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APPLICATION

HOLLY PARK

SET UP INSTRUCTION MANUAL

For Single Wide Homes

TRA DESIGN REVIEW
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**KEEP THIS MANUAL
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(Rev A)

IM-1.1

SET UP INSTRUCTIONS FOR SINGLE WIDE HOMES

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(Rev A)

**RECOMMENDED MINIMUM
SET UP TOOLS FOR SINGLE WIDE HOMES**

- Two - 10 Ton Hydraulic Jacks
- 16 oz. Claw Hammer
- 24" Nail Bar or Carpenter Bar
- 8" Pliers
- 26" Hand Saw
- 10" Crescent Wrench
- Standard Metal Cutters
- Foundation Supports
- 100' Heavy Duty Extension Cord with Ground
- 6' Carpenter Level
- 8" Standard Blade Screw Driver
- 8" Phillips Screw Driver
- 16" Steel measuring Tape
- Wood Wedges

Any attached building or appurtenance, that penetrates any part of the home and is not designed and provided by Holly Park fully the responsibility of the Homeowner. Any resultant and/or related damage caused to the home by such attached building(s) or appurtenance(s) will not be serviced by Holly Park.

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**IT IS EXTREMELY IMPORTANT
TO PROPERLY SET, BLOCK AND
LEVEL YOUR HOME**

It is best to have your home prepared for occupancy by a knowledgeable and experienced home set up firm. Such people should have the expertise to properly set up and block your home so that it is level and remains so. If your home is not properly set up and blocked on appropriate foundations, it may undergo unnatural structural strains, which could result in:

1. buckling and/or loosening of walls, partitions, siding, ceiling, doors, floors, weather stripping and miscellaneous fixed original fixtures of the home.
 2. leaking windows, doors, roof, ceiling, walls, floor, seams and junctures in general.
 3. improper closing, binding and sagging of windows, cabinets and inside and outside doors.
 4. malfunctioning of plumbing, water outlets, lighting fixtures, electrical, heating and air conditioning systems.
- Unless you are very qualified and capable, it may well be worth the extra expense of not doing it yourself.

FOUNDATION REQUIREMENTS

It is important that your home have adequate support to give it proper and lasting stability. Therefore, the foundation footings, piers, supports or runners shall be installed in accordance with the size and weight of the home. Consideration shall be given to the type of soil and frost line conditions where the home is to be located when designing and installing the foundation footings or supports.

We recommend that you contact a local engineer and inquire as to the type of footings required in your area. You may wish to hire a contractor to install the required footings.

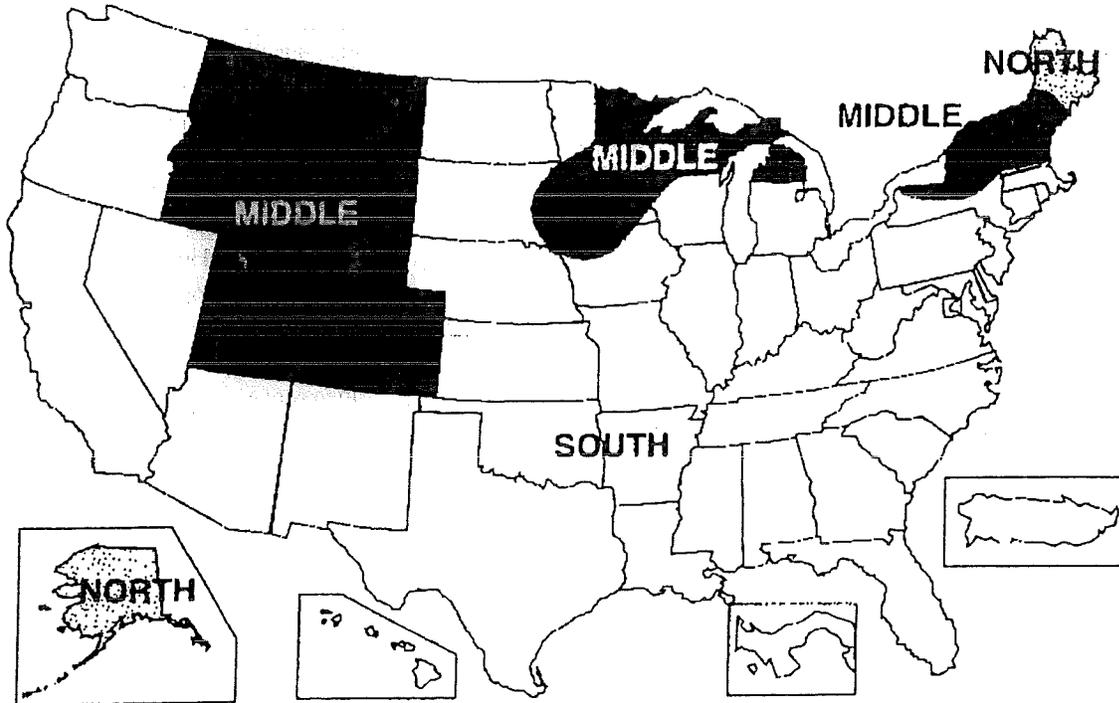
The following Roof Load Zone map will help you to determine what weather zone your home will be located in. After this has been determined, refer to the following section for specified foundation footings and pier blocking.

SITE PREPARATION

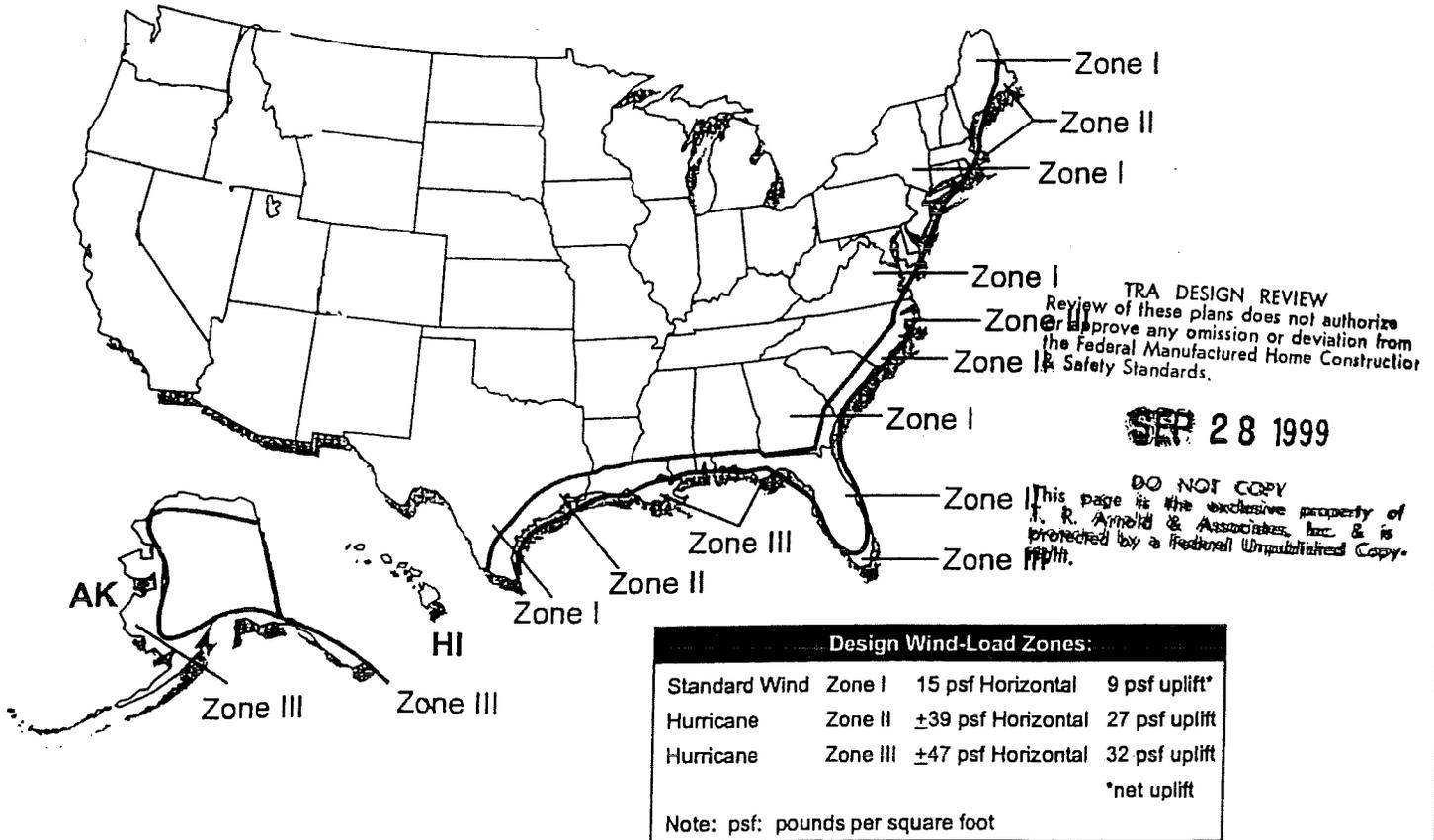
Proper site preparation is essential to the set up and performance of the manufactured home. The site shall be free of all grasses and organic matter and shall be graded to the minimum slope required for storm drainage away from the home. A vapor barrier shall be installed on the ground directly beneath the home where soils are not conducive to good drainage.

Note: The area under the home must be graded to prevent water accumulation.

DESIGN ROOF-LOAD ZONE MAP



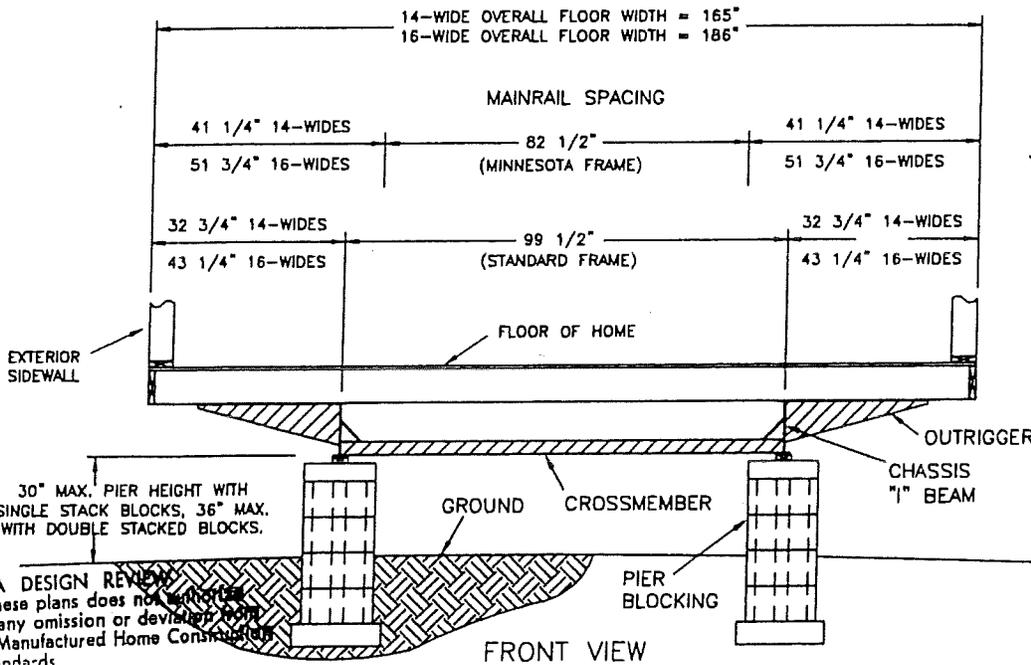
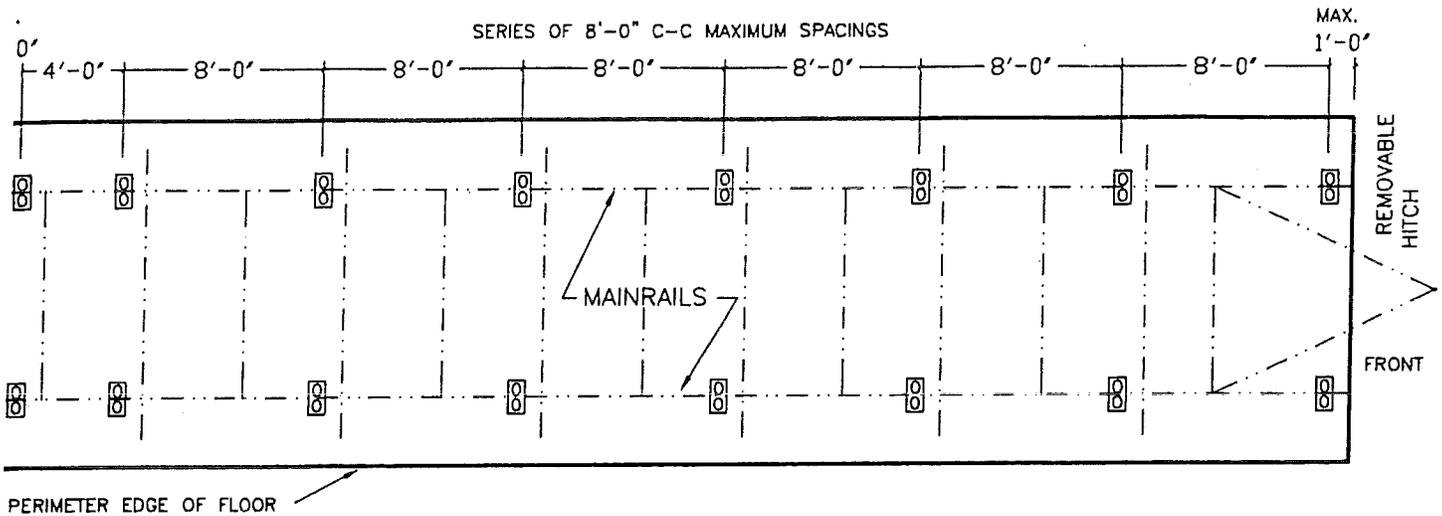
DESIGN WIND-LOAD ZONES:



NOTE: ALL MAINLAND STATES NOT SHOWN ARE WIND ZONE 1

TYPICAL REQUIRED FOUNDATION FOOTINGS AND PIER BLOCKING
(FOR HOMES LOCATED IN THE MIDDLE OR SOUTH ROOF LOAD ZONES)

PIER LOCATIONS FRONT TO REAR



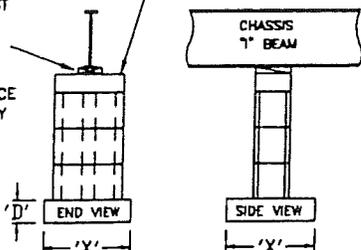
APPLICABLE FOR:
MAINRAIL PIER SET
20# & 30#
ROOF LOADS

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LEVELING WEDGES
IF NEEDED MUST BE CUT FROM TREATED WOOD MATERIAL AND MUST HAVE BEARING SURFACE 3 1/2" WIDE BY 8" LONG MIN.



A DOUBLE STACK PIER IS REQUIRED IF THE DISTANCE FROM THE MAINRAIL TO GROUND EXCEEDS 30". REFER TO ANSI A225.1 MFG. HOME INSTALLATION MANUAL FOR CONSTRUCTION REQUIREMENTS.

SOIL BEARING CAPACITY/SQ FT	FOOTING SIZE 'X' x 'X' x 'D'	
	20# ROOF LOAD	30# ROOF LOAD
1,000	28 x 28 x 5"	30 x 30 x 5"
1,500	23 x 23 x 5"	24 x 24 x 5"
2,000	20 x 20 x 4"	21 x 21 x 5"
3,000	16 x 16 x 4"	17 x 17 x 4"
4,000	16 x 16 x 4"	16 x 16 x 4"

ANY OPENING IN SIDEWALL WIDER THAN 4' MUST BE BLOCKED AND LEVELLED TO MAINTAIN SQUARENESS OF THE OPENING

(Rev B)

POURED CONCRETE FOOTING MUST HAVE COMPRESSIVE STRENGTH OF 3,000 P.S.I. AT 28 DAYS. FOOTINGS OTHER THAN POURED CONCRETE MAY BE USED PROVIDED ALL APPLICABLE BUILDING CODES AND LOAD BEARING CAPABILITIES ARE MET. WE RECOMMEND A QUALIFIED CONTRACTOR, ARCHITECT OR CIVIL ENGINEER FAMILIAR WITH APPLICABLE BUILDING CODES REVIEW AND APPROVE THE TYPE, SIZE AND INSTALLATION OF THE FOOTING SYSTEM USED.

8-19-99
IM1-5

SINGLEWIDE SET UP PROCEDURE

BLOCKING AND LEVELING

It is important that the home be level and properly supported as prescribed in this manual. After the footings are properly dry for the pier design selected, follow the procedure below:

1. Place a 6' level lengthwise on the floor of the home over the area where the axles are located. Turn the jack at the coupler on the front of the home until the floor is level in the axle area.
2. Turn the level crosswise and see if the home is level from side to side. If not, put a hydraulic jack under the low side I-beam at the axle area and raise the side that is low.
3. Place blocks under the I-beams on each side immediately ahead and behind the spring hangers. Insert wedges as shown on the drawing so the blocks bear the weight.
4. Work towards each end, placing blocks and wedges under the I-beams at no more than 8' intervals. Make continued checks with the level. If jacking is required, jack only under the I-beams and only enough to keep it level. If the home is over-jacked serious damage may result.

NOTE: Due to natural soil properties, some settling may occur. Within 90 days of initial set up, the home should be checked and relevelled if necessary.

TIE DOWN REQUIREMENTS

ONLY after the home is properly blocked and leveled should tie down procedures begin.

Ground ties are installed to resist lateral movement caused by high winds. Anchors, strapping, installation procedures, etc. are available from Minute Man Anchors, Inc. 305 West Walker Street, East Flat Rock, North Carolina, 28726, telephone (704) 692-0256, however, any anchors that meet the anchorage requirements specified herein are acceptable.

Vertical tie connectors are available as an optional item. They are NOT to be used in place of the frame anchoring system. If used, the vertical tie connectors must be attached to their own anchors, capable of withstanding a 3,150 pound pull when installed in the soil at the site. Do not attach them to the frame tie anchors.

Your home is designed to the Wind Zone 1 Standard. Wind Zone 1 is identified on the Wind Zone Map in this manual. Refer also to the Strap/Anchor Spacing details for proper frame tie and anchor spacing. The placement of anchors out from the I-beam shall be such that the strap angle is in the specified range.

If possible, the anchors should be installed at the same angle as the anchor strap, so the "pull" on the anchor is straight. If the "pull" is not straight, follow approved methods described by the anchor manufacturer (i.e. stabilizer plates).

When tightening the straps with tensioning device provided with the anchors, avoid overtensioning the straps as this could pull the home off the piers. It is recommended that all straps be tightened enough to remove the slack. After all straps are installed and the slack removed, tension the straps.

NOTE: Strap tension should be checked periodically until all pier settlement has stopped. AT TIME OF RELEVELING DO NOT JACK THE HOME AGAINST THE STRAPS.

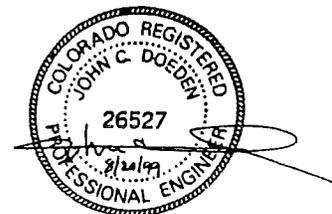
In accordance with the FMHCSS effective July 13, 1994, the following anchorage requirements shall also be observed.

1. The design of anchors should be certified for their installation by a professional engineer or a nationally recognized testing laboratory as to their resistance based on the installed angle of diagonal tie and/or vertical tie loading and type of soil in which the anchor is to be installed.
2. Ground anchors should be embedded below frost line and be at least 12" above the water table and should be installed to their full depth with stabilizer plates installed to provide added resistance to overturning or sliding forces.
3. Anchoring equipment should be certified by a registered engineer or architect to resist these specified forces in accordance with testing procedures in ASTM specification D3953-91, "Standard specification for strapping, flat steel, and seals."
4. Tie downs must start no more than 2'-0" from each end of unit (i.e. open end anchorage).
5. Protection shall be provided at sharp corners where the anchoring system requires external straps or cables.

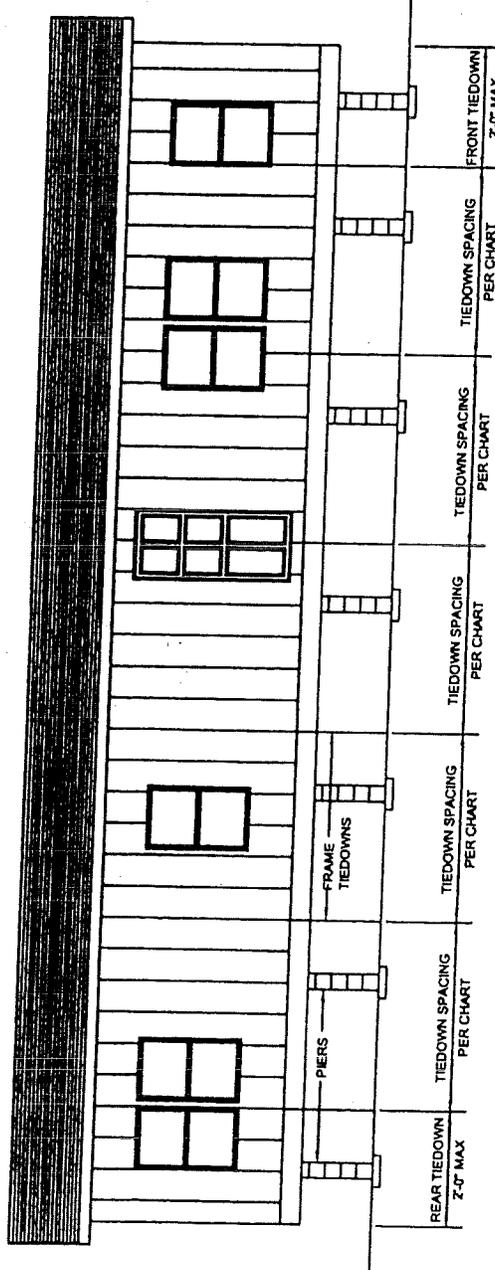
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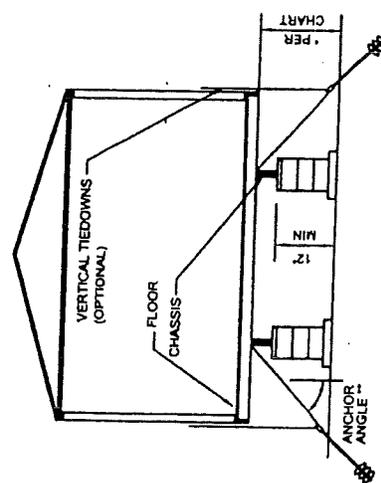
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TIEDOWN S ZIM
WIND ZONE I (15 PSF LATERAL)



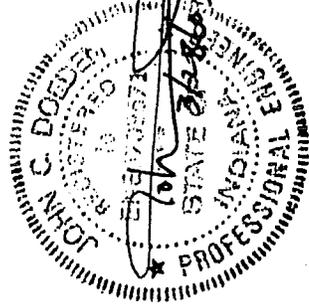
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTION SHOWING TIEDOWNS

- NOTES:
1. FRAME TIE-DOWNS SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
 2. VERTICAL TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS.
 3. VERTICAL TIES (WHEN INSTALLED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
 4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY HOLLY PARK HOMES.
 5. VERTICAL TIE DOWN STRAPS (WHEN INSTALLED) ARE SUPPLIED BY HOLLY PARK HOMES. ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
 6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING A TENSILE LOAD OF 4725 POUNDS AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
 7. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
 8. PLACEMENT OF FRAME TIEDOWN STRAPS AND ANCHORS MAY BE OFFSET UP TO FOUR FEET TO ALLOW ALIGNMENT WITH VERTICAL TIE STRAPS PROVIDED NO DECREASE IN THE TOTAL NUMBER OF FRAME TIEDOWNS RESULTS.
 9. DESIGN BASED ON 99 1/2" BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-0".
 10. ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
 11. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND 12. GROUND ANCHORS SHALL BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
 13. ANCHORING EQUIPMENT SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3953-91.
 14. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953-91, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

