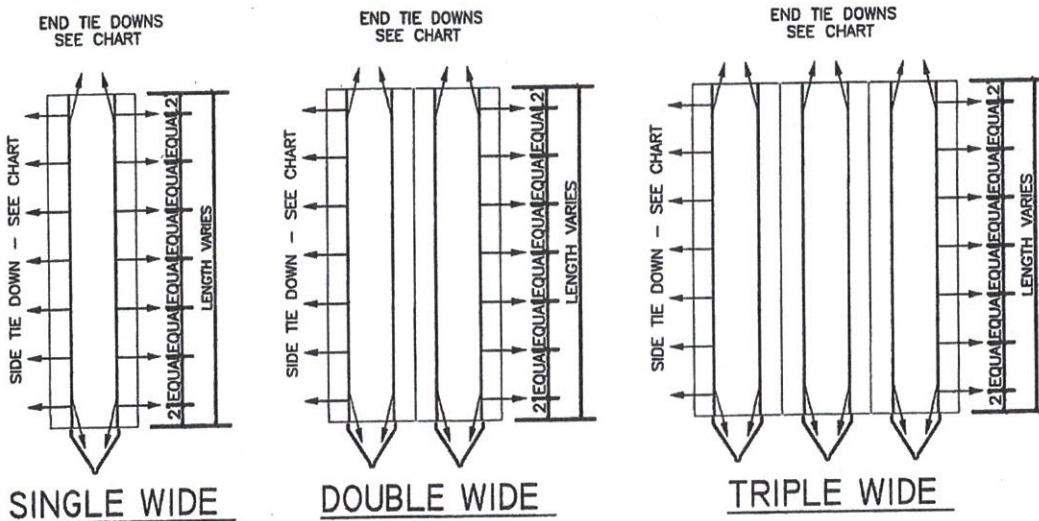
ALL APPLICATIONS

1. ATTACH STRAPS TO CHASSIS BEAM IN MANNER SHOWN.
2. INSERT STRAP THROUGH SPLIT NUT, CUT OFF EXCESS STRAP AND TIGHTEN UNTIL SNUG.

THIS PLAN MAY BE USED FOR MANUFACTURED HOMES PLACES IN FEMA FLOOD HAZARD ZONES A, AE & AH, PROVIDED THE GROUND ANCHORS ARE THE MMA-650, 50" EARTH AUGERS. UNDER FLOOR VENTS AT THE PERIMETER SKIRTING SHALL BE PLACED WITH THE BOTTOM OF THE VENT MAX 12" ABOVE THE UNDER FLOOR GROUND SURFACE

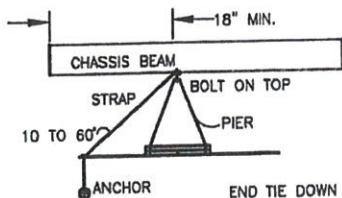
TIE DOWN LOCATIONS

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EARTH AUGERS						CROSS DRIVE ANCHORS					CONCRETE SLAB ANCHORS						
MAX. LENGTH OF MFG'D HOME	32'	42'	52'	62'	73'	MAX. LENGTH OF MFG'D HOME	32'	42'	52'	62'	73'	MAX. LENGTH OF MFG'D HOME	34'	42'	50'	59'	68'
MAX. NO. OF SIDE TIE DOWNS	3	4	5	6	7	MAX. NO. OF SIDE TIE DOWNS	3	4	5	6	7	MAX. NO. OF SIDE TIE DOWNS	4	5	6	7	8

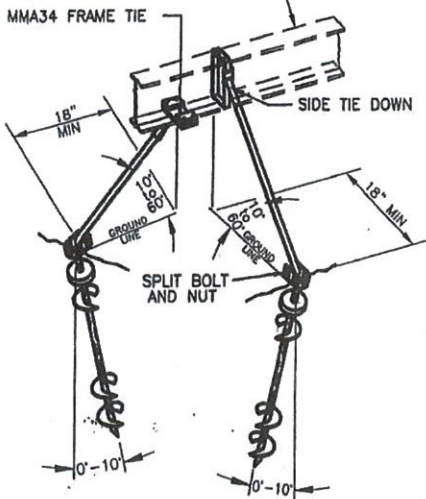
NOTE: IF OBSTRUCTIONS PRECLUDE THE PLACEMENT OF THE SIDE TIE DOWNS AT THE 2' LOCATION SHOWN SIDE TIE DOWNS AT 2'-0" FROM EACH END HAVE A TOLERANCE OF 1±



