NEW VISION MANUFACTURING

Manufactured Home Installation Manual

APPROVED BY
NTA INC. 1/22/2018
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

FOREWORD

Your New Vision Manufacturing home has been built with great care. It meets or exceeds the Federal Standards for Manufactured Housing as established by the Department of Housing and Urban Development.

The Federal Standard governs body and frame design construction requirements, and installation of plumbing, heating and electrical systems.

Your home was designed and built as a totally integrated structure. Therefore, it is important that these instructions are closely adhered to and followed if you are to enjoy a comfortable, safe and trouble-free home.

Because the proper installation (set-up) of your new home is of such importance, it should be performed by an experienced and qualified set-up crew. If your purchase agreement with your dealer does not include installation or set-up of your home, he can assist you in locating qualified personnel.

If your state of residence has a manufactured home installation law or regulation, they will generally require your dealer or set-up crew to follow these instructions. Additionally, your state or local regulations may require that the installer be licensed. Many states also require that utilities be connected by a licensed technician. The State Administrative Agency can provide you with this information. See the list of State Administrative Agencies in your Homeowner's Manual for the appropriate agency in your state.

If your state does not have an installation law or regulation, you should insist that your dealer or set-up crew follow these instructions.

Before attempting to set up the home, these instructions must be studied so that all work to be performed is clearly understood. Failure to follow these instructions can void your warranty.

If you have any questions or further clarification is desired, please contact your dealer or the factory which produced your home.

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CHAPTER 1 - INTRODUCTION

1.1 How to use this manual. This manual contains detailed installation instructions, including specifications and procedures for erection and hookup of your manufactured home. It has been written in an objective and easy-to-understand manner so it can be understood by people without extensive technical training. It discusses the set-up of the home from preparing the site through final inspection. It includes many tables and figures giving important data for proper set-up. Careful adherence to this manual by the homeowner and installation crew, and consultation with a registered professional or structural engineer in those unusual circumstances it does not cover, will assure you of a quality, safe and affordable home for many years to come.

1.2 Pre-installation consideration. Prior to locating or relocating your home, contact the local authority having jurisdiction for installation to see if permits for such procedures as blocking, anchoring, or utility connections are required. Inspections may be required during installation. On private property, zoning or development covenants may apply and should be taken into consideration. **NOTE: Preparation of the site, when accomplished by other than the home installer, may not be in accordance with these instructions.**

1.3 Safety. Only trained crews should install the home. Installers should follow the safety instructions provided in this manual.

THIS HOME WEIGHS SEVERAL TONS

USE ENOUGH TEMPORARY WOOD BLOCKING TO SUPPORT THE HOME DURING SET-UP. No one should be allowed under the home unless it is securely in place, even if it is not moving.

1.4 Variations to Installation Instructions. Before installing support or anchorage that is different than those methods specified in these instructions or when the site or other conditions prevent the use of these instructions, the installer must first attempt to obtain Dapia approved designs and instructions from New Vision Manufacturing. If these are not available obtain an alternate design prepared and certified by a registered engineer that meets the Manufactured Construction and Safety Standards and has been approved by the manufacturer and the Dapia.

1.5 Fire Separation. Fire separation distances must be in accordance with the requirements of Chapter 6 of NFPA 501A, 2003 Edition or the requirements of the local authority having jurisdiction. The installer must take into account these and any local requirements for fire separation areas.

1.6 Consumer information card. Fill out the CONSUMER INFORMATION CARD and return it to New Vision Manufacturing so that you may be notified of revised instructions or new products.

CHAPTER 2 - DEFINITIONS

Anchoring Equipment. Straps, cables, turnbuckles and chains, including tensioning devices, that are used with ties to secure a manufactured home to ground anchors.

Anchoring System. A combination of ties, anchoring equipment, and ground anchors that will, when properly designed and installed, resist the wind's overturning the home or moving it sideways.

Footing. That part of the support system that sits directly on the ground at, below or partly below grade (or below the frost line where applicable) to support the piers.

Piers. That portion of the support system between the footing and the manufactured home, exclusive of caps and shims. Types of piers include, but are not limited to, the following:

1. Manufactured steel stands;
2. Manufactured concrete stands;
3. Concrete blocks.

Site, Manufactured Home. A parcel of land designed and designated for the location of one manufactured home, its accessory buildings or structures, and accessory equipment for exclusive use of the home's occupants.

Stabilizing System. A combination of properly installed anchoring and support systems.

Stand, Manufactured Home. That area of a manufactured home site which has been reserved for placement of a manufactured home.

Support System. A combination of footings, piers, caps and shims that will, when properly installed, support the manufactured home.

CHAPTER 3 - SITE PREPARATION

3.1 Location and Layout

3.1.1 Use of zone maps. Your home is designed for certain weather conditions and roof loads. (See zone maps near home's main electrical panel and in Figures 3.1, 3.2 and 3.3 of this manual.) Do not site or relocate your home in a zone requiring greater wind, roof load, or heating/cooling capabilities than those for which it was designed. However, it is safe to locate your home in an area with lower load or weather requirements. For example, a home designed for a northern roof load of 40 psf may be sited in the southern roof load zone.

3.1.2 Access to site. Before attempting to move your home to the installation site, be sure it can get through. Remove any overhanging branches and raise any overhead wires. Special transportation permits may be required from state, county or city officials.

3.1.3 Encroachments and setback distances. Obey local laws regarding encroachments in streets, yards and courts, and permissible setback distances from property lines and public roads. Consider future additions, such as awnings and screen rooms.

3.1.4 Issuance of permits. Be sure that all necessary local permits have been obtained and fees paid.

3.2 Soil Conditions

3.2.1 Requirements. To help prevent settling of your home, site it on firm, undisturbed soil or fill compacted to at least 90% of its maximum relative density. Installation on loose, uncompacted fill may invalidate the home's limited warranty.

3.2.2 Bearing capacity. Test the bearing capacity of the soil at the depth of the footings after completing any grading and filling (see 3.2.3). If you can't test the soil but can identify its type, use the foundation bearing pressures shown in Figure 3.4 as a guide. If you cannot identify the soil, use the lowest value (1,000 psf) from Figure 3.4. Under unusual conditions, or if the soil appears to be peat or uncompacted fill, consult a local geologist or professional engineer.

3.2.3 Soil bearing testing methods and equipment. A pocket penetrometer (available from engineering supply houses) or other methods acceptable to local jurisdictions may be used.

3.3 Removal of organic material. Remove all decayable material such as grass, roots and wood scraps from beneath the home, especially in areas where footings are to be placed, to minimize settling of footings and insect damage. Remove shrubs and overhanging branches from the immediate vicinity of the homesite to prevent windstorm damage.

3.4 Drainage

3.4.1 Purpose. Drainage prevents water buildup under the home which may cause settling of the foundation, dampness in the home, damage to siding and bottom board, buckling of walls and floors, problems with the operation of doors and windows, **AND COULD VOID YOUR WARRANTY.**

3.4.2 Elimination of depressions. Grade the homesite to permit water to drain from under the home. All drainage at the homesite must be diverted away from the home and must slope a minimum of ½" per foot away from the foundation for the first ten feet.