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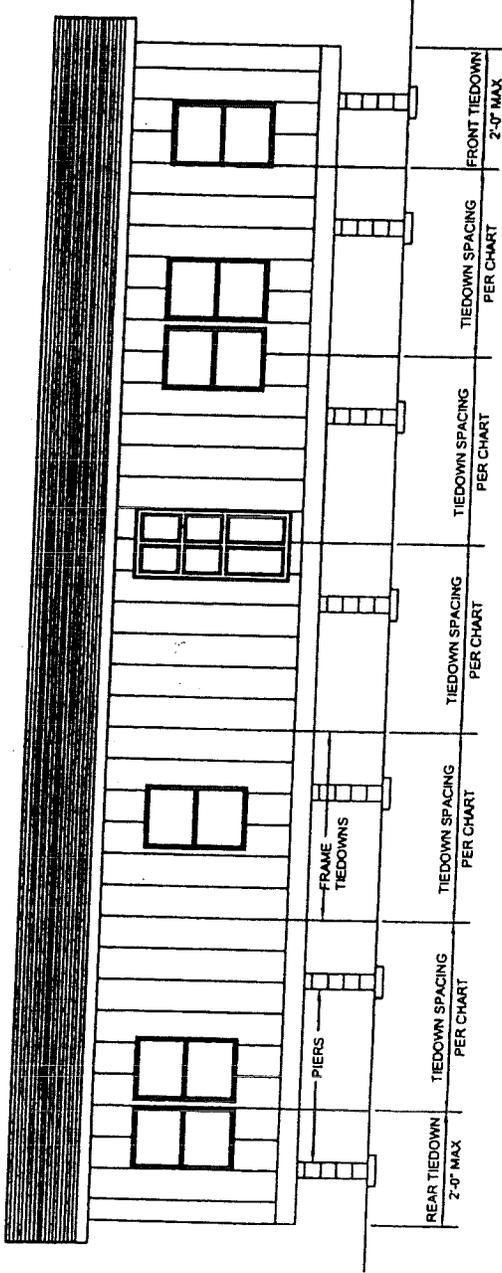
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20 DEGREE MAXIMUM ROOF SLOPE
* MAX. PIER HEIGHT INCLUDES DEPTH OF I-BEAM

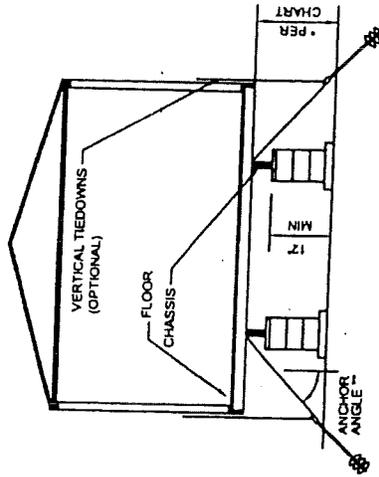
FRAME TIEDOWN SPACING CHART				
FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX. PIER HEIGHT	ANCHOR ANGLE **
13'-9" SINGLE	3" MAX	10'-0"	41"	30-40
15'-6" SINGLE	3" MAX	10'-0"	57"	30-40

** ANGLE OF ANCHOR FROM VERTICAL IS PER CHART "FRAME TIEDOWN SPACING CHART" OR A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.

TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTION SHOWING TIEDOWNS

- NOTES:
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 4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY HOLLY PARK HOMES.
 5. VERTICAL TIE DOWN STRAPS (WHEN INSTALLED) ARE SUPPLIED BY HOLLY PARK HOMES, ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
 6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING A TENSILE LOAD OF 4725 POUNDS AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
 7. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
 8. PLACEMENT OF FRAME TIEDOWN STRAPS AND ANCHORS MAY BE OFFSET UP TO FOUR FEET TO ALLOW ALIGNMENT WITH VERTICAL TIE STRAPS PROVIDED NO DECREASE IN THE TOTAL NUMBER OF FRAME TIEDOWNS RESULTS.
 9. DESIGN BASED ON 82 1/2" BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-0".
 10. ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
 11. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND 12" GROUND ANCHORS SHALL BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
 13. ANCHORING EQUIPMENT SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3593-91.
 14. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
 15. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3593-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.

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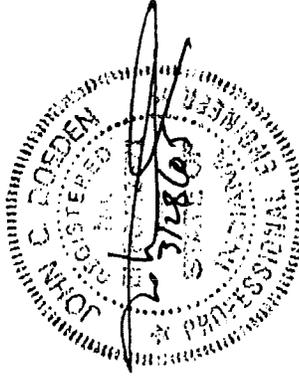
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20 DEGREE MAXIMUM ROOF SLOPE
* MAX. PIER HEIGHT INCLUDES DEPTH OF I-BEAM

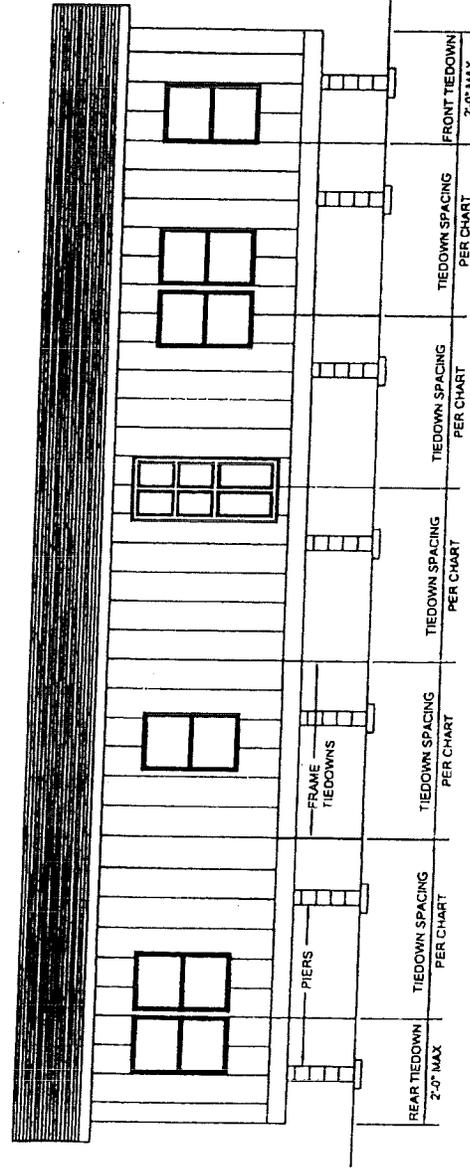
FRAME TIEDOWN SPACING CHART				
FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX. PIER HEIGHT	ANCHOR ANGLE **
13'-9" SINGLE	3" MAX	10'-0"	54"	30-40
15'-6" SINGLE	3" MAX	12'-0"	52"	40-50

** ANGLE OF ANCHOR FROM VERTICAL IS PER CHART
* FRAME TIEDOWN SPACING CHART OR A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.

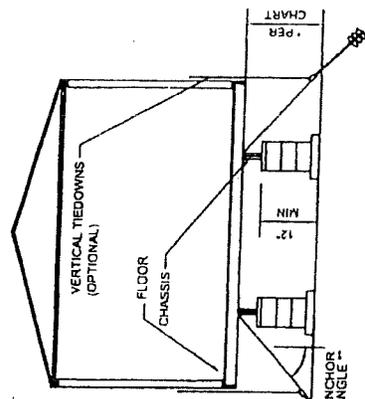


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TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTION SHOWING TIEDOWNS

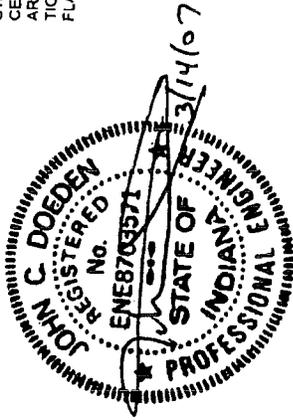
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 7. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
 8. RESERVED FOR FUTURE USE.
 9. DESIGN BASED ON BEAM SPACING PER CHART AND A MAXIMUM SIDEWALL HEIGHT OF 8'-0".
 10. ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
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 12. GROUND ANCHORS SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3593-91.
 13. ANCHORING EQUIPMENT SHALL BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS.
 14. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL AND SEALS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3593-91. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.

15. ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND DEPTH AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
16. ANCHORS SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3593-91.
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20 DEGREE MAXIMUM ROOF SLOPE
* MAX. PIER HEIGHT INCLUDES DEPTH OF I-BEAM

FRAME TIEDOWN SPACING CHART					
FLOOR WIDTH	I-BEAM SPACING	EAVE OVERHANG	TIEDOWN SPACING	MAX. PIER HEIGHT	ANCHOR ANGLE **
11'-9" SINGLE	99 1/2" C-C	3" MAX	8'-0" O.C.	26"	30-35
	82 1/2" C-C	3" MAX	6'-0" O.C.	38"	20-25
			10'-0" O.C.	30"	35-40
			8'-0" O.C.	42"	25-30

** ANGLE OF ANCHOR FROM VERTICAL IS PER CHART
"FRAME TIEDOWN SPACING CHART" OR A STABILIZER
PLATE MUST BE INSTALLED IN ACCORDANCE WITH
ANCHOR MANUFACTURER'S INSTRUCTIONS.

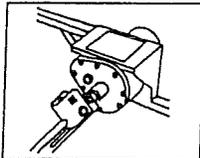
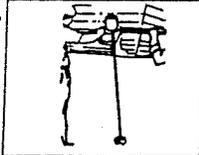
IM-1.6.3

ANCHOR INSTALLATION

CAUTION: The installation of anchors with a drive machine is a two person operation.

MACHINE INSTALLATION

In this method, the anchor is turned to full depth into the ground by an anchor drive machine.

1.  Attach anchor to machine.
2.  Placed anchor in proper position in line with strap and machine.
3.  Anchor should be installed at a slight angle as shown to assure head being positioned behind future skirting.

MANUAL INSTALLATION

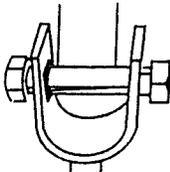
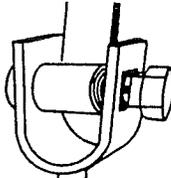
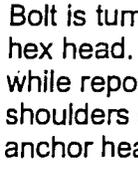
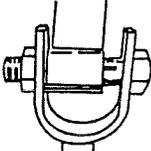
A hole is dug to a depth of approximately two feet in the proper position as explained under machine installation.



After the hole is dug to 24" depth, the anchor is turned into the ground by hand, using a rod or length of pipe for leverage.

After anchor is installed full depth, earth is repacked, six inches at a time.

PROPER TENSIONING OF STRAP TO ANCHOR HEAD

1.  Insert bolt into head; attach nut loosely. Insert strap in slot of 5/8" bolt, or until strap is flush with far side of bolt.
2.  Bend strap 90° and take at least three complete turns on bolt until strap is taut.
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3.  Bolt is turned with 15/16" socket wrench, or adjustable wrench, on hex head. With square hole in anchor head, hold bolt under tension while repositioning wrench: Place open-end wrench on 5/8" square shoulders of bolt. Align square shoulders of bolt with square hole in anchor head.
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4.  Holding hex head of bolt in position, tighten nut to draw square shoulders into square hole. Shoulders are now in locking position; continue to tighten nut. Tensioning device is now in locked, secure position.

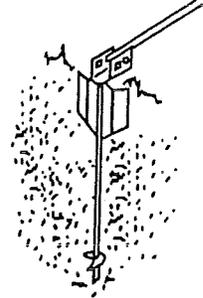
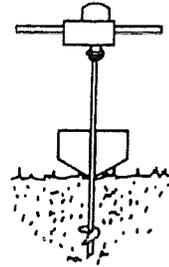
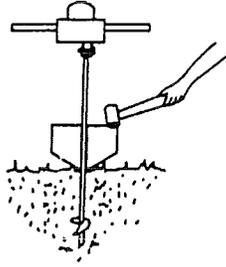
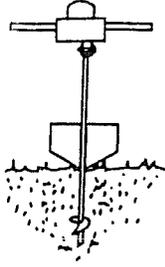
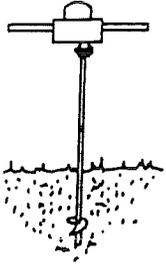
Note: The tensioning bolt can be inserted in the head from either side.

Notice: In areas of severe cold weather, where possible damage could occur from frost heave, the homeowner should be prepared to adjust tension on the straps to take up slack.

MINUTE MAN ANCHORS, INC.

INSTRUCTION FOR USING MINUTE MAN STABILIZING DEVICE

Minute Man stabilizing devices are designed for use with Minute Man anchors and intended to laterally restrict movement of the anchor through the soil.



1. Install the anchor into the ground leaving 12" - 18" of the shaft exposed.
2. Place the stabilizing device next to the shaft in the direction of pull.
3. Drive the stabilizing device into the ground.
4. The anchor is then turned in the rest of the way into the soil until the head of the anchor is flush with the stabilizing device.
5. As the frame tie is tightened the anchor will be pre-loaded against the stabilizing device preventing lateral movement of anchor through the soil.