MINUTE MAN PRODUCTS
LISTED BY: **RADCO**
3220 E. 59th Street
Long Beach, CA 90805
LISTING NUMBER AT .1344
TIE DOWN SYSTEM TO BE IDENTIFIED BY A STICKER PLACED ON THE STEEL STRAPS MM-32 OR MMA-71 - STICKER TO CONTAIN THE FOLLOWING.
MINUTE MAN PRODUCTS ETS-119
RADCO
Listing Number 1344

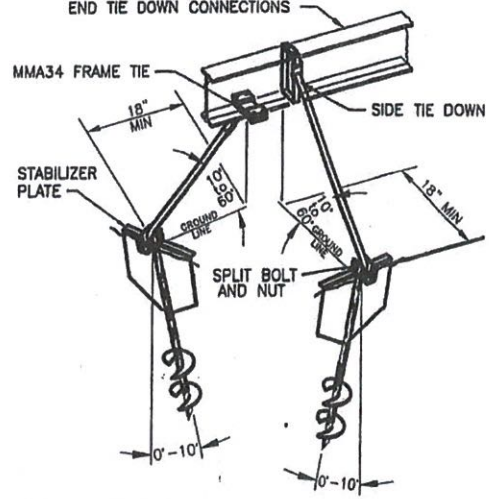
NOTE: TIE DOWN STRAPS AT THE CHASSIS BEAM ENDS (END TIE DOWNS) CAN BE ATTACHED TO A CHASSIS SUPPORT PIER WITH A PIER BOLT ON TOP. (SEE SKETCH ABOVE).

"I" BEAM SHOWN, SEE
"C" & "RFC" CHASSIS FOR
END TIE DOWN CONNECTIONS

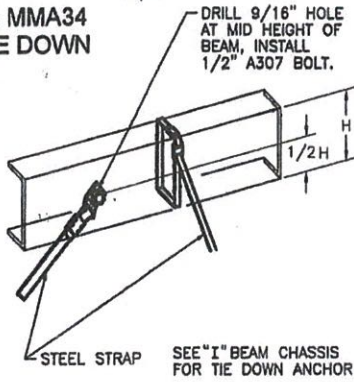


NC4636, EZDH & MMA34
EARTH AUGER TIE DOWN

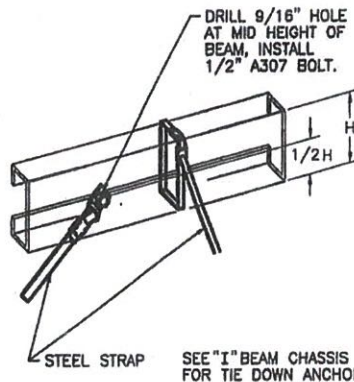
"I" BEAM SHOWN, SEE
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EARTH AUGER TIE DOWN



"C" BEAM CHASSIS



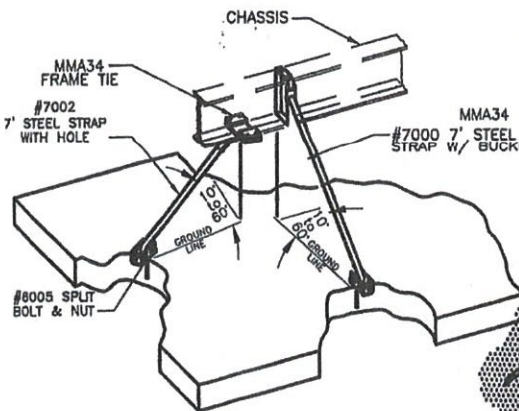
"RFC" BEAM CHASSIS

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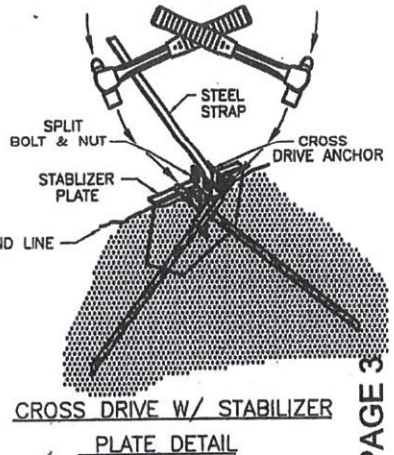
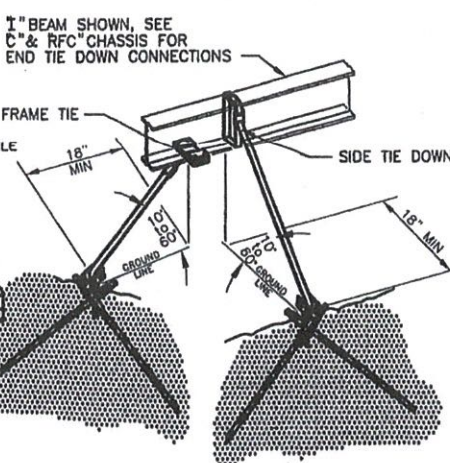
INSTALLATION INSTRUCTIONS