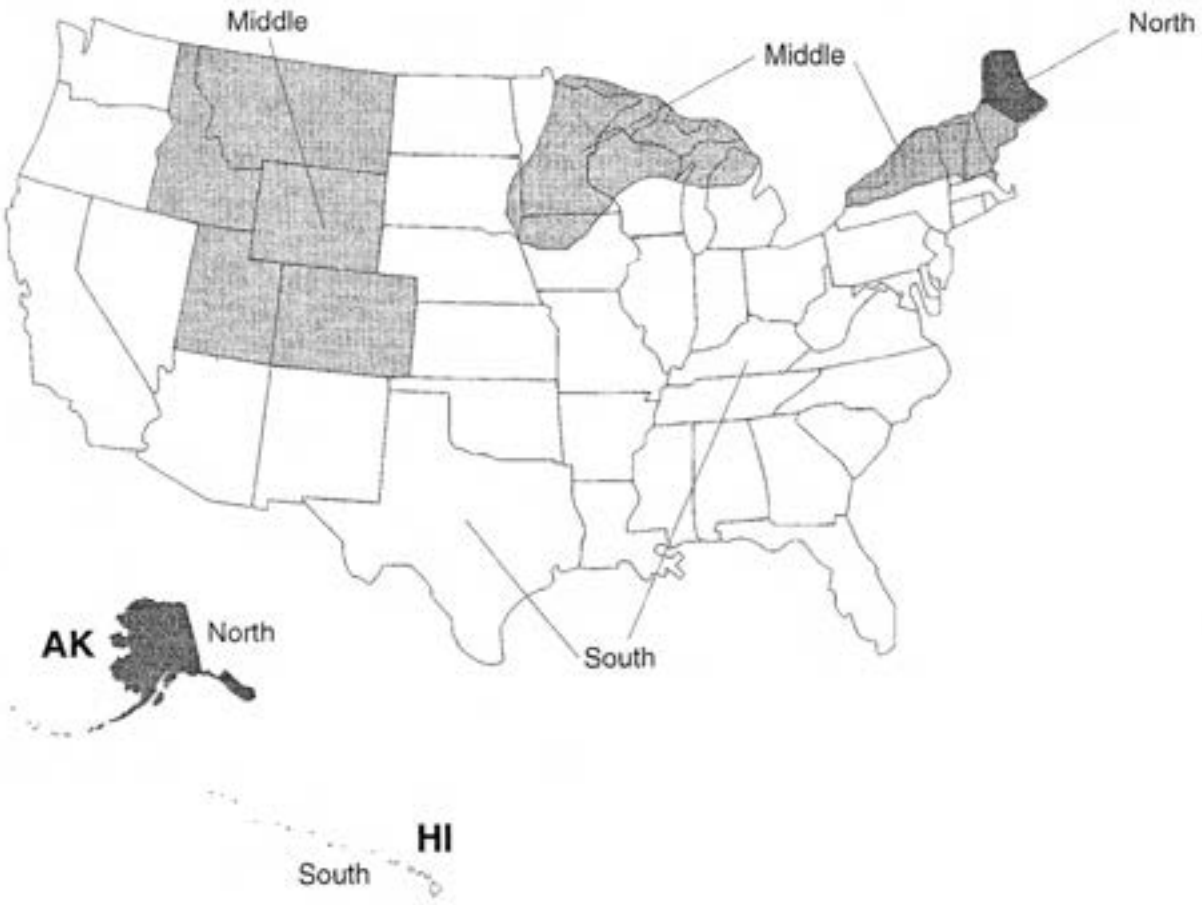
3.4.3 Drainage structures. Depending on the local landscape, ditches and culverts may be needed to drain surface runoff. If so, consult a registered professional engineer.

3.5 Ground moisture control

3.5.1 Importance. If the crawl space under the home is to be enclosed with skirting or other material you must provide ventilation per Section 5.5 in this manual. Section 5.5 indicates the minimum ventilation required. Additional free area or mechanical ventilation may be required depending on local conditions.

3.5.2 Acceptable types of ground cover. Use polyethylene sheeting or its equivalent, at least six mils thick.

3.5.3 Proper installation. Cover the entire area under the home with the sheeting and overlap it at least 12" at all joints with adhesive at all joints. Where soil and frost conditions permit placement of footings at grade level, place the sheeting directly beneath them. Sheeting shall be sealed or caulked at all penetration for piers, utility connections or other items. Repair any voids or tears in the retarder by patching with like material, maintaining a 12" minimum overlap and sealing joints with mastic.



Design Roof-load Zones:

South	20 psf (pounds per square foot) minimum
Middle	30 psf (snow)
North	40 psf (snow)

Reference -- Manufactured Home Construction and Safety Standards (MHCSS) 24 CFR 3280.506, latest edition

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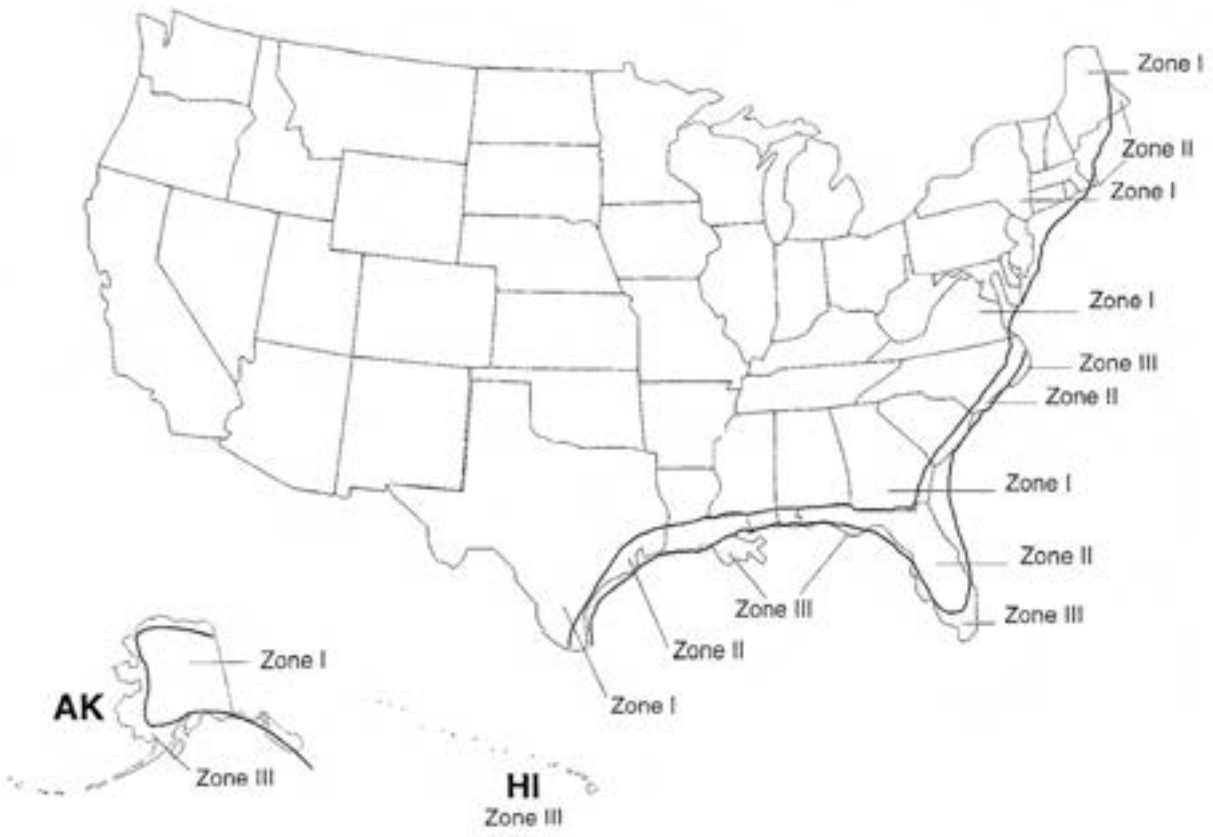
FIGURE 3.1
ROOF LOAD DESIGN ZONE MAP



Design Wind-load Zones:

Standard Wind	Zone I	15 psf Horizontal	9 psf uplift*
Hurricane	Zone II	±39 psf Horizontal	27 psf uplift
Hurricane	Zone III	±47 psf Horizontal	32 psf uplift
			* net uplift

Note --
psf: pounds per square foot

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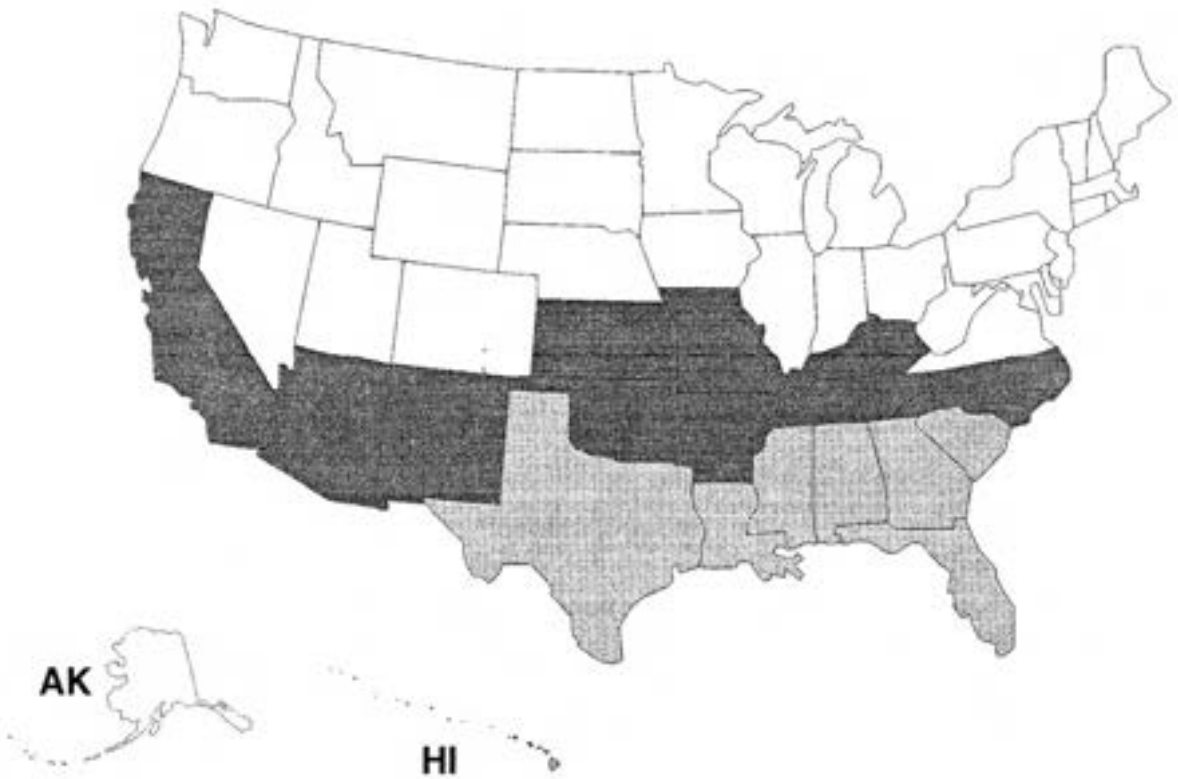
FIGURE 3.2
WIND LOAD DESIGN ZONE MAP