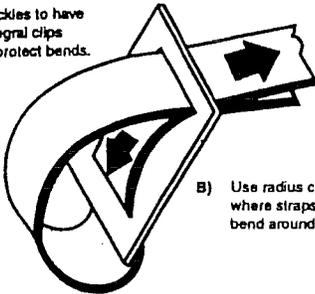
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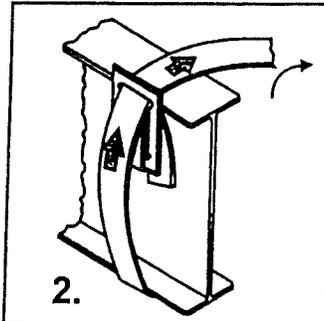
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FRAME TIE INSTALLATION INSTRUCTIONS

Frame Tie With Buckle

A) Buckles to have integral clips to protect bends.

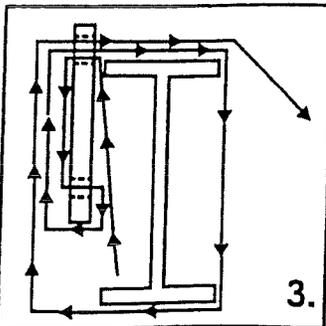


B) Use radius clips where straps bend around frame.



1.

2.



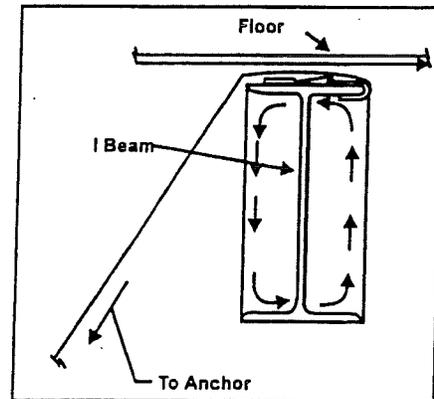
3.

Thread sufficient length of frame tie strap through buckle as shown.

Next, thread long end of strap between frame and floor of home. Bring strap through buckle as shown in diagram and fasten to anchor head.

Diagram showing strap in position around frame and through buckle. It is important to remove all slack from system.

Frame Tie With Hook



Enlarged View of Frame Beam

Attach Frame Clamp (Hook) inside top flange of home frame. Place strap between frame and home as shown in sketch. Pull strap tight and attach to anchor tension head.

E-Z ANCHOR INSTALLATION METHOD

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.

1. MACHINE INSTALLATION

The drive machine is started and the anchor is turned into the ground to a point where the top (stabilizer head plate) is flush with or slightly below ground level. This assures that the E-Z Anchor Stabilizer will be at its required installation position. See Figure A.

To achieve full potential, install the E-Z Anchor vertically. A 10° deviation from vertical is acceptable. See Figure A.

Note: A slightly greater angle may be used to start anchor to avoid contact with the home and straightened as anchor is ground set. The splitbolt is inserted, strap is fastened, and tightening adjustment made.

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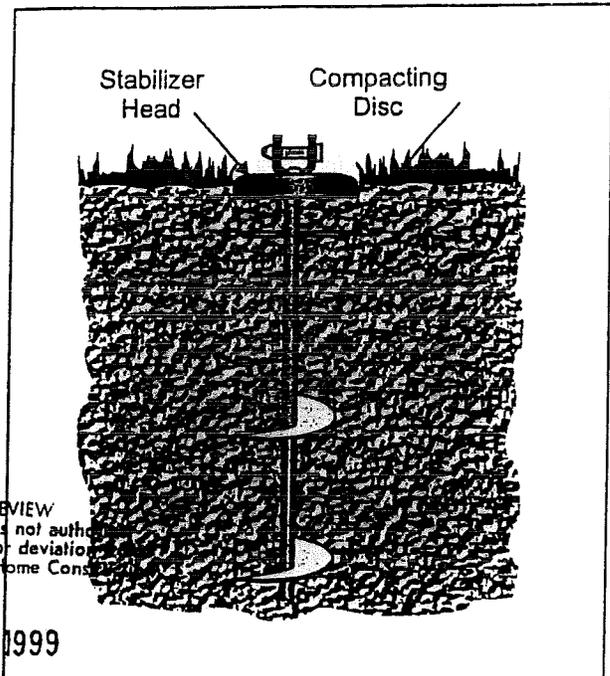


Figure A

2. STANDARDS FOR INSTALLATION

- E-Z Anchors and all components are to be installed per manufacturer's instructions.
- E-Z Anchors are approved for designated Soil Class III.
- E-Z Anchor working load capacity is 3,150 pounds for a single tie or the load of (2) ties combined which is 40 to 50 degrees from vertical. See Figure B.
- Consult manufactured home set up instructions for number of frame tie downs and tie down spacing.
- Proper site preparation required removal of grass and sod prior to installation.

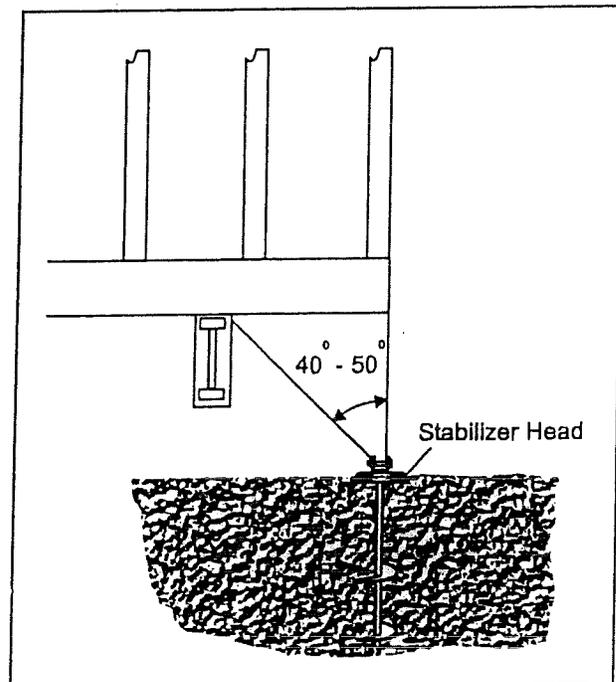
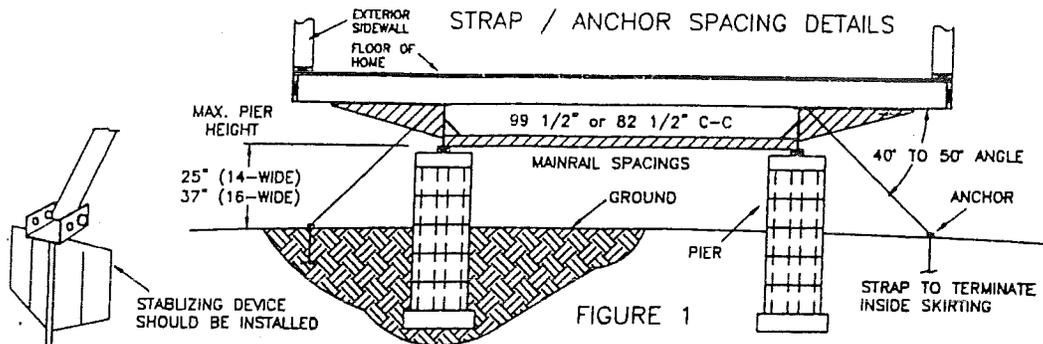


Figure B

For additional information, copies of engineering test(s) and report, Contact Minute-Man Anchors, Inc. (Revised: November 1998)



THE STRAP MUST MEET ASTM D3953-91 FOR TYPE 1, CLASS B, GRADE 1 STRAPPING AND BE AT LEAST 1 1/4" x .035" HOT DIPPED GALVANIZED STEEL.

FIGURE 2

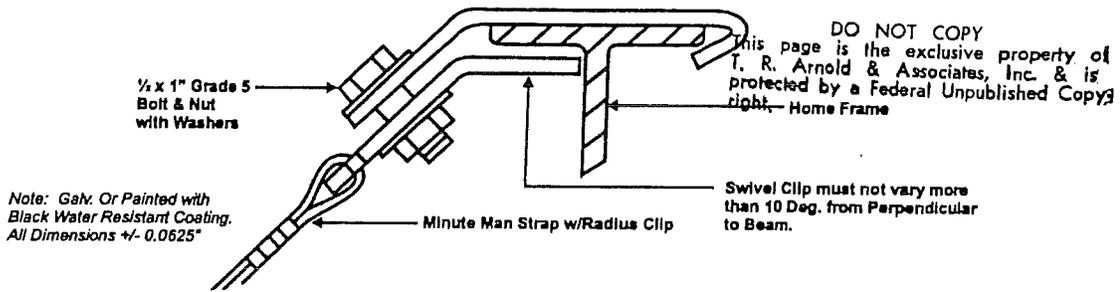


NOTE: STRAP ANCHOR SPACING ALONG LENGTH OF BEAMS IS: 11'-0" MAX. AND 2'-0" MAX. FROM EACH END OF HOME.

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**LOCKING FRAME CLAMP II
MMA-33 ASSEMBLED UNIT**

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Note: Galv. Or Painted with Black Water Resistant Coating. All Dimensions +/- 0.0625"

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Swivel Clip must not vary more than 10 Deg. from Perpendicular to Beam.

SOIL CLASSIFICATION CHART

Soil Class	Soil Description	Blow Count (ASTM D1586)	Test Probe Value	Recommended Minute Man Anchor
1	Sound hard rock	NA	NA	Cross Drive or Rock Anchor
2(a)	Very dense &/or cemented sands, coarse gravel and cobbles, caliche, preloaded silts, and clays.	40-up	551 lb. in. Up	4430DH 650DH 4430 EZDH 636 EZDH 24 BA
2(b)	Coral	40-up	551 lb. in. up	4430 DH 650DH 24BH
3	Medium dense coarse sands, sandy gravels, very stiff silts, and clays.	24-39	351 to 550 lb in.	4430 DH 4430 EZDH 636 EZDH 650DH
4(b)	Loose to medium dense sands, firm to stiff clays and silts alluvial fill.	18-23,3	276 to 350 lb. in.	650DH 6650 EZVDH Fla.
4(b)	VERY loose to medium dense sands, firm to stiff clays and silts, alluvial fill.	12-17	175 to 275 lbs. in	1060DH

member: Each state, county or municipality may require a specific anchor from the groups shown for each soil classification. Check local regulations first.

Note: Many anchors are designed for particular soil condition(s) and are unacceptable for use in other type soils. We have listed the soils for which each anchor is designed and approved. Soil classifications are taken from the "standard for the installation on mobile homes". Each anchor listed meets ANSI A225.1 and ASTM D3953.91 codes.

Following is a list of Minute-Man Anchors with a minimum holding power of 4,725 pounds (2143 kg.).