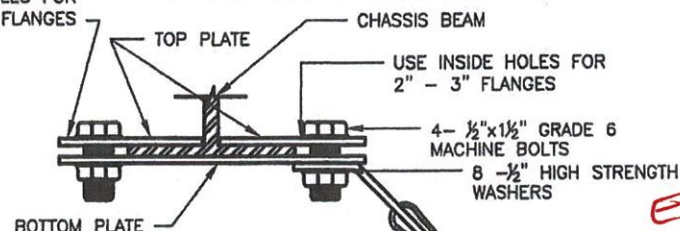
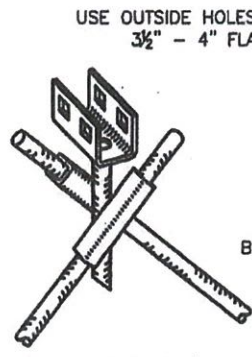
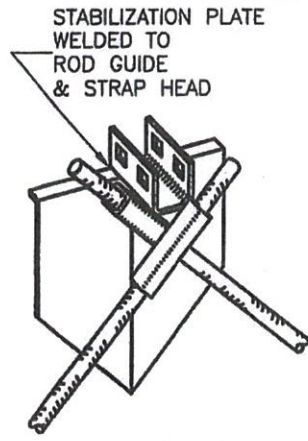
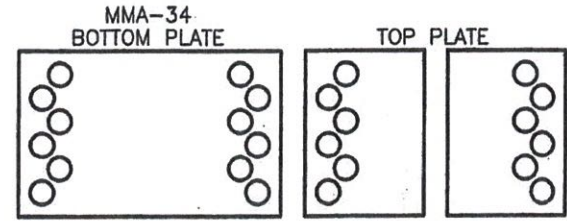
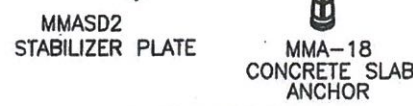
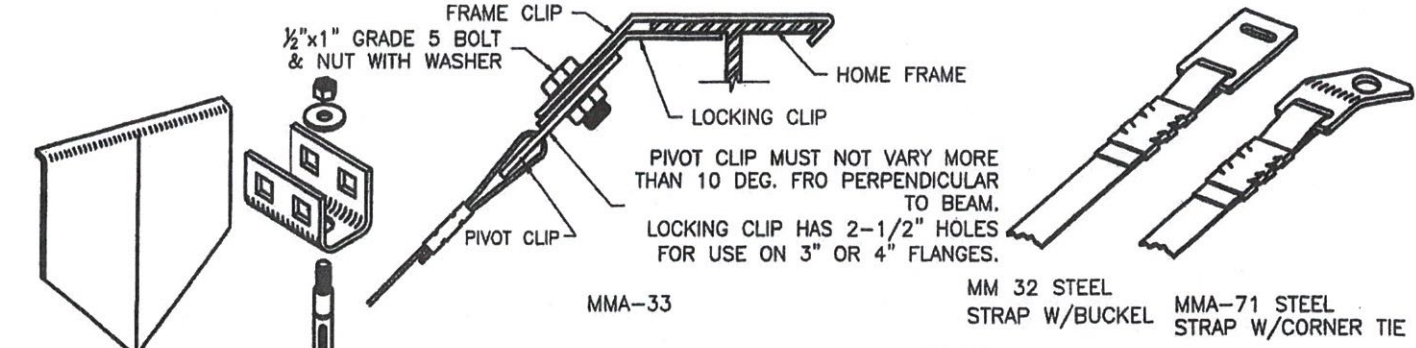
1. THE DRIVE MACHINE IS STARTED AND THE ANCHOR IS TURNED INTO THE GROUND TO A POINT WHERE THE TOP (STABILIZER HEAD PLATE) IS FLUSH OR SLIGHTLY BELOW GROUND LEVEL. THIS INSURES THAT THE E-Z ANCHOR STABILIZER WILL BE AT ITS REQUIRED INSTALLATION POSITION.
 2. FOR THE E-Z ANCHOR/STABILIZER TO ACHIEVE FULL POTENTIAL, INSTALL THE ANCHOR VERTICALLY WITH NO DEVIATION GREATER THAN 10 DEGREES. NOTE: A SLIGHTLY GREATER ANGLE MAY BE USED TO START THE ANCHOR TO AVOID CONTACT WITH THE HOME & STRAIGHTENED AS THE ANCHOR IS GROUND SET. THE SPLIT BOLT IS INSERTED, STRAP FASTENED, AND TIGHTENING ADJUSTMENT MADE.
- NOTE: WITH MACHINE INSTALLATION, A MINUTE-MAN ADAPTER DESIGNED TO FIT BOTH THE ANCHOR HEAD AND DRIVE MACHINE SHAFT IS AVAILABLE. INSTALLERS DO NOT NEED ADDITIONAL OR SPECIAL EQUIPMENT FOR E-Z ANCHOR INSTALLATION.