Zone	1	2	3
U-value	0.116	0.096	0.079

Reference -- Manufactured Home Construction and Safety Standards (MHCSS) 24 CFR 3280.506, latest edition

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FIGURE 3.3
HEATING AND COOLING DESIGN ZONE MAP

GENERAL DESCRIPTION OF SOILS

Soil Type Based on the Unified Classification System	Allowable Pressure (Pounds Per Square Foot) No allowances made for overburden pressure, embedment depth, water table height, or settlement problems.
Rock or Hard Pan	4,000 and up
Sandy Gravel and Gravel	2,000
Sand, Silty Sand, Clayey Sand, Silty Gravel, or Clayey Gravel	1,500
Clay, Sandy Clay Silty Clay, or Clayey Silt	1,000
Uncommitted Fill	Special Analysis is Required.
Peat or Organic Clays	Special Analysis is Required.

NOTE:

To be used only when none of the following is available:
a. Soils investigation and analysis of the site.
b. Compliance with the local building code.
c. Competent opinion by a local engineer or building official.

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Figure 3.4
General Description of Soils

4.1 Piers

4.1.1 Importance. Incorrect size, location or spacing of piers may cause serious structural damage to your home. It is important to install piers around the perimeter if required for your home. Failure to do so may lead to sagging floors, walls and roofs.

4.1.2 Acceptable types. Piers may be concrete blocks or pressure-treated wood, capped and shimmed with wedges, or adjustable manufactured metal or concrete devices (see Figure 4.1 and 4.1A). Manufactured piers must be listed and labeled for the required load capacity and installed to the pier manufacturer's installation instructions. Metal or other types of premanufactured piers must be provided with corrosion resistance of at least equal to that provided by a coating of zinc on steel of 0.30 oz/sqft of surface.

4.1.3 Design requirements

4.1.3.1 Load-Bearing Capacity. The load that each pier must carry depends on factors such as the dimensions of the home, the roof live load, the spacing of the piers, and the way they are used to support the home.

See Table 4.1 for pier capacities. Manufactured piers must be rated for at least these capacities, and all types of piers must be designed and installed to transmit these loads safely (see 4.1.3.2).

4.1.3.2 Configuration. Figures 4.1 and 4.1A show the recommended arrangement of concrete block piers constructed on-site. Concrete blocks should have nominal dimensions of at least 8"x8"x16". They must be stacked with their hollow cells aligned vertically. When piers are constructed of blocks stacked side-by-side (double stacked), every layer should be at right angles to the previous one (see Figure 4.1).

Cap hollow block piers as shown in Figure 4.1 and 4.1A to distribute the structural load evenly across them. Caps must be of solid masonry of at least 4" nominal thickness or hard wood or pressure treated lumber at least 2" nominal thickness, or of corrosion-protected minimum ½" steel, and of the same length and width as the piers they rest upon. Avoid plywood, as it may lead to unwanted settling or movement.

When split caps are used on double-stacked blocks, the caps must be installed with the long dimension across the joint in the blocks below.

Use 4"x6"x1" hardwood or pressure treated shims to level the home and fill any gaps between the base of the I-beam and the top of the pier cap. Always use shims in pairs (see Figure 4.1). Drive them in tightly so they do not occupy more than 1" of vertical space.

Select manufactured pier heights so that their adjustable risers do not extend more than 2" when finally positioned.

All piers must rest on footings (see paragraph 4.2) that either extend below the frost line or are otherwise protected from frost effects, and are placed on either undisturbed soil or compacted fill.

4.1.4 Construction

4.1.4.1 Piers less than 36" high. You may construct piers less than 36" high out of single, open or closed-cell concrete blocks, 8" x 8" x 16". Install them so that the long side is at right angles to the supported I-beam (see Figure 4.1 and 4.1A). Horizontal offsets are not to exceed 1/2" top to bottom. Mortar is not required. Manufactured piers should be listed and labeled. Do not extend their adjusting stands beyond the limits specified by the manufacturer. Concrete blocks must be stacked with their hollow cells aligned vertically and must be positioned at right angles to the footings.

4.1.4.2 Piers 36" to 67" high. Construct all piers between 36" and 67" high, out of double, interlocked concrete blocks (see Figure 4.1 and 4.1A). Mortar will not be required. Horizontal offsets are not to exceed 1" top to bottom.

4.1.4.3 Piers over 67" high. Piers over 67" high must be designed by a registered professional engineer or registered architect, in accordance with acceptable engineering practice. Mortar is not required for concrete block piers, unless otherwise specified in the manufacturer installation instructions or by the design.

4.1.4.4 Clearance. Piers must be constructed to provide a minimum clearance of 12" between the lowest member of the main frame and the grade under all areas of the home.

4.1.5 Location and spacing. The location and spacing of piers depends upon the dimensions and weight of the home, the roof load zone, the type of construction (single- or multisection), and other factors such as the locations of doors or other openings and heavy pieces of furniture.

4.1.5.1 Single-section homes. Figure 4.2 shows the recommended location and spacing of piers for your single-section home.

4.1.5.2 Reserved.

4.1.5.3 Under doors and heavy furniture. Place piers on both sides of sidewall exterior doors and other sidewall openings 4' or wider (such as recessed entry's, bay windows and sliding glass doors), under porch posts, and under the expected locations of heavy pieces of furniture such as pianos, organs, waterbeds, etc. and under all fireplace sidewall locations.

4.1.5.4 Reserved.

4.1.5.5 Piers. Piers used for perimeter support must be installed with the long dimension

parallel to the perimeter rail. Piers may be offset up to 6" in either direction along the supported members to allow for plumbing, electrical, etc. Location of all piers (main beams, perimeter, etc) are designated by paint marks or labels.

4.2 Footings. Support every pier with a properly designed footing, as follows.

4.2.1 Acceptable types of footings

4.2.1.1 Concrete. Footings may consist of precast or poured-in-place concrete, pads, slabs or ribbons with a 28-day compressive strength of at least 3,000 psi. Unreinforced footings must have a depth in accordance with Table 4.3. Precast footings must meet or exceed ASTM C90-02. Poured footings must be 6" thick minimum or per tables (whichever strictest).

4.2.1.2 Pressure-treated lumber. Two fastened layers of 2" thick pressure-treated wood planks, with the long dimension of the second layer placed perpendicular to that of the first, and treated with a water-borne adhesive in accordance with AWPA Standard UI-04 for use category 4B – ground contact applications. Cut ends of pressure treated lumber must be field-treated in accordance with AWPA Standard M4-02.

4.2.1.3 ABS Footing Pads. ABS Footing Pads are permitted provided they are installed in accordance with the pad manufacturer's installation instructions and certified for use in the soil classification and capacity at the site. They must be listed or labeled for the required load capacity.

4.2.2 Placement in freezing climates

4.2.2.1 Conventional Footings. To preclude the harmful effects of ground frost heave, footings should be placed below the frost line. Consult local authorities to determine frost penetration.

4.2.2.2 Floating Slab Systems. When properly engineered by a registered professional engineer or registered architect, compatible with the anchorage requirements of section 5.4, and acceptable to the local authority having jurisdiction, "floating slab system" may be used above the frost line and alternate designs prepared and certified by a registered professional engineer or registered architect for the support and anchorage of the manufactured home that is consistent with the manufactured home design, conforms to the requirements of the MHCSS, and has been approved by the manufacturer and the Dapia.

4.2.3 Proper sizing of footings. Proper sizing of footings depends upon the load-carrying capacity of both the piers and the soil. See Table 4.2 for recommended footing sizes for various pier capacities.

4.3 Special Conditions (See also Section 5.4.3). Pier and footer designs in this manual do not consider flood or seismic loads and are not intended for use in flood or seismic hazard areas.

In those areas the design must be done by a Registered Professional Engineer.