MARK	MODEL	DESCRIPTION	USE IN SOIL TYPE
MMA-2	650-DH 5/8	6" DISC, 50" ANCHOR	2,3,4
MMA-4	650-DH 3/4	6" DISC, 50" ANCHOR	2,3,4
MMA-18	650-DH 11/16	6" DISC, 50" ANCHOR	2,3,4
MMA-40	636-DH 5/8	6" DISC, 36" ANCHOR	2,3,4
MMA-28	636-DH 3/4	6" DISC, 36" ANCHOR	2,3,4
MMA-30	4430-DH 5/8	DOUBLE 4" DISC, 30" ANCHOR	2
MMA-36	4430-DH 11/16	DOUBLE 4" DISC, 30" ANCHOR	2
MMA-6	4430-DH 3/4	DOUBLE 4" DISC, 30" ANCHOR	2
MMA-35	35-XDH	36" CROSS DRIVE ANCHOR	1
MMA-8	48-XDH	48" CROSS DRIVE ANCHOR	1
MMA-71	1060-DH 3/4	10" DISC, 60" ANCHOR	4b (Fla.)
MMA-50	4442-DH 5/8	DOUBLE 4" DISC, 42" ANCHOR	2,3,4
MMA-52	4636-DH 3/4	4" & 6" DISC, 36" ANCHOR	2,3,4
MMA-54	4450-DH 11/16	DOUBLE 4" DISC, 50" ANCHOR	2,3,4
MMA-55	4450-DH 3/4	DOUBLE 4" DISC, 50" ANCHOR	2,3,4
MMA-92	4430-EZDH 3/4	DOUBLE 4" DISC, 30" EZ ANCHOR	2,3
MMA-94	636-EZDH 3/4	6" DISC, 36" EZ ANCHOR	2,3
MMA-95	660-EZDH 3/4	6" DISC, 60" EZ ANCHOR	2,3
MMA-96	650-EZDH 3/4	6" DISC, 50" EZ ANCHOR	2,3,4
MMA-98	650-EZVDH 3/4	DOUBLE 6" DISC, VERT. STABILIZER	2,3,4A (Fla.)
MMA-18	THDH	DOUBLE HEAD TENSION DEVICE	SLAB
MMA-18	THDHL	DH TENSION DEVICE W/LAG	SLAB
MMA-10	36-DH	CORAL ANCHOR	CORAL
MMA-12	210-DH	CONCRETE ANCHOR	SLAB
MMA-14	210-PDH	WET CONCRETE ANCHOR	SLAB
MMA-42	210-JDH	SWIVEL HEAD WET CONCRETE ANCHOR	SLAB
MMA-BR	24 BA	BARB ROCK ANCHOR	1
MMA-22	100-DH	DOUBLE HEAD TENSION ADAPTER	
MMA-SDA2		STABILIZER	
MMA-SD2		STABILIZER	FLA.
MMA-29	FCIIW/S	FRAME CLAMP II W/STRAP	
MMA-29	FCIW/S	FRAME CLAMP I W/STRAP	
MMA-31	FRAME TIE	LONGITUDINAL FRAME TIE	FLA.
MMA-32	BUC/WS	BUCKLE W/STRAP	
MMA-33	FCII (LOCKING)	LOCKING FRAME CLAMP II	FLA.
MMA-71	CT/WS	CORNER TIE W/STRAP	
MMA-71	CT/WS	CORNER TIE II STRAP	FLA.
MMA	SBN	STRAP BOLT & NUT	
MMA-25	22 BUCKLE	DOUBLE SLOT BUCKLE	
MMA-32	SS BUCKLE	SINGLE SLOT BUCKLE	
	44RB	4X4" ROOF BRACKET	
	66 RB	6X6" ROOF BRACKET	
	POCKET PENETROMETER	POCKET PENETROMETER	
	SOIL TEST PROBE	SOIL TEST PROBE	
	PERIMETER JACK	PERIMETER JACK	
	JACKING PLATE	I BEAM JACKING PLATE	
MMP-6	6" PIER	STANDARD MOBILE HOME PIER	
MMP-8	8" PIER	STANDARD MOBILE HOME PIER	
MMP-10	10" PIER	STANDARD MOBILE HOME PIER	
MMP-12	12" PIER	STANDARD MOBILE HOME PIER	
MMP-14	14" PIER	STANDARD MOBILE HOME PIER	
MMP-16	16" PIER	STANDARD MOBILE HOME PIER	
MMP-18	18" PIER	STANDARD MOBILE HOME PIER	
MMP-20	20" PIER	STANDARD MOBILE HOME PIER	
MMP-22	22" PIER	STANDARD MOBILE HOME PIER	
MMP-24	24" PIER	STANDARD MOBILE HOME PIER	
MMP-26	26" PIER	STANDARD MOBILE HOME PIER	
MMP-28	28" PIER	STANDARD MOBILE HOME PIER	
MMP-30	30" PIER	STANDARD MOBILE HOME PIER	
MDP-16	16" DELUXE PIER	LOCKING HEAD HEAVY DUTY PIER	FLA.
MDP-20	20" DELUXE PIER	LOCKING HEAD HEAVY DUTY PIER	FLA.
MDP-24	24" DELUXE PIER	LOCKING HEAD HEAVY DUTY PIER	FLA.
MDP-28	28" DELUXE PIER	LOCKING HEAD HEAVY DUTY PIER	FLA.
MDP-32	32" DELUXE PIER	LOCKING HEAD HEAVY DUTY PIER	FLA.

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FRESH WATER SUPPLY

The water inlet is located underneath the home and is marked with a label fastened to the side of the home. You must install a ut-off valve in the supply line, adjacent to the home. Connect the supply line to the water inlet.

CAUTION - The water distribution system in this home was designed for a maximum water pressure of 80 pounds per square inch (psi) at the inlet. Pressures in excess of this can cause burst pipes, leaky faucets, etc. If the water pressure exceeds 80 psi, you must install a pressure reducing valve at the inlet. **IMMEDIATELY** after connecting the water supply and turning the water on you should check the entire home for any possible water leaks which may have occurred. (Over the road vibrations, etc. may have loosened a joint.)

CAUTION - Do not start the water heater (either electric or gas) until the water supply has been connected and the water heater has been filled.

If the home is located in an area where pipes may freeze, the exposed water pipe shall be wrapped with a heat tape listed by U.L. for manufactured home use. The heat tape shall be installed in accordance with its manufacturer's instructions. An electrical receptacle is located on the underside of the home, near the water inlet, where the heat tape may be plugged in.

DRAINING THE WATER LINES

Follow these steps in order to drain the water lines in your home:

- a. Turn off water heater.
- b. Turn off water supply.
- c. Open all faucets throughout home.
- d. Disconnect water supply inlet.
- e. Open water heater drain valve, after attaching a hose to the valve so the water drains outside the home.
- f. Let water supply system and water heater drain completely.
- g. Flush toilets and drain water tanks completely.
- h. Close all water faucets with the exception of one.
- i. Connect 30 to 50 pounds per square inch air supply to water inlet connection.
- j. With the air supply on the system, open one faucet at a time throughout the home.
- k. After entire system has been drained of all water, disconnect the air supply and close off water inlet valve.
- i. Pour antifreeze solution into all drain traps, including sinks, tubs, and toilets.

DRAIN LINES

Most of the DWV (Drain, Waste & Venting) system is installed at the manufacturing facility. In some instances, the system must be completed beneath the home after the home is set-up and blocked. All materials needed to complete the system is sent with the home by the manufacturer. A plumbing diagram (as required by Federal Standards and reviewed and approved by an independent engineering firm) depicting the necessary information (fittings, pipe sizes, locations and configuration) necessary to complete this system is included with the close-up kit in your home.

First locate the outlets visible beneath the home. Using the above referenced diagram locate the fittings necessary at each outlet and secure these fittings to the outlets. Note: All connections of fittings shall be done following the instructions printed on the containers of solvent and adhesive.

Standard lengths of pipe are provided. These must be cut to necessary lengths as required by distance between outlets being connected. All cut ends shall be cleaned and de-burred before being joined. Couplings are provided for joining pipe lengths if necessary.

After fittings are installed and pipe sections are completed, assemble the pipe to the fittings between outlets, again per the proper solvent and adhesive instructions.

When installing these drain lines, ensure they are installed with a slope towards the main drain of 1/4" per foot, or if a clean out fitting is located at the upper end of each branch, a min. of 1/8" per foot is acceptable.

All drain lines must be supported every 4'-0" on center to ensure the required slope. If you live in an area that is subject to extreme cold, care must be taken to prevent line freeze by wrapping with insulation.

ELECTRICAL CONNECTION

The home was completely wired at the factory, up to and including the service panel containing the main circuit breaker and individual branch circuit breakers. The electrical system in the home is 115/230 volt, 3-pole, 4-wire, including ground. Conduit from the service panel to the outside of the home, in which to run the electrical supply wires, has also been installed at the factory. It is very important to properly ground the service panel. Each branch circuit and each non-current carrying conductor (exterior metal, gas lines, heat duct, etc.) is grounded to an electrically isolated grounding bar in the service panel. The neutral (white) wire in the electrical system should never be grounded in the service panel or to the ground (green) wire.

The main electrical supply lines, outside conduit, disconnects, etc. have not been supplied with the home since requirements vary from location to location, and the connection must conform to all local requirements.

The following table shows the proper size wire to be used in connecting the main service panel in your home to the electrical source (proper wire size depends on the type of wire and the electrical demand of the home):

SIZE OF FIXED FEEDER SUPPLY WIRES, AWG OR MCM

Size of Main Circuit Breaker, In Home, In Amperes	75 C rated Copper, Type RH, RHW, without Outer Covering THW or XHHW	Size of Grounding Wire
100	3	8
150	1/0	6
200	3/0	4

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NOTE: Certain items in your home may be protected by a plastic cover, e.g. skylights, fan, light globes. Covers should be removed for proper use.

IMI 1-12 (REV D)

The electrical supply wires should be run in conduit from the home to the electrical source. The following table shows the proper size junction box and conduit to use, which depends on the type of wire used and the electrical demand of the home:

MINIMUM JUNCTION BOX AND CONDUIT SIZE,

Size of Main Circuit Breaker, in Home, in Amperes	IN INCHES 75° C Rated Copper, Type RH, RHH RHW without Outer Covering THW or XHHW
100	1-1/4
150	1-1/2
200	2

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furnished with the home, do not operate the water heater until the protective covering has been removed from the roof and the flue pipe and cap have been properly installed in accordance with the water heater manufacturer's instructions.

The water heater flue pipe and cap (when not installed, but furnished with the home) was not installed at the factory to prevent possible damage during shipment.

- Only a qualified person should check the system for leaks and connect it to the supply. Unqualified people could cause serious or fatal accidents.
- Install a gas shut off valve outside the home when connecting the system to the supply.
- In such cases, the orifices or settings included in the gas burning appliances (including furnaces and water heaters) at the factory are for NATURAL gas only. If you intend to use LP gas, a qualified person must convert the appliance in accordance with its manufacturer's instructions. Be sure to check all connections for leaks after the appliances have been converted.
- After the supply is connected, the installer should light the pilot light (if any) on each appliance and determine that the appliance is working properly.

INSTALLING FLUE ON OPTIONAL WOOD BURNING FIREPLACE

CAUTION! If the home includes an optional wood burning fireplace installed at the factory, DO NOT START A FIRE IN IT until the protective covering has been removed from the top of the chimney and the remaining sections of the flue pipe and the flue top assembly have been properly installed in accordance with the fireplace manufacturer's instructions. The flue pipe and top assembly, which are furnished with the home, were not installed at the factory because of the possibility of damage while in transit.

CAUTION! Be sure to use the optional wood burning fireplace only in accordance with the manufacturer's instructions.

INSTALLING CENTRAL AIR CONDITIONING

This home is suitable for installation of a central air conditioner, provided the electrical supply panel and electrical service is large enough to carry the load. A qualified heating/cooling company will be able to determine if the electrical supply is adequate, and by referring to the information on the comfort cooling certificate located in the home, a qualified heating/cooling company can determine the proper sized air conditioner that will be needed.

If a self-contained central air conditioning unit is to be used (separate from the furnace) an automatic damper (to prevent cooled air from blowing up into the furnace) may have to be installed in the furnace base. Depending on the furnace installed in your home, this damper may already have been installed at the factory, or in some cases, the furnace may be a type which is labeled as suitable for use with air conditioning without such a damper. In addition, the ducts carrying cooled air from the air conditioning unit into the home and return air from the home to the air conditioning unit must contain dampers, or be installed in such a way so that when the furnace runs, heated air does not blow through these ducts into the air conditioning unit.

A combination heating/cooling thermostat will also have to be installed, to prevent simultaneous operation of the furnace and the air conditioner.

The duct carrying cooled air from the air conditioner to the home should be connected to the bottom of the main duct located in the floor of the home. The connection should be located so that an equal number of floor registers are on each side of the connection. The floor joists running crosswise within the floor of the home should not be notched or cut into in any way when installing the air conditioner supply duct.

A duct carrying return air from the home back to the air conditioning unit will probably be necessary. If so, the return air

CAUTION! Several things are very important concerning the electrical connection to your home.

- Only a qualified electrician should perform the electrical hook-up, or make any extensions or changes in the electrical system. Unqualified people could cause serious or fatal accidents.
- Be sure that the electrical power supply at your homesite is adequate to supply the electrical demands of your home. Inadequate power supply or wiring supplying electricity to your home can be hazardous.
- It is very important that proper polarity be maintained when the electricity is connected to your home. The white (neutral) wire should NEVER be connected to, or come in contact with, either one of the black or red (positive or "hot") wires. In addition, the white (neutral) wire should NEVER be connected to, or come in contact with the green (ground) wire.
- The home must be properly grounded, by running a proper sized wire from the grounding bar in the main service panel through the conduit to the outside of the home, and attaching it to a proper copper rod driven full length into the ground.
- Installation of any type of telephone wiring, TV antenna, or other service which includes penetrating the exterior siding and/or exterior side or end wall or interior partitions of the home should only be done by a qualified person, observing the following procedures.
 1. Disconnect the main circuit breaker, in the service panel.
 2. Do not pierce the side or end walls more than 12" from the bottom edge of the home, and do not pierce interior partitions more than 5" from the top of the floor.
 3. After completing the installation, complete a dielectric strength test of the entire electrical system in the home.
 4. Return the main circuit breaker to "On".
 5. Test all light fixtures, electrical receptacles and appliances for proper operation.