CONCRETE TIE DOWN

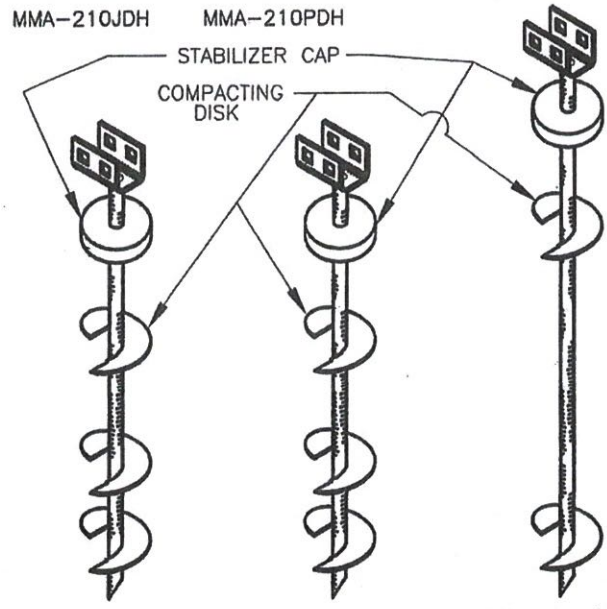
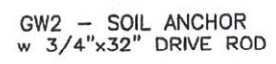
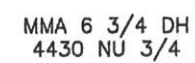
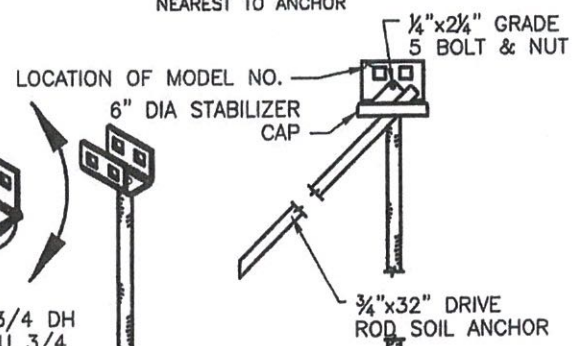
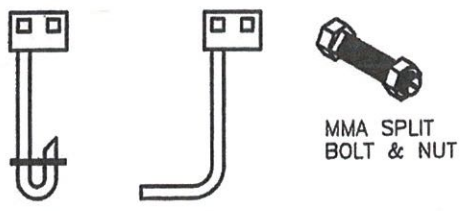
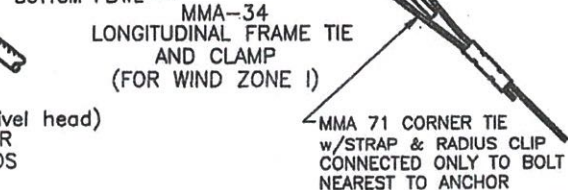
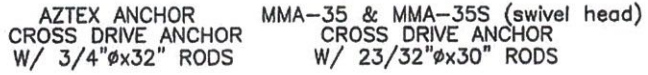


CROSS DRIVE TIE DOWN





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MMA-91 5/8 DIA 32" AUGER ANCHOR
 MMA-92 3/4 DIA 32" AUGER ANCHOR
 MMA-94 3/4 DIA 36" AUGER ANCHOR
 MMA-650 3/4 DIA 50" AUGER ANCHOR
 4430 DH 3/4 DIA 30" AUGER ANCHOR