4.3.1 Flood-prone areas. New Vision Manufacturing does not recommend setting your home in river or coastal flood-prone areas. Special local regulations or flood insurance provisions may apply. Special elevation and anchoring techniques are required when locating in a flood-prone area. Consult a registered professional or structural engineer to make sure that home design and construction conform to applicable federal, state and local codes and regulations. The FEMA publication listed in section 4.5 contains design and construction recommendations.

4.3.2 Reserved.

4.4 Basement Foundations. If you desire your home to be placed on a perimeter foundation wall without I-Beam piers numerous special construction techniques must be used in the home's setup. Details, plans and test data must be designed and certified by a Registered Professional Engineer and must not take the home out of compliance with the Manufactured Construction and Safety Standards.

Any and all alternate foundation designs must be approved by both New Vision Manufacturing and the Dapia.

4.5 Important reference documents

4.5.1 ANSI/NCSBCS A225.1-1987, "Manufactured Home Installations," NCSBCS, 505 Huntmar Park Drive, Herndon, VA 22070, (703) 437-0100.

4.5.2 FEMA 85, "Manufactured Home Installation in Flood Hazard Areas", FEMA, Washington, DC 20472, (202) 646-2708, September, 1985.

4.5.3 "HUD Handbook 4930.3 (1989), "Permanent Foundations Guide for Manufactured Housing," HUD, 415 7th Street, S.W. Washington, DC 20410.

4.5.4 "All-Weather Wood Foundation System Manual, "National Forest Products Association, 1619 Massachusetts Ave., N.W., Washington, DC 20036, June, 1976.

4.5.5 Reserved.

4.5.6 "Building Foundation Design Guidebook," Document No. DE 88013350, National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

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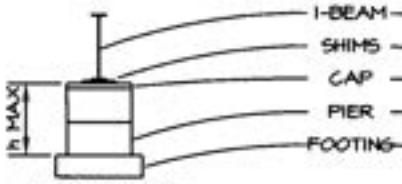
PIER 1

I-BEAM PIER SINGLE STACKED BLOCKS



HORIZONTAL OFFSET OF PIER = ½" MAXIMUM

SINGLE BLOCKS MAXIMUM HEIGHT = 36" (SEE NOTE #2)

SPECIAL NOTE: MINIMUM SET HEIGHT OF HOME IS 12" AS MEASURED UNDER HOME TO GROUND, INCLUDING AREA BETWEEN THE LOWEST POINT OF THE FRAME OR CROSSMEMBERS.

PIER 2

I-BEAM PIER DOUBLE STACKED BLOCKS PIERS OVER 36" HEIGHT TO MAXIMUM HEIGHT, HORIZONTAL OFFSET = 1" MAXIMUM

DOUBLE INTERLOCKED BLOCKS MAXIMUM HEIGHT = 67" OR AS ILLUSTRATED ON MAXIMUM PIER HEIGHTS OF FRAME TIEDOWN SPACING CHARTS

PIER 3

I-BEAM PIER

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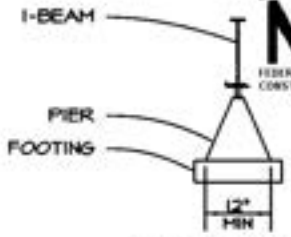
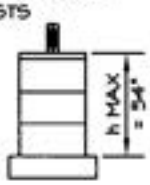


STEEL OR CONCRETE MANUFACTURED PIER (SEE NOTE #5)

PIER 4

SINGLE STACKED PIER SUPPORTING CENTERLINE COLUMNS OR CENTERLINE JOISTS

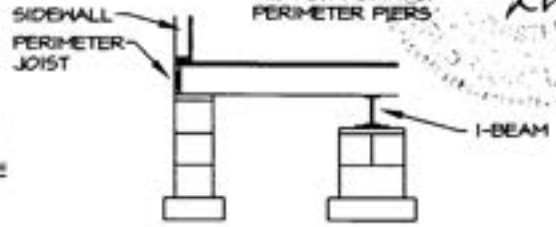


SINGLE STACKED BLOCKS PERPENDICULAR TO CENTERLINE JOISTS OR PARALLEL TO PERIMETER RAIL MAX. HEIGHT = 54"

CAPACITY AT DOUBLE CENTERLINE JOIST = 8000# CAPACITY AT SINGLE PERIMETER JOIST = 8000#

PIER 5

SINGLE STACKED PIER SUPPORTING PERIMETER PIERS



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NOTES:

1. CONCRETE BLOCKS FOR PIERS ARE 8x8x16 NOMINAL SIZE, HOLLOW CELL LOAD BEARING CMU'S MANUFACTURED IN CONFORMANCE WITH ASTM C90-70, GRADE 'N'. OPEN CELLS ARE VERTICAL.
2. SINGLE STACKED CONCRETE BLOCKS ARE ORIENTED SO THAT LONG DIRECTION IS PERPENDICULAR TO THE LONG DIRECTION OF THE MAIN BEAM.
3. FOOTERS MAY BE PRECAST OR POURED, BUT, IN EITHER CASE, MUST BE LEVEL IN ALL DIRECTIONS. PRECAST MUST MEET OR EXCEED ASTM C90-02a. POURED FOOTERS MUST BE 6" THICK MINIMUM (OR PER TABLES, WHICHEVER IS STRICTEST) AND MUST BE MINIMUM 3000 psi COMPRESSIVE STRENGTH AT 28 DAYS.
4. PIERS ARE TO BE PLACED ON THE FOOTER APPROXIMATELY CENTERED SO THAT THE FOOTER PROJECTION FROM THE PIER IS EQUAL FROM SIDE-TO-SIDE AND FRONT-TO-BACK. PIERS MUST BE LEVEL VERTICALLY ON ALL SIDES AND SQUARE WITH THE FOOTER.
5. PREFABRICATED PIERS (TYPE #3) MUST BE CERTIFIED FOR A RATED CAPACITY AT LEAST EQUAL TO THE LOAD DETERMINED FROM THE TABLES. MANUFACTURED PIERS CANNOT HAVE THE ADJUSTABLE RISERS EXTENDED MORE THAN 2" WHEN FINALLY POSITIONED.
6. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH (Fc') OF 3000 PSI AFTER 28 DAYS.
7. GAP BETWEEN TOP OF PIER AND MAIN FRAME MAY BE A WOOD PLATE (NOT EXCEEDING 2" IN THICKNESS) AND SHIMS (NOT EXCEEDING 1" IN THICKNESS). SHIMS SHALL BE AT LEAST 4" WIDE AND 6" LONG, FITTED AND DRIVEN TIGHT BETWEEN WOOD PLATE OR PIER AND MAIN FRAME (SHIMS TO BE PERPENDICULAR TO I-BEAM). TWO INCH OR FOUR INCH SOLID CONCRETE BLOCK MAY FILL REMAINDER OF GAP.
8. PIER HEIGHT IS MEASURED FROM TOP OF FOOTER TO THE TOP OF THE PIER. THESE DRAWINGS TYPIFY THE CONSTRUCTION ONLY OF DIMENSIONED BLOCK HEIGHTS.
9. PIER AND FOOTER DESIGNS SHOWN DO NOT CONSIDER FLOOD OR SEISMIC LOADS AND ARE NOT INTENDED FOR USE IN FLOOD OR SEISMIC HAZARD AREAS. IN THOSE AREAS, THE DESIGN MUST BE DONE BY A PROFESSIONAL ENGINEER.
10. HORIZONTAL OFFSET FROM THE TOP TO THE BOTTOM OF THE PIER MUST NOT EXCEED 1/2" FOR SINGLE STACKED PIERS AND 1" FOR DOUBLE STACKED PIERS
11. PIERS MAY BE OFFSET UP TO 6" IN EITHER DIRECTION ALONG THE SUPPORTED MEMBERS TO ALLOW FOR PLUMBING, ELECTRICAL, ETC.