GAS CONNECTION

If your home was built at the factory with a gas burning furnace, range or water heater, the inlet for the gas pipe is located underneath the home and is marked with a label fastened to the side of the home. The gas piping system of the home was tested for leaks at the factory; however, because of over the road vibration, etc., the entire system should again be pressure tested for leaks by a qualified person. The gas piping system for this home has been designed for the following pressures:

- Natural gas — pressure of at least 7 inches of water column, but not more than 10-1/2 inches of water column.
- LP gas — pressure of at least 11 inches of water column, but not more than 14 inches of water column.

After the system has been determined to be leak free, the gas pipe should be connected to the gas supply, in accordance with local requirements.

CAUTION! Several things are important concerning the gas connection to your home.

- If the home has a gas burning hot water heater installed at the factory, with the flue pipe and roof cap NOT installed but

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gister should be located so that air passage is not restricted, and should be located between the floor joists within the floor. The floor joists must not be notched or cut into in any way when installing the return air duct.

INSTALLING A SEPARATE, EXTERNAL HEATING AND/OR COOLING DEVICE

It is possible that the home was manufactured at the factory, with the furnace omitted, if so ordered that way by the dealer. If not, a duct adaptor has been installed at the factory in the duct within the floor, for connecting to the external heating and/or cooling device. In addition, a return air grill, to return air from the home to the external device, has also been installed at the factory. The following items must be complied with in the installation of an external heating and/or cooling device:

- The installation should only be done by a qualified heating/cooling company. The device must be properly sized for the home, and it must be installed in accordance with its manufacturer's instructions. The installer should leave the manufacturer's installation and operating instructions with you.
- A qualified electrician should connect the device in conformity with local requirements, after being sure that the electrical supply is adequate for the load.
- The device should be installed in such a fashion that it is readily accessible for inspection, service, repair and/or replacement.
- The ducts carrying air from the device to the home, and returning air to the device, must be designed and manufactured so as to comply with Section 280.715 of the Federal Manufactured Home Construction and Safety Standard.
- The installer should complete the appropriate portion of the heating certificate.

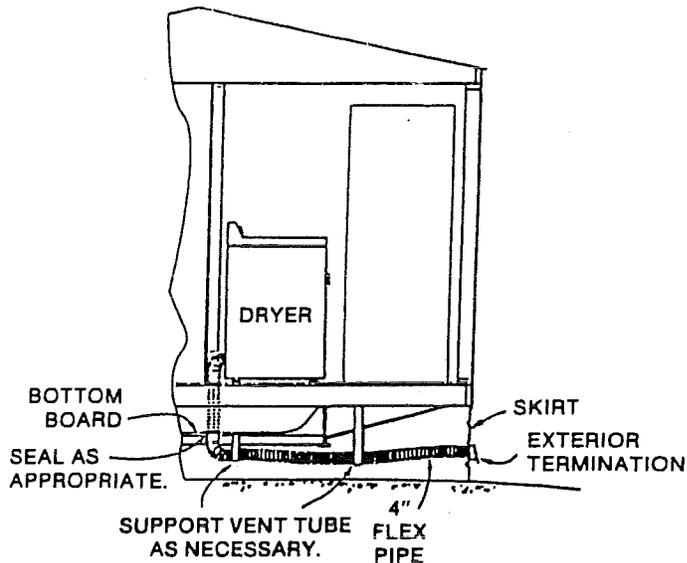
INSTALLING CLOTHES DRYER VENT

If the home was ordered with optional wiring for an electric clothes dryer, a hole was cut through the floor (and temporarily sealed) at the dryer area, through which the vent tube is to be run. The vent tube was not supplied with the home, unless an electric clothes dryer was installed at the factory, the necessary vent tube and outlet fitting were shipped loose inside the home from the factory, and must be installed when the home is set up. The vent tube and external fitting were not installed at the factory because of possible damage while the home was being delivered and set up.)

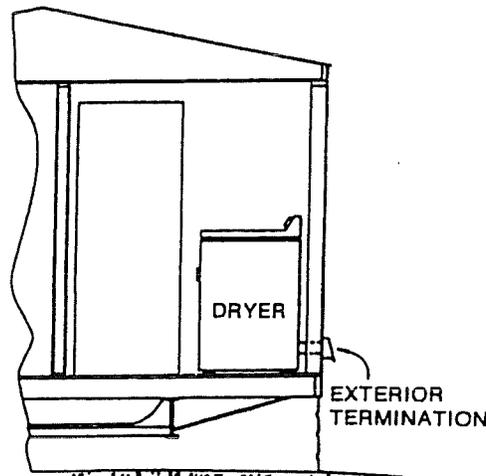
To install the duct, first remove the temporary patches covering the hole in the floor. Push the vent tube into the hole, and attach the end inside the home to the outlet on the rear of the dryer. From underneath the home, pull the vent tube through the floor so it is snug, and extend it to the side of the home. DO NOT allow the vent tube to terminate underneath the home. Fasten the termination fitting to the end of the vent tube, and fasten the fitting at the edge of the home. Support the vent tube as necessary, and seal around the opening in the bottom board (underneath the home) as appropriate.

WARNING! Do not use a clothes dryer in this home unless it has been properly vented to the outside. If you use a clothes dryer which is not properly vented, you will introduce a substantial amount of water into the air inside the home, which could cause condensation, which could damage your home.

WARNING! If your home was not wired for an electric clothes dryer at the factory, do not install one until a qualified electrician determines that the electrical service is adequate for the increased demand. Any additional wiring should only be done by a qualified electrician. The dryer must be vented in accordance with the foregoing instructions, but you will have to cut the hole for the vent tube in the floor, because this wasn't done at the factory.



DRYER INSTALLATION AGAINST INTERIOR WALL



DRYER INSTALLATION AGAINST EXTERIOR WALL

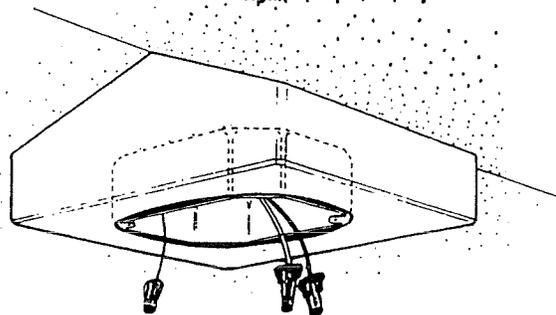
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Fan mounting box shown on Cathedral ceiling

May be mounted on flat ceiling or Ridge

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Three wires have been provided for field installation of Ceiling Fan. Typically a Black (Hot), a White (Neutral) and a bare copper ground wire. Installation should be made by qualified Electrician.

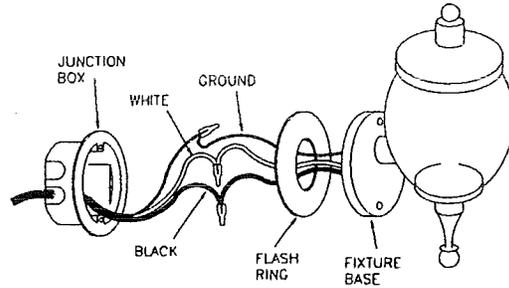
Follow Instructions That Came With The Fan To Be Installed

INSTALLATION OF EXTERIOR LIGHT

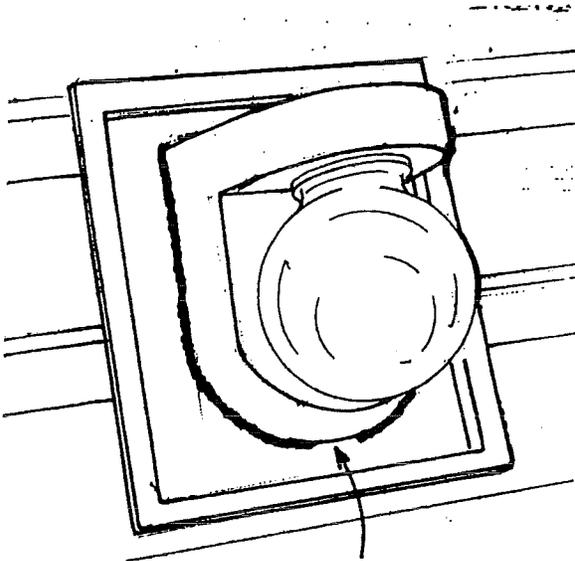
The exterior light(s) of your home may have been shipped loose to prevent damage during transit.

Installation shall be done in a workman like manner by a qualified electrician.

1. Follow the light manufacturer's instructions.
2. Be certain all power to the device is turned "off" to prevent personal injury from electrical shock.
3. Before connecting, install the provided flash ring which is at least the size of the fixture base.
4. Connect wiring and push into junction box.
5. Upon completion of light assembly to structure, apply a bead of caulk around the base of the fixture to make a water tight seal. A gap of up to 1" may be left at the bottom of the base to allow condensation or moisture to "weep" out of fixture.



TYPICAL EXTERIOR LIGHT INSTALLATION



Maximum 1" gap in caulking at bottom of fixture.

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IM-1.14.1

PATCHING THE BOTTOM COVERING

It is important that any holes, tears, etc. in the bottom covering underneath your home be promptly repaired. Following are three alternative methods for doing this:

- Cut the patch to size out of any suitable material. Use a double-faced tape (such as 3M No. 950) and affix the sticky side to the patch. Remove the paper from the other side of the tape, and apply the patch to the area under repair.
- Use pressure sensitive tape, such as Tuck No. 91B, to mend occasional small holes, tears or cuts.
- Cut the patch to size out of any suitable material, and tape it in place. Use an air-operated outward flare tacker (Senco Products, Inc. - Model LN 3045) and fasten the perimeter of the patch at 3" intervals.

INSTALLING SKIRTING AROUND YOUR HOME

Skirting installed around the perimeter of your home will enhance its appearance, and help keep heating costs down in the wintertime. Several types of skirting are available, and may be found in the yellow pages under "Mobile Homes." If you have skirting installed around your home, be sure that the clothes dryer vent (if any) terminates OUTSIDE the skirting. Vents should be installed in the skirting and at least two such vents should be kept open throughout the winter.

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(Rev B)

Home Set Addendum

This Addendum to the Holly Park Set-up Manual is to provide the Home Owner whose home is located in a Manufactured Housing Park where the site is well established with the option to not require a "Frost-free Foundation System". A licensed professional engineer should establish that the site/design does not require a frost free foundation system.

The following criteria must be met for this type of home set:

1. Properly compacted soil
2. Ground water to be well drained away from home
3. Properly sized footings for correct loads and bearing.
4. Home must be checked annually (minimum) to ensure home is level and to adjust if needed.

The home owner must sign below to show that this option has been taken.

Home Owner

Date

Serial #

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IM-1.16

**IMPORTANT SAFETY INFORMATION
PLEASE READ AND SAVE
THESE INSTRUCTIONS**

W A R N I N G

- This smoke alarm requires constant 120-volt, AC power AND a working 9-volt battery to operate properly. This smoke alarm WILL NOT work if AC power is not connected or has failed or been interrupted for any reason AND the battery is removed, drained or improperly connected. DO NOT use any other kind of battery except as specified in this manual. DO NOT connect this smoke alarm to any other type of smoke alarm or auxiliary device, except those listed in this manual.
- DO NOT remove or disconnect battery or turn off AC power to quiet unwanted alarms. This will remove your protection. Open windows or fan the air around smoke alarm to silence it. This smoke alarm features a False Alarm Control™ button which, when activated, will quiet unwanted alarms for up to 15 minutes.
- The Push-to-Test button accurately tests all smoke alarm functions. DO NOT use any other test method. Test smoke alarm weekly to ensure proper operation.
- This smoke alarm should be installed only by a licensed, qualified electrician. Observe and follow all local and national electrical and building codes for installation.
- This smoke alarm is designed to be used inside a single family household only. In multi-family buildings, each individual living unit should have its own smoke alarms. Do not install in non-residential buildings or places which house many people like hotels, motels, dormitories, hospitals, nursing homes, or group homes of any kind. This smoke alarm is not a substitute for a complete alarm system.
- Install a smoke alarm in every room and on every level of the home. Smoke may not reach the smoke alarm for many reasons. For example, if a fire starts in a remote part of the home, on another level, in a chimney, wall, roof, or on the other side of a closed door, smoke may not reach the smoke alarm in time to alert household members. A smoke alarm will not promptly detect a fire EXCEPT in the area or room in which it is installed.
- Interconnected smoke alarms installed in every room and on every level of the household offers maximum protection. The National Fire Protection Agency (NFPA) recommends interconnecting smoke alarms so that when one smoke alarm senses smoke and sounds its alarm, all others will sound as well. Do not interconnect smoke alarms from one individual family living unit to another. Do not connect this smoke alarm to any other type of alarm or auxiliary device.
- Smoke alarms may not alert every household member every time. The alarm horn is loud in order to alert individuals of a potential danger. However, there may be limiting circumstances where a household member may not hear the alarm (e.g. outdoor or indoor noise, sound sleepers, drug or alcohol usage, the hard of hearing, etc.). If you suspect that this smoke alarm may not alert a household member, install and maintain specialty smoke alarms. Household members must hear the alarm's warning sound and quickly respond to it to reduce the risk of damage, injury, or death that may result from fire. If a household member is hard of hearing, install special smoke alarms with lights or vibrating devices to alert occupants.
- Smoke alarms can only sound their alarms when they detect smoke. Smoke alarms detect combustion particles in the air. They do not sense heat, flame, or gas. This smoke alarm is designed to give audible warning of a developing fire. However, many fires are



MODEL FADC

**PLEASE READ AND SAVE
THIS MANUAL**

Installer: Please leave this manual with the product.



The ionization type alarms are generally more effective at detecting fast, flaming fires which consume combustible materials rapidly and spread quickly. Sources of these fires include paper burning in a waste container or a grease fire in the kitchen. The photoelectric type alarms are generally more effective at detecting slow, smoldering fires which smolder for hours before bursting into flame. Sources of these fires may include cigarettes burning in couches or bedding.

SMOKE ALARM FEATURES

- This smoke alarm is powered by 120V AC and a 9-volt battery back-up source. AC/DC smoke alarms offer added protection in the event of a power failure or a drained battery.
- Unique power connector prevents interconnection with incompatible smoke alarms or security systems.
- This smoke alarm may be interconnected with as many as 11 other Firex model FADC, AD, ADC, PAD or FX1218 smoke alarms, and as many as 5 Firex model ADH heat alarms for a total of not more than 18 interconnected devices.
- Optional tamper-resist feature can serve as a safeguard against tampering.
- The smoke alarm will sound a short beep about once a minute if the battery is weak or improperly connected. Item 5000 also blinks the red LED 4 times each minute to help identify the alarm.
- Green and red LED indicator(s) show when the smoke alarm is receiving AC power, working under normal operation, in alarm, or under false alarm control.
- Loud alarm horn—85 decibels at 10 feet—sounds to alert you of an emergency.
- This alarm incorporates the internationally recognized horn signal for evacuation. During alarm mode, the horn produces three short beeps followed by a 2 second pause and then repeats. This pattern is somewhat different than the previous alarm sound, which continually beeped.
- Test button checks smoke alarm operation and activates False Alarm Control™ feature which quiets unwanted alarms for up to 15 minutes.
- Item 5000 features a latching LED which blinks the initiating alarm's red LED 3 times each minute until manually reset.
- Item 5000 has a ramp-up test horn feature which emits 2 reduced-volume beeps before reaching the full 85db level during testing.

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1M-1.21

fast-burning, explosive, or intentional. Others are caused by carelessness or safety hazards. Smoke may not reach the smoke alarm QUICKLY ENOUGH to ensure safe escape.

- **Smoke alarms have limitations.** This smoke alarm is not foolproof and is not warranted to protect lives or property from fire. Smoke alarms are not a substitute for insurance. Homeowners and renters should insure their lives and property. In addition, it is possible for the smoke alarm to fail at any time. For this reason, you must test the smoke alarm weekly and replace every 10 years.

SMOKE ALARM PLACEMENT

Maple Chase recommends complete coverage protection achieved by installing a smoke alarm in every room of your home. The National Fire Protection Association's (NFPA) minimum requirement, as stated in Standard 72, Chapter 2, reads as follows:

"2-2.1.1.1 Smoke detectors shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each additional story of the family living unit including basements and excluding crawl spaces and unfinished attics. In new construction a smoke detector also shall be installed in each sleeping room."

Chapter 2 also reads as follows:

"2-2.2.1 In new construction, where more than one smoke detector is required by 2-2.1, they shall be so arranged that operation of any smoke detector shall cause the alarm in all smoke detectors within the dwelling to sound."

The NFPA, 1993 Edition, Appendix A further states:

"The required number of smoke detectors may not provide reliable early warning protection for those areas separated by a door from the areas protected by the required smoke detectors. For this reason, it is recommended that the householder consider the use of additional smoke detectors for those areas for increased protection. The additional areas include: basement, bedrooms, dining room, furnace room, utility room, and hallways not protected by the required smoke detectors."

Also, as required by the California State Fire Marshal:

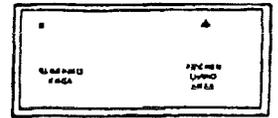
"Early warning fire detection is best achieved by the installation of fire detection equipment in all rooms and areas of the household as follows: a smoke detector installed in each separate sleeping area (in the vicinity, but outside the bedrooms), and heat or smoke detectors in the living rooms, dining rooms, bedrooms, kitchens, hallways, attics, furnace rooms, closets, utility and storage rooms, basements and attached garages."

FOR BEST PROTECTION, WE RECOMMEND THAT YOU INSTALL A SMOKE ALARM IN EVERY ROOM.

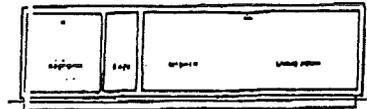
In addition, we recommend that all smoke alarms be interconnected.

Typical Efficiency Home (Apartment)

- Install a smoke alarm on the ceiling or wall closest to the sleeping area.



EFFICIENCY APARTMENT



MOBILE HOME

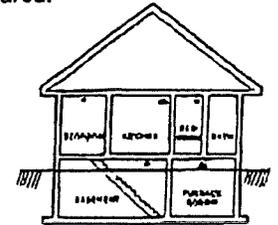
Typical Mobile Home

NOTE: For mobile homes built before 1978, install smoke alarms on an inside wall between 4 and 12 inches from the ceiling. (Older mobile homes have little or no insulation in the ceiling.) This is especially important if the ceiling is unusually hot or cold.

- Install a smoke alarm inside each bedroom and in the hallway outside each separate sleeping area.

Typical Single-Story Home

- Install a smoke alarm on the ceiling or wall inside each bedroom and in the hallway outside each separate sleeping area. If a bedroom area hallway is more than 30 feet long, install a smoke alarm at each end.



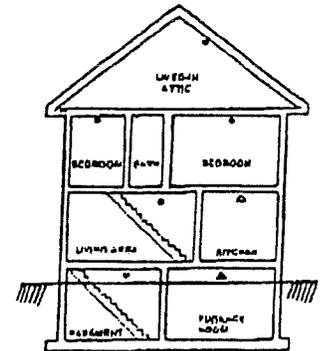
SINGLE STORY

If there is a basement:

- Install a smoke alarm on the basement ceiling at the bottom of the stairwell.

Typical Two-Story or Split Level Home

- Install a smoke alarm on the ceiling or wall inside each bedroom and in the hallway outside each separate sleeping area. If a bedroom area hallway is more than 30 feet long, install a smoke alarm at each end.
- Install a smoke alarm at the top of a first-to-second floor stairwell.
- If there is a basement:
 - Install a smoke alarm on the basement ceiling at the bottom of the stairwell.



TWO STORY

Key

- Smoke Alarm
- △ Smoke Alarm with False Alarm Control™

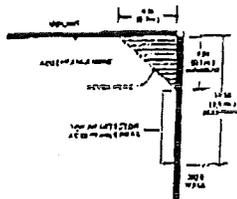
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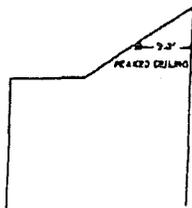
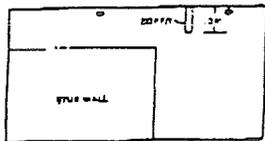
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IMPORTANT SMOKE ALARM PLACEMENT AND EXCEPTION INFORMATION

- Install a smoke alarm as close to the center of the ceiling as possible. If this is not practical, mount no closer than 4 inches from a wall or corner. Also, if local codes allow, install smoke alarms on walls, between 4 and 12 inches from ceiling/wall intersections.
- Install a minimum of two smoke alarms in every home, no matter how small the home. New construction codes require a minimum of two interconnected smoke alarms in newly built homes.



- Install a smoke alarm in each room that is divided by a partial wall (either coming down from the ceiling at least 24 inches, or coming up from the floor).
- Install smoke alarms on peaked, cathedral, or gabled ceilings 3 feet from the highest point (measured horizontally).
- Install a smoke alarm in lived-in attics or attics which house electrical equipment like furnaces, air conditioners, or heaters.



DO NOT install smoke alarm:

- Near appliances or areas where normal combustion regularly occurs (kitchens, near furnaces, hot water heaters). Use specialized smoke alarms with unwanted alarm control for these areas.
- In areas with high humidity, like bathrooms or areas near dishwashers or washing machines, install at least 10 feet (3 meters) away from these areas, if possible.
- Within 3 ft. horizontally from heating and cooling supply vents and outside of the air flow from these registers. The air could blow smoke away from the detector, interrupting its alarm.
- In rooms where temperatures may fall below 40°F (4°C) or rise above 100°F (38°C).
- In extremely dusty, dirty, or insect-infested areas. Loose particles interfere with smoke alarm operation.

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HOW TO INSTALL THIS SMOKE ALARM

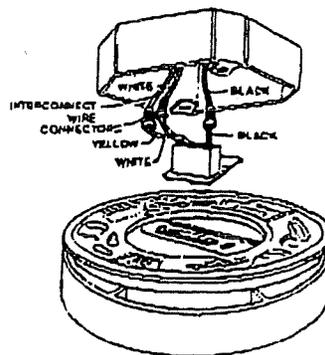
⚠ DANGER: **ELECTRICAL SHOCK HAZARD.** Turn off power at the main fuse box or circuit breaker by removing the fuse or switching the circuit breaker to the OFF position.

⚠ WARNING: This smoke alarm should be installed only by a qualified electrician. Smoke alarm installation must be in accordance with the requirements of Article 760 of the National Electrical Code and any local codes that may apply.

THIS SMOKE ALARM SHOULD BE INSTALLED IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION'S STANDARD 72 (National Fire Protection Association, One Batterymarch Park, Quincy, MA 02269).

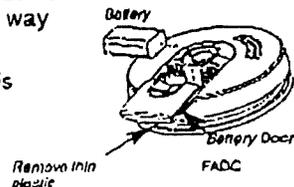
- Install smoke alarm on a 4-inch octagon or single gang junction box only.

1. From back of smoke alarm, remove mounting plate. To later engage tamper-resist feature, twist out and set aside one of the pins molded into the plate. Both pins are exactly the same.
2. Align recessed slots on plate with mounting holes of a 4-inch octagon or single gang junction box.
3. Gently pull household wires through center hole of plate.
4. Secure plate to junction box using mounting screws.
5. With a small wire connector, connect white wire from connector plug to white household wire.
6. Connect black wire from connector plug to black household wire.
7. If interconnection is desired, connect yellow wire from connector to interconnect wire between smoke alarms. See section, "INTERCONNECTING SMOKE ALARMS."



NOTE: If this will be a single-station smoke alarm, cover yellow wire with electrical tape and tuck into junction box.

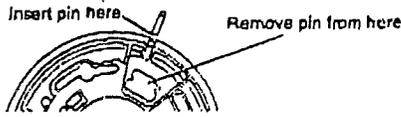
8. Attach connector plug to pins on back of smoke alarm. Plug will only fit one way and will snap into place.
9. Gently tug connector to be sure it is attached securely.