FIGURE 4.1
TYPICAL PIER CONSTRUCTION

SINGLE STACKED CONCRETE BLOCKS

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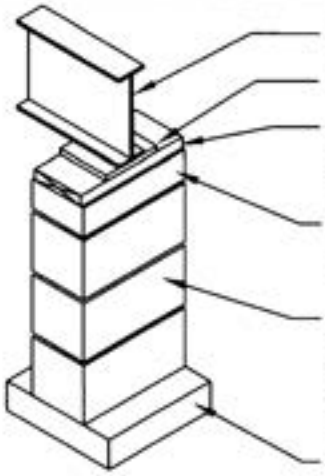
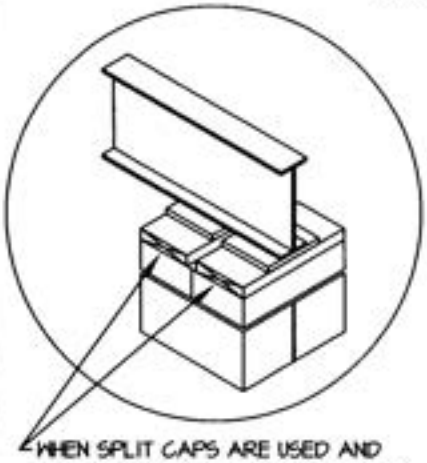


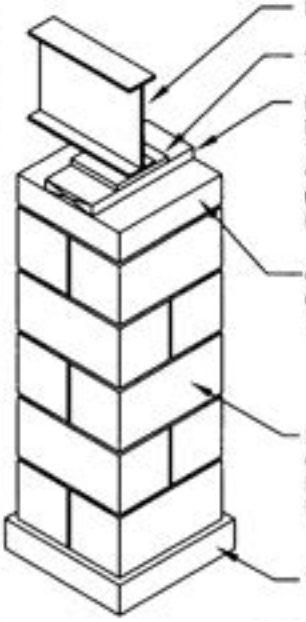
- MAIN I-BEAM
- SHIMS, NOT EXCEEDING 1" IN THICKNESS
- HARDWOOD PLATES OR OTHER LISTED MATERIALS NOT EXCEEDING 2" IN THICKNESS
- CAPS, SOLID CONCRETE (MINIMUM 4"x8"x16"), HARDWOOD (NOMINAL MINIMUM 2"x8"x16") OR 1/2"x8"x16" STEEL OR OTHER LISTED MATERIALS
- SINGLE OPEN OR CLOSED CONCRETE BLOCKS 8"x8"x16" INSTALLED WITH 16" DIMENSION PERPENDICULAR TO THE MAIN I-BEAM. OPEN CELLS ARE PLACED VERTICALLY ON FOOTING. MORTAR IS NOT REQUIRED UNLESS SPECIFIED
- TYPICAL FOOTING INSTALLED BELOW FROST LINE

CAPACITY = 8000 LBS.

DOUBLE STACKED CONCRETE BLOCKS



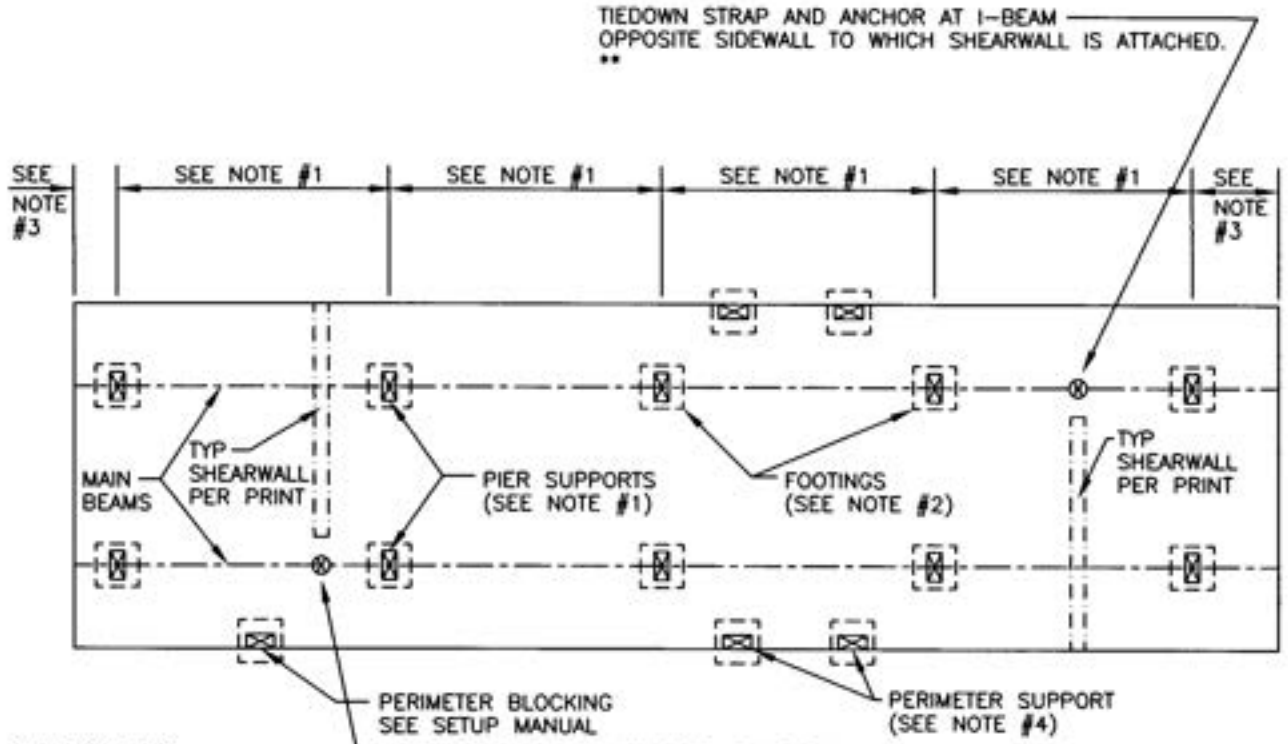
WHEN SPLIT CAPS ARE USED AND THE JOINT RUNS PERPENDICULAR TO THE MAIN I-BEAMS, SHIMS AND BLOCKS MUST BE INSTALLED OVER EACH INDIVIDUAL CAP.



- MAIN I-BEAM
- SHIMS, NOT EXCEEDING 1" IN THICKNESS
- HARDWOOD PLATES OR OTHER LISTED MATERIALS NOT EXCEEDING 2" IN THICKNESS. T 1/4" MINIMUM WIDTH UP TO 9000# LOAD DETERMINED FROM TABLES. USE 14 1/2" WIDE OR SPLIT CAP PER DETAIL FOR HIGHER LOADS (16,000# MAXIMUM)
- CAPS, SOLID CONCRETE OR HARDWOOD (MINIMUM 4"x8"x16") OR 1/2"x8"x16" STEEL OR OTHER LISTED MATERIALS
- DOUBLE STACKED CONCRETE BLOCKS, SOLID OR CELLED. EACH LAYER IS INTERLOCKED WITH LAYER BELOW AS SHOWN. MORTAR IS NOT REQUIRED UNLESS SPECIFIED
- TYPICAL FOOTING INSTALLED BELOW FROST LINE

NOTES:
1. SHIMS, WHEN REQUIRED, ARE TO BE USED IN PAIRS, INSTALLED IN OPPOSITE DIRECTIONS AND BE FITTED AND DRIVEN TIGHT BETWEEN MAIN I-BEAM FRAME AND SHIMS OR CAPS BELOW. SHIMS MUST BE INSTALLED SO THAT ALL GAPS BETWEEN THE HOME'S BEARING MEMBER (I-BEAM OR RIM OR CENTERLINE JOISTS) ARE FILLED FOR THE LENGTH OF THE PIER OR REQUIRED PLATES. MINIMUM COMPRESSIVE STRESS CAPACITY FOR SHIMS IS 425 psi.
2. STEEL CAPS MUST BE PROTECTED BY A MINIMUM OF A 10 MIL COATING OF AN EXTERIOR PAINT OR AN EQUIVALENT CORROSION RESISTANT PROTECTION.

FIGURE 4.1A **I-14**
TYPICAL PIER CONFIGURATIONS



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NOTES:
1. SEE SETUP MANUAL FOR REQUIRED PIER CAPACITY AND SPACING.
2. SEE SETUP MANUAL FOR FOOTING REQUIREMENTS.
3. PIERS SHALL BE LOCATED AT A MAXIMUM OF 2 FEET FROM BOTH ENDS.
4. PERIMETER PIERS OR OTHER SUPPORTS MUST BE LOCATED AS FOLLOWS: ON BOTH SIDES OF SIDEWALL EXTERIOR DOORS (SUCH AS ENTRY, PATIO AND SLIDING GLASS DOORS) AND ANY OTHER SIDEWALL OPENINGS 48" OR GREATER IN WIDTH, AND UNDER LOAD-BEARING PORCH POSTS, FACTORY INSTALLED FIREPLACES AND FIREPLACE STOVES, ETC.

** REFER TO MANUFACTURER'S FLOOR PLAN (PROVIDED) FOR SHEARWALL LOCATIONS (INCLUDING ENDWALL). THESE ANCHORS MUST BE INSTALLED IN ACCORDANCE WITH THEIR LISTING.

FIGURE 4.2
TYPICAL BLOCKING LAYOUT FOR SINGLE-SECTION HOMES

SECTION WIDTH	EAVE OVERHANG	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS) MAXIMUM PIER SPACING (FEET)				
			4	6	8	10	
180" FLOOR WIDTH	6" MAX	20	2990#	4300#	5610#	6920#	
204" FLOOR WIDTH	6" MAX	20	3240#	4710#	6180#	7650#	

NOTES:

1. PIER LOADS BASED ON 10 PSF ROOF DEAD LOAD AND 10 PSF FLOOR DEAD LOAD. ALSO INCLUDED IN THE LOAD VALUE IS THE WEIGHTOF THE PIER AND THE WEIGHT OF THE MINIMUM FLOOTER REQUIRED.
2. PERIMETER BLOCKING IS NOT REQUIRED EXCEPT AS NOTED FOR LARGE OPENINGS.
3. REFERENCE DETAILS IN FIGURE 4.2 FOR PIER LOCATIONS.
4. MAXIMUM PIER SPACING IS ALSO LIMITED BY I-BEAM SIZE: 8'-0" MAXIMUM SPACING FOR 8" I-BEAM, 10'-0" MAXIMUM SPACING FOR 10" AND 12" I-BEAM STARTING NO MORE THAN 2'-0" FROM EACH END.
5. REFERENCE TABLE 4.2 FOR THE REQUIRED FOOTING SIZE CORRESPONDING TO THE LOAD DETERMINED ABOVE (INCLUDES WEIGHT OF BLOCK PIER AND CONCRETE FOOTER).

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TABLE 4.1
MINIMUM PIER CAPACITY TABLE
(FRAME BLOCKING ONLY)

REF: CA-1.7, CA-I-T4.1.01

PIER CAPACITY (POUNDS)	MINIMUM FOOTING SIZE (OR EQUAL AREA) (INCHES) SOIL BEARING CAPACITY (PSF)				
	1000	1500	2000	4000	
600	12x12	12x12	12x12	12x12	
800	12x12	12x12	12x12	12x12	
1000	12x12	12x12	12x12	12x12	
1500	15x15	12x12	12x12	12x12	
2000	17x17	14x14	12x12	12x12	
2500	19x19	15x15	13x13	12x12	
3000	21x21	17x17	15x15	12x12	
3500	22x22	18x18	16x16	12x12	
4000	24x24	20x20	17x17	12x12	
4500	25x25	21x21	18x18	13x13	
5000	27x27	22x22	19x19	13x13	
5500	28x28	23x23	20x20	14x14	
6000	29x29	24x24	21x21	15x15	
6500	31x31	25x25	22x22	15x15	
7000	32x32	26x26	22x22	16x16	
7500	33x33	27x27	23x23	16x16	
8000	34x34	28x28	24x24	17x17	SINGLE STACK CMU
8500	35x35	29x29	25x25	17x17	
9000	36x36	29x29	25x25	18x18	
9500	37x37	30x30	26x26	19x19	
10000	38x38	31x31	27x27	19x19	
11000	40x40	32x32	28x28	20x20	
12000	42x42	34x34	29x29	21x21	
13000	43x43	35x35	31x31	22x22	
14000	45x45	37x37	32x32	22x22	
15000	46x46	38x38	33x33	23x23	
16000	48x48	39x39	34x34	24x24	DOUBLE STACKED CMU
17000	49x49	40x40	35x35	25x25	
18000	51x51	42x42	36x36	25x25	
19000	52x52	43x43	37x37	26x26	
20000	54x54	44x44	38x38	27x27	
21000	55x55	45x45	39x39	28x28	
22000	57x57	46x46	40x40	28x28	
23000	58x58	47x47	41x41	29x29	
24000	59x59	48x48	42x42	30x30	
25000	60x60	49x49	43x43	30x30	SPECIAL DESIGN

NOTES:
1. FOOTING SIZES SHOWN ARE FOR SQUARE PADS AND ARE BASED ON THE AREA (SQUARE INCHES) REQUIRED FOR THE LOAD. OTHER FOOTING CONFIGURATIONS (RECTANGULAR) MAY BE USED PROVIDED THE AREA (SQUARE INCHES) IS EQUAL TO OR GREATER THAN THE AREA OF THE SQUARE FOOTING SHOWN IN THE TABLE AND THE PROJECTION TO THE EDGE OF THE FOOTER IS NOT GREATER THAN IT WOULD HAVE BEEN PLACED ON A SQUARE FOOTER. FOR EXAMPLE, A 12"x22" (288 SQ. IN.) FOOTING MAY BE USED IN PLACE OF A 16"x16" (256 SQ. IN.) FOOTING.
2. THE FOLLOWING TABLE SPECIFIES THE MAXIMUM FOOTING SIZE FOR VARIOUS FOOTING THICKNESSES. THIS TABLE IS BASED ON UNREINFORCED FOOTINGS. REINFORCED FOOTINGS MAY REQUIRED A SMALLER THICKNESS THAN THAT LISTED BUT MUST BE DESIGNED BY A LICENSED ENGINEER. ALSO SEE SECTION 4.2.1 FOR ALTERNATIVES.
3. THE FOOTING CAPACITIES TABULATED ARE FOR TOTAL LOAD. THE GRAVITY LOADS PRESENTED IN THE TABLES IN THIS MANUAL INCLUDE THE WEIGHT OF THE PIER AND FOOTER AND NO FURTHER ADJUSTMENT IS REQUIRED. HOWEVER, WHEN ADDITIONAL LOAD CALCULATIONS ARE REQUIRED THE LOAD MUST INCLUDE THESE WEIGHTS. PIER CMU BLOCKS TYPICALLY WEIGHS APPROXIMATELY 30 POUNDS APIECE AND CONCRETE FOOTERS WEIGH APPROXIMATELY 150 PCF (EXAMPLE: 24x24x6 FOOTER WEIGHS 300#).

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TABLE 4.2
FOOTER SIZES

Ref: CA-1.3, CA-1.8

Ref: CA-1.3, CA-1.8

PIER FOOTING SIZE	MINIMUM THICKNESS OF FOOTERS FOR SINGLE AND DOUBLE STACKED PIERS (INCHES) SOIL BEARING CAPACITY (PSF)													
	1000		1500		2000		2500		3000		3500		4000	
	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE
16 x 16	4	4	4	4	4	4	4	4	4	4	4	4	4	4
17 x 17	4	4	4	4	4	4	4	4	4	4	4	4	4 3/8	4
18 x 18	4	4	4	4	4	4	4	4	4 1/8	4	4 1/2	4	4 7/8	4
19 x 19	4	4	4	4	4	4	4 1/8	4	4 1/2	4	4 7/8	4	5 1/4	4
20 x 20	4	4	4	4	4	4	4 1/2	4	4 7/8	4	5 3/8	4	5 3/4	4
21 x 21	4	4	4	4	4 3/8	4	4 7/8	4	5 3/8	4	5 3/4	4	6 1/8	4
22 x 22	4	4	4	4	4 3/4	4	5 1/4	4	5 3/4	4	6 1/4	4	6 5/8	4
23 x 23	4	4	4 3/8	4	5	4	5 5/8	4	6 1/8	4	6 5/8	4	7 1/8	4
24 x 24	4	4	4 5/8	4	5 3/8	4	5 7/8	4	6 1/2	4	7	4	7 1/2	4
25 x 25	4	4	4 7/8	4	5 5/8	4	6 3/8	4	6 7/8	4	7 1/2	4	8	4 3/8
26 x 26	4 1/4	4	5 1/4	4	6	4	6 3/4	4	7 3/8	4 1/8	7 7/8	4 1/2	8 3/8	4 7/8
27 x 27	4 3/8	4	5 3/8	4	6 3/8	4	7	4 1/8	7 3/4	4 1/2	8 3/8	4 7/8	8 7/8	5 1/4
28 x 28	4 3/4	4	5 3/4	4	6 5/8	4	7 3/8	4 1/2	8 1/8	4 7/8	8 3/4	5 3/8	9 3/8	5 3/4
29 x 29	4 7/8	4	6	4	6 7/8	4 3/8	7 7/8	4 7/8	8 1/2	5 3/8	9 1/4	5 3/4	9 7/8	6 1/8
30 x 30	5 1/8	4	6 3/8	4	7 3/8	4 3/4	8 1/8	5 1/4	8 7/8	5 3/4	9 5/8	6 1/4	10 3/8	6 5/8
31 x 31	5 3/8	4	6 5/8	4 3/8	7 5/8	5	8 1/2	5 5/8	9 3/8	6 1/8	10	6 5/8	–	–
32 x 32	5 5/8	4	6 7/8	4 5/8	7 7/8	5 3/8	8 3/4	5 7/8	9 3/4	6 1/2	10 1/2	7	–	–
33 x 33	5 7/8	4	7 1/8	4 7/8	8 1/4	5 5/8	9 1/4	6 3/8	10 1/8	6 7/8	10 7/8	7 1/2	–	–
34 x 34	6 1/8	4 1/4	7 3/8	5 1/4	8 5/8	6	9 5/8	6 3/4	10 1/2	7 3/8	–	–	–	–
35 x 35	6 3/8	4 3/8	7 3/4	5 3/8	8 7/8	6 3/8	9 7/8	7	10 7/8	7 3/4	–	–	–	–
36 x 36	6 1/2	4 3/4	8	5 3/4	9 1/4	6 5/8	10 3/8	7 3/8	–	–	–	–	–	–
37 x 37	6 3/4	4 7/8	8 3/8	6	9 1/2	6 7/8	10 3/4	7 7/8	–	–	–	–	–	–
38 x 38	7	5 1/8	8 1/2	6 3/8	9 7/8	7 3/8	11	8 1/8	–	–	–	–	–	–
39 x 39	7 1/4	5 3/8	8 3/4	6 5/8	10 1/4	7 5/8	–	–	–	–	–	–	–	–
40 x 40	7 3/8	5 5/8	9 1/8	6 7/8	10 1/2	7 7/8	–	–	–	–	–	–	–	–
41 x 41	7 3/4	5 7/8	9 3/8	7 1/8	10 3/4	8 1/4	–	–	–	–	–	–	–	–
42 x 42	7 7/8	6 1/8	9 3/4	7 3/8	11 1/4	8 5/8	–	–	–	–	–	–	–	–
43 x 43	8 1/8	6 3/8	9 7/8	7 3/4	11 1/2	8 7/8	–	–	–	–	–	–	–	–
44 x 44	8 3/8	6 1/2	10 1/4	8	–	–	–	–	–	–	–	–	–	–
45 x 45	6 5/8	6 3/4	10 1/2	8 3/8	–	–	–	–	–	–	–	–	–	–
46 x 46	8 3/4	7	10 3/4	8 1/2	–	–	–	–	–	–	–	–	–	–
47 x 47	9	7 1/4	11 1/8	8 3/4	–	–	–	–	–	–	–	–	–	–
48 x 48	9 3/8	7 3/8	11 3/8	9 1/8	–	–	–	–	–	–	–	–	–	–
49 x 49	9 1/2	7 3/4	11 5/8	9 3/8	–	–	–	–	–	–	–	–	–	–
51 x 51	10	8 1/8	–	–	–	–	–	–	–	–	–	–	–	–
52 x 52	10 1/4	8 3/8	–	–	–	–	–	–	–	–	–	–	–	–
54 x 54	10 5/8	8 3/4	–	–	–	–	–	–	–	–	–	–	–	–
55 x 55	10 7/8	9	–	–	–	–	–	–	–	–	–	–	–	–
57 x 57	11 3/8	9 1/2	–	–	–	–	–	–	–	–	–	–	–	–
58 x 58	11 5/8	9 3/4	–	–	–	–	–	–	–	–	–	–	–	–
59 x 59	11 3/4	10	–	–	–	–	–	–	–	–	–	–	–	–
60 x 60	12	10 1/4	–	–	–	–	–	–	–	–	–	–	–	–