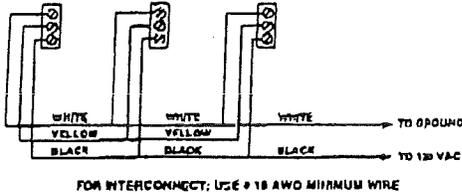
6

1M-1.23

9. Position smoke alarm to mounting plate and turn clockwise to lock into place. For tamper-resist, use long-nosed pliers to remove thin plastic from notch on smoke alarm edge. Insert pin into notch on edge of smoke alarm after smoke alarm is positioned properly in base.



11. Remove arrow tab and close battery door. Smoke alarm may beep briefly as door is closed.
 12. Turn on power at main fuse box or circuit breaker.
 13. Test smoke alarm. See "TESTING THE SMOKE ALARM."



INTERCONNECTING SMOKE ALARMS

- Use #18 AWG minimum solid or stranded wire. When interconnecting, maximum wire length between any two is 1,500 feet for #18 AWG or 4,000 feet for #14 AWG (20 OHMS loop resistance).
- This smoke alarm may be interconnected with as many as 11 other Firex model FADC, AD, ADC, PAD or FX1218 smoke alarms, and as many as 6 Firex model ADH heat alarms for a total of not more than 18 interconnected devices. DO NOT connect to any other type or model smoke alarm.
- Connect smoke alarms to a single AC branch circuit. If local codes do not permit, be sure the neutral wire is common to both phases.

LED INDICATOR(S)

Model FADC features one combined LED indicator. The following section explains what condition the LED indicator is describing:

- | | |
|--|---|
| • Constant GREEN on | - AC power is present |
| • GREEN is off | - AC power is NOT present |
| • RED blinks once a minute | - testing for presence of good battery |
| • RED blinks once a second | - smoke alarm senses smoke and simultaneously sounds an alarm |
| • RED blinks once every 10 seconds | - smoke alarm is quieting an unwanted alarm (Models ADC and FADC only) |
| • RED is off and detector in alarm (interconnected systems only) | - another smoke alarm in the network has sensed smoke and is signalling this alarm. |
- Item 5000 only
- | | |
|--|--|
| • RED blinks 3 times every minute | - indicates this unit initiated an alarm in an interconnected system (press the test button to reset). |
| • RED blinks 4 times every minute preceded by an audible chirp | - indicates weak or improperly connected battery. |

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FALSE ALARM CONTROL™

Model FADC features a False Alarm Control™ that, when activated, quiets unwanted alarms for up to 15 minutes.

To use the False Alarm Control™:

Press and release the test button during an unwanted alarm. The alarm should stop within ten seconds. The RED LED will blink once every 10 seconds. This means the smoke alarm is in False Alarm Control™. For Item 5000, the initiating alarm RED LED in an interconnected system will continue to blink until reset by pressing the test button.

When there are multiple units interconnected, each alarm that is sensing smoke must have its test button depressed in order to silence the remaining alarms.

If the smoke alarm(s) does not go into False Alarm Control™ and continues to sound its loud alarm horn, or if it initially goes into False Alarm Control™ then resounds the alarm, the smoke is too heavy and could be a dangerous situation — take emergency action.

TESTING THE SMOKE ALARM

WARNING

- Test each smoke alarm to be sure it is installed correctly and operating properly.
- Test all smoke alarms in an interconnected system after installation.
- The Push-to-Test button accurately tests all functions. DO NOT use an open flame to test this smoke alarm. You may ignite and damage the smoke alarm or your home.
- Test smoke alarms weekly and upon returning from vacation or when no one has been in the household for several days.

Test all smoke alarms weekly by doing the following:

1. Observe the green LED. A constant green light indicates the smoke alarm is receiving 120V AC power.
2. Firmly depress the Push-to-Test button for at least five (5) seconds. On Item 5000, the smoke alarm will sound 2 short, reduced-volume beeps, and then 1 short loud beep, followed by a pause, then repeats. All other items will sound 3 short loud beeps followed by a 2-second pause and then repeats. The alarm may sound for up to 10 seconds after releasing the Push-to-Test button.

NOTE: If smoke alarms are interconnected, all smoke alarms should sound an alarm within three seconds after any test button is pushed and the tested smoke alarm sounds.

3. If smoke alarm does not sound, turn off power at main fuse box or circuit breaker and check wiring. Retest smoke alarm.

⚠ DANGER: If alarm horn sounds, and smoke alarm is not being tested, the smoke alarm is sensing smoke. THE SOUND OF THE ALARM HORN REQUIRES YOUR IMMEDIATE ATTENTION AND ACTION.

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1M-1.24

MAINTENANCE AND CLEANING

In addition to weekly testing, this smoke alarm requires yearly battery replacement and periodic cleaning to remove dust, dirt, and debris.

⚠ DANGER: ELECTRICAL SHOCK HAZARD. Turn off power at main service panel by removing fuse or switching appropriate circuit breaker to OFF position before replacing battery or cleaning smoke alarm.

BATTERY REPLACEMENT

Always turn off power to smoke alarm before replacing battery. Replace battery at least once a year or immediately when the low battery chirp sounds once a minute, even though the smoke alarm is receiving AC power. On item 5000 the red LED will also blink 4 times every minute after each low battery chirp.

Use only the following batteries as replacements in this smoke alarm: Eveready 216, 522, 1222, Duracell MN 1604 or Ultralife U9VL-J.

⚠ WARNING: DO NOT USE ANY OTHER TYPE OF BATTERY, EXCEPT AS SPECIFIED IN THIS MANUAL. DO NOT USE RECHARGEABLE BATTERIES.

1. Turn off power to smoke alarm at main service panel.
2. Slide battery door open as shown on page 6 in the installation section.
3. Remove drained battery from compartment and discard.
4. Install a fresh 9-volt battery.
5. Slide battery door closed.
6. Turn on power and test smoke alarm using Push-to-Test button.

CLEANING

Clean the smoke alarm at least once a month to remove dust, dirt, or debris. Always turn off power to smoke alarm before cleaning.

- Using the soft brush or wand attachment to a vacuum cleaner, vacuum all sides and cover of smoke alarm. Be sure all the vents are free of debris.
- If necessary, turn off power and use a damp cloth to clean smoke alarm cover.

IMPORTANT: Do not attempt to remove the cover or clean inside the smoke alarm. THIS WILL VOID YOUR WARRANTY.

REPAIR

⚠ CAUTION: Do not attempt to repair this smoke alarm. Doing so will void your warranty.

If smoke alarm is not operating properly, see "TROUBLESHOOTING." If necessary and if still under warranty, return smoke alarm to Maple Chase. Pack it in a well-padded carton, shipping prepaid, to:

Maple Chase
Product Service Department
28C Leigh Fisher Blvd.
El Paso, TX 79906

If the smoke alarm is no longer under warranty, have a licensed electrician replace the smoke alarm immediately with a comparable Firex brand smoke alarm.

PRACTICE FIRE SAFETY

If the smoke alarm sounds its alarm horn, and you have not pushed the test button, it is warning of a dangerous situation. Your immediate response is necessary. To prepare for such occurrences, develop family escape plans, discuss them with ALL household members, and practice them regularly.

- Expose everyone to the sound of a smoke alarm and explain what the sound means.
- Determine TWO exits from each room and an escape route to the outside from each exit.
- Teach all household members to touch the door and use an alternate exit if the door is hot. **INSTRUCT THEM NOT TO OPEN THE DOOR IF THE DOOR IS HOT.**
- Teach household members to crawl along the floor to stay below dangerous smoke, fumes, and gases.
- Determine a safe meeting place for all members outside the building.

WHAT TO DO IN CASE OF A FIRE

1. Don't panic; stay calm.
2. Leave the building as quickly as possible. Touch doors to feel if they are hot before opening them. Use an alternate exit if necessary. Crawl along the floor, and **DO NOT** stop to collect anything.
3. Meet at a pre-arranged meeting place outside the building.
4. Call the fire department from **OUTSIDE** the building.
5. **DO NOT GO BACK INSIDE A BURNING BUILDING.** Wait for the fire department to arrive.

These guidelines will assist you in the event of a fire. However, to reduce the chance that fires will start, practice fire safety rules and prevent hazardous situations.

TRA DESIGN REVIEW
Review of these plans does not authorize
or approve any omission or deviation from
the Federal Manufactured Home Construction
& Safety Standards.

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TROUBLESHOOTING

⚠ DANGER: Always turn off power at main fuse box or circuit breaker before taking troubleshooting action.

⚠ WARNING: DO NOT disconnect battery or AC power to quiet an unwanted alarm. This will remove your protection. Fan the air or open a window to remove smoke or dust.

PROBLEM	SOLUTION
Smoke alarm does not sound when tested. NOTE: Push test button for at least five (5) seconds while testing!	<ol style="list-style-type: none"> 1. Check that AC power is turned on. 2. Turn off power. Remove smoke alarm from mounting plate and: <ol style="list-style-type: none"> a. check that connector plug is securely attached. b. check that battery is properly attached to connector. 3. Clean smoke alarm.
The horn makes 2 quiet beeps and one loud beep when tested.	<ol style="list-style-type: none"> 1. The alarm is operating correctly. Item 5000 has a ramp-up test horn feature. This allows you to release the test button before the alarm emits the loud beeps.
Smoke alarm beeps about once a minute.	<ol style="list-style-type: none"> 1. Turn off power and replace battery. (See "Battery Replacement" in the "MAINTENANCE AND CLEANING" section.) 2. On Item 5000 only. Be sure red LED is extinguished after replacing battery.
Smoke alarm sounds unwanted alarms intermittently or when residents are cooking, taking showers, etc.	<ol style="list-style-type: none"> 1. Hire an electrician to move smoke alarm to a new location. See "SMOKE ALARM PLACEMENT" 2. Clean smoke alarm. See "Cleaning" in the "MAINTENANCE AND CLEANING" section.
Interconnected smoke alarms do not sound when system is tested.	<ol style="list-style-type: none"> 1. Press and hold test button for at least three seconds after the first unit sounds.

WARRANTY INFORMATION

5-YEAR LIMITED SMOKE ALARM WARRANTY AND 10-YEAR LIMITED ULTRALIFE U9VL-J LITHIUM BATTERY WARRANTY (WHEN SOLD WITH MAPLE CHASE SMOKE ALARM)

Maple Chase warrants to the original consumer purchaser each new smoke alarm to be free from defects in material and workmanship under normal use and service for a period of five (5) years from the date of purchase. For Maple Chase smoke alarms sold with an Ultralife U9VL-J 9-volt battery, Maple Chase warrants to the original consumer purchaser each new Ultralife U9VL-J 9-volt battery to be free from defects in material and workmanship under normal use and service for a period of ten (10) years from the date of purchase. Maple Chase agrees to repair or replace, at its option, any defective smoke alarm or Ultralife U9VL-J 9-volt battery (when sold with Maple Chase smoke alarm) provided that it is returned with postage prepaid and with proof of purchase date to Maple Chase. This warranty does not cover damage resulting from accident, misuse or abuse or lack of reasonable care of the product. This warranty is in lieu of all other express warranties, obligations or liabilities. THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO A PERIOD OF FIVE (5) YEARS FOR THE SMOKE ALARM AND TEN (10) YEARS FOR THE ULTRALIFE LITHIUM U9VL-J 9-VOLT BATTERY (WHEN SOLD WITH MAPLE CHASE SMOKE ALARM) FROM PURCHASE DATE. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. IN NO CASE SHALL MAPLE CHASE BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WHATSOEVER, EVEN IF THE LOSS OR DAMAGE IS CAUSED BY ITS NEGLIGENCE OR FAULT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other legal rights which vary from state to state. This smoke alarm's manufacture and distribution are licensed by the U.S. Nuclear Regulatory Commission.

This product meets all the requirements of U.L. Standard 217.

WHERE TO SEND YOUR SMOKE ALARM FOR SERVICE

To return smoke alarms under warranty, send the smoke alarm with postage prepaid, a note describing the nature of the difficulty, and proof of date of purchase to:

Maple Chase
28C Leigh Fisher Blvd.
El Paso, TX 79906
United States of America

To return Ultralife 10-year lithium batteries under warranty, include the lithium battery, a note describing the nature of the difficulty, with proof of date of purchase, postage and return postage prepaid to:

ULTRALIFE BATTERIES, INC.
c/o MAPLE CHASE
P.O. Box 622
1350 Route 86 South
Newark, NY 14513

Invensys. Maple Chase
191 E. North Avenue
Carol Stream, Illinois 60188
United States of America

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