NOTES:
1. THE THICKNESSES IN THE CHART ABOVE ARE DESIGNED FOR SINGLE AND DOUBLE STACKED CONCRETE BLOCKS (CMU'S) CENTERED ON THE FOOTER.
2. POURED FOOTERS ARE TO HAVE A 3000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
3. THIS TABLE IS BASED ON UNREINFORCED FOOTINGS. REINFORCED FOOTINGS MAY ALLOW FOR A SMALLER THICKNESS THAN THAT LISTED BUT MUST BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER.

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TABLE 4.3
MINIMUM FOOTING THICKNESSES

CHAPTER 5 - SETUP PROCEDURES

5.1 Moving home to location. Make sure the following items are completed before placing the home:

. The site is properly prepared. See Chapter 3.

. All concrete work necessary to setting the home is finished.

. Utilities are installed or available.

. Any trenching, for crossover drain lines or for wheels that will be left in place, is complete.

. Items that could be difficult to install after the home is sited (such as anchors and ground moisture retarders) are in their proper locations.

CAUTION: THE HOME WEIGHS SEVERAL TONS. USE ADEQUATE TEMPORARY SUPPORT BLOCKING TO SAFEGUARD WORKERS. NEW VISION MANUFACTURING RECOMMENDS WOOD BLOCKING.

5.2 Setup Procedure Instructions
Please Read Carefully

5.2.1 It is important that these instructions and precautions are adhered to closely if you are to enjoy the comfortable, safe and trouble free home that has been designed and built for you. The following four items apply to the set-up of all homes (single-section homes). Each step should be checked off as it is completed. The set-up crew should consist of a minimum of two experienced set-up members.

In following the procedures below for set-up, it is recommended that your home be installed as close as possible to the ground as local codes permit, yet still providing a crawl space for periodic inspection. This may require that wheels and tires be removed and that the ground in the axle hub and drum area be "dug out" so the drums can be set lower.

1. After selecting the foundation system desired, select the footing area and load capacity from the information contained in Chapter 4, Foundations, by relating the information in Chapter 4 to the structural load zone for which your home was designed and will be set up in.

2. If the support foundation or tiedown types selected cannot be installed when the home is in its final position, these portions of the support foundation system must be installed

before the home is positioned in its final desired location. For example, ground anchors required for a tiedown system normally must be installed before the home is placed in its final position.

3. Upon delivery of your new home, and before placing in its final position, you should inspect both interior and exterior for possible shipment damage. Any damage should immediately be reported to your dealer.

4. Prior to set-up of your home, the soil beneath the final home location should be prepared as outlined on Chapter 3.

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5.2.2 Single Wide Set-up Procedure: Pier Foundation

1. Position your home in its proper final location.

2. Using an adequate jack at the hitch, "rough" level the home. This is only a "rough" level and not the "final" level.

3. Placing the individual support foundations under the home in the correct sequence is very important and should be done as follows: Place the first lifting jack under the chassis' main beam, just forward of the front spring shackle. Locate the lifting jack so that a support foundation can be placed next to the front spring shackle.

4. Position a second lifting jack under the same chassis' main beam just behind the rear spring shackle.

5. Using both jacks uniformly, lift one side of the home and place a support foundation (using appropriate sized piers and footings as referenced in Chapter 4) next to the front spring shackle.

6. Place a second support foundation within 8 feet of the first or, if necessary, immediately behind the rear spring shackle. On three, four or five axle units where these two support foundations could be further than 8 feet apart, place a third support foundation between axles spaced as evenly as possible between the first two support foundations.

7. Place one additional support foundation towards each end of the chassis' main beam within 2 feet of the extreme end of the home.

8. Lift the opposite side main beam as outlined above and "rough" level by placing support foundations directly opposite those placed on the first side.

9. Complete the "rough" leveling from front to rear and side to side by adjusting the support foundations as required.

10. Evenly space intermediate support piers under the main beams so that the home is supported as required. (See Figure 4.2.)

11. Place additional supports at each side of doors or openings 4 feet wide or wider.

12. Additional support foundations are desirable under chassis' main beams or floor joists where extra heavy furniture or appliances are located.

13. Make a "final" level adjustment of the home using a standard bubble level or a manometer type level. Work from front to rear and side to side to obtain "final" level conditions throughout the home. Each individual support foundation should be snug and in contact with the home. The home is considered adequately leveled if there is no more than ¼" difference between adjacent pier supports (frame or perimeter) and the exterior doors and windows do not bind and can be properly opereated.

14. The tiedown system must be connected as discussed in Section 5.4 of these instructions, and in accordance with the instructions of the tiedown and anchor manufacturer.

15. In the event of a slight settlement any time after the initial installation, releveling can be accomplished by following the procedures detailed above for "final" leveling.

16. Install all light shades and light fixtures as needed.

17. Connect and test utility systems (electrical, water, drain lines and gas lines, as applicable) as detailed in Chapter 8.

18. Check and adjust the entire home for items which may have become misaligned in transit or during set-up, such as the following:
    a. Adjust passage doors to close easily with proper alignment.
    b. Realign cabinet doors.
    c. Adjust drawers to open and close easily.
    d. Adjust closet doors, aligned and square with walls.
    e. Adjust exterior doors to close easily and be square with frame, and to lock and unlock easily.
    f. Adjust all windows to open and shut easily.
    g. Adjust drapes to operate easily and completely close.
    h. Recaulk over the top of all windows and doors and other seams as necessary.
    i. Retack any loose moldings, panel connections, and trim.
    j. Retighten "p" trap fittings.

19. On some models, it may have been necessary to ship loose appliance vent piping to assure the pipe's safe transportation to the final site. Check all appliances to confirm that all venting is installed per the appliance installation instructions.
20. Install and/or connect all other parts and items shipped loose with the home.
21. Conduct final clean-up operation in the home.

5.3 Anchorage Against Wind

5.3.1 Anchoring Instructions. After blocking and leveling, the installer must secure the home against the wind. In order for the manufactured home to be secure against high winds, it must be anchored to the ground. The homeowner is cautioned that if the manufactured home is not properly anchored, it is highly susceptible to wind damage when high wind conditions occur. See Figure 5.1 for corresponding pier height. If a higher pier is anticipated, inform the retailer and factory to adjust the spacing accordingly.

5.3.1.1 Number of location of anchors. Select the number and location of straps and anchors from the appropriate chart and diagram of Figure 5.1. Use only listed and approved ground anchors capable of resisting a minimum ultimate load of 4725 pounds and a working load of 3150 pounds as installed unless reduced capacities are specified by the anchor manufacturer. A reduced capacity of the ground anchor or strap will require a reduced tiedown strap and anchor spacing proportional to that given in the charts. However, ground anchors must not be spaced closer than the minimum spacing permitted by the listing or certification.

5.3.1.2 Installation of anchors. Install the anchors at the locations selected from Figure 5.1, following the anchor manufacturer's instructions. Install double-head anchors at all over-the-roof-tie or vertical tie locations. Line up the shaft of each anchor with its strap (see Figure 5.2) or install an approved stabilizer plate. Vertical ties shall be located at all diagonal ties in Wind Zones 2 and 3. Vertical ties shall be located at studs. You may want to consult a registered professional or structural engineer to determine the correct angles for the anchors. See notes in figures regarding stabilizer plate installation when this angle cannot be achieved.

5.3.1.3 Strap Tensioning. If your home is releveled at some date after the initial tensioning of the anchoring straps, the straps should be retensioned as specified in the anchor manufacturer's installation instructions. Straps must be inspected periodically to assure that proper tension is provided in each strap. If straps are found to be loose, then retensioning of the straps must be performed.

5.3.1.4. Alternate Anchoring. Installation of alternative anchoring systems requires approval by the Manufacturer and Dapia per Federal Register Vol 72 No. 202.

5.3.1.5 Protection At Sharp Corners: Tiedowns and anchors must provide a method to protect sharp corners. See Figures 5.5.1 and Figure 5.5.2.

5.3.2 Optional Over-the-Roof Straps. Optional over-the-roof straps may be used to provide additional stability for single-section homes, above and beyond that from the mandatory frame tie-downs. Straps and anchors should be installed per Figure 5.1 and 5.2.

5.3.3 Severe conditions

5.3.3.1 Freezing Climates. Be sure anchor augers are installed below the frost line. During periods of frost heave, be prepared to adjust tension on the straps to take up slack.

5.3.3.2 Severe wind zones. New Vision Manufacturing does not recommend installing

your home in an area known to experience severe winds, or in any zone that requires greater wind-resisting capabilities than those for which it was designed (see data plate).

5.3.3.3 Flood-prone areas. New Vision Manufacturing does not recommend siting manufactured homes in flood-prone areas. Foundation considerations are discussed in section 4.4.1 and the FEMA document referenced in paragraph 4.5.4. Unconventional anchorage and tie-down often are needed in designing and constructing the special elevated foundations that may be required in flood-prone areas. Consult a registered professional or structural engineer.

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5.3.3.4 The anchor tables and design does not consider floor or seismic loads and is not intended for use in flood or seismic hazard areas. In those areas the anchorage system is to be designed by a Registered Professional Engineer.

5.4 Installation of on-site attached structures. Design all attached buildings and structures to support all of their own live and dead loads, and to have fire separation as required by state or local ordinances.

5.4.1 Attached garages. Attached garages must be installed according to the manufacturer's instructions and to all applicable local codes. They must be supported independently of the factory-built portion of the home. Electrical circuits in garages should be provided with ground fault interruption. See specific instructions and illustrations included with your home.

5.4.2 Porches. Site-constructed porches must be constructed and inspected according to applicable local building codes.

5.4.3 Steps, stairways and landings. Steps, stairways and landings must be constructed and inspected according to applicable local building codes.

5.5 Skirting. Skirting installed around the home should have nonclosing vents located at or near each corner and as high as possible to cross-ventilate the entire space under the home. Vent free area should be equal to at least one square foot for every 150 square feet of the home's floor area, and this area should be further increased when insect screens, slats, etc. are used over the open vent area. The total area of ventilation may be reduced to 1 square foot for every 1500 square feet of home floor area when a uniform 6-mil polyethylene sheet material or other acceptable vapor retarder is installed. In freezing climates, install skirting so as to accommodate 1-2 inches of frost heave uplift to prevent buckling of floors. Skirting must not be attached in a manner that can cause water to be trapped between the siding and trim or farced up into the wall cavities trim to which it is attached. Skirting also must not be attached in a manner that impedes the contraction and expansion characteristics of the home's exterior covering.

5.5.1 Skirting Access Opening. An access opening in the skirting, not less than 18" in width and 24" in height and not less than 3 square feet in area must be provided and must be located so that any utility connections located below the home are accessible.

5.6 **Releveling.** Due to varying soil conditions which may exist on your homesite, some initial settling may occur. It is recommended that your home be releveled after 90 days of initial set up and checked periodically.

5.7 **Reserved.**

5.8 **Chassis Alterations.** The chassis of your home has been designed to be an integral part of the structure of your home. Therefore, alterations to any chassis component or part is not permitted. Alteration of the chassis in any way will void your warranty and bring the home out of compliance with the HUD Standards.

5.9 **Gutters And Downspouts.** Homes containing a vertical fascia board of at least 1x4 in size and a drip edge are suitable for the installation of a standard 4" gutter and downspout system. Verify suitability with the gutter contractor. Be sure to have the contractor locate downspouts so that runoff is directed and drained away from the home.

5.10 **Porches.** Factory installed porches must have a pier installed at each column location and the column must be tied down per Figure 5.6.

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NTA INC. 1/22/2018
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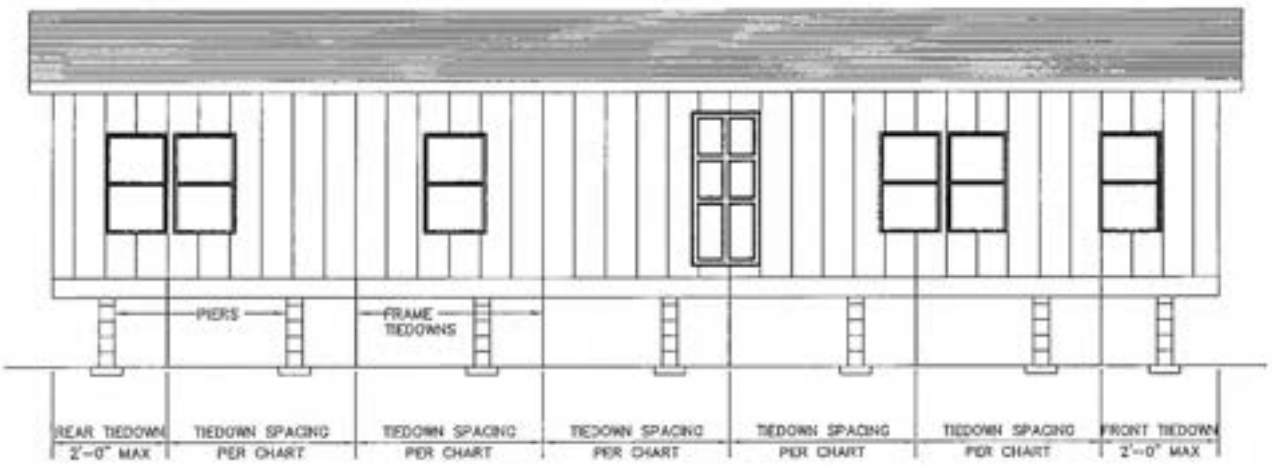
CONSTRUCTION AND SAFETY STANDARDS

FIGURE 5.1
RECOMMENDED TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

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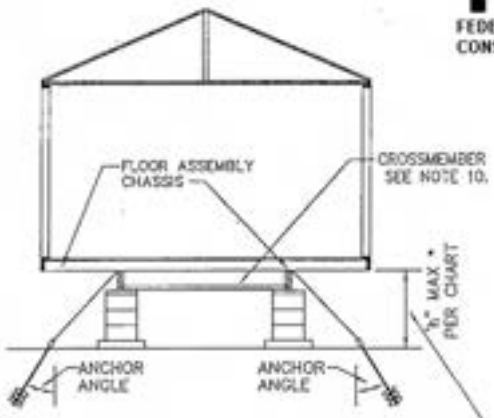
NTA INC.
REVISED
9/30/2020
FEDERAL MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS



"h" MAX = MAXIMUM VERTICAL DISTANCE TO DIAGONAL TIE POINT OF LOAD

TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS. HOWEVER, IF OVER-THE-ROOF TIEDOWNS ARE REQUIRED BY THE LOCAL JURISDICTION, THEY MAY BE INSTALLED.
3. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY NEW VISION MANUFACTURING. 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 PER SIDE.
8. RESERVED.
9. DESIGN BASED ON 99 1/2" BEAM SPACING 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.
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 D3953-97, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
14. STRAPPING TO BY TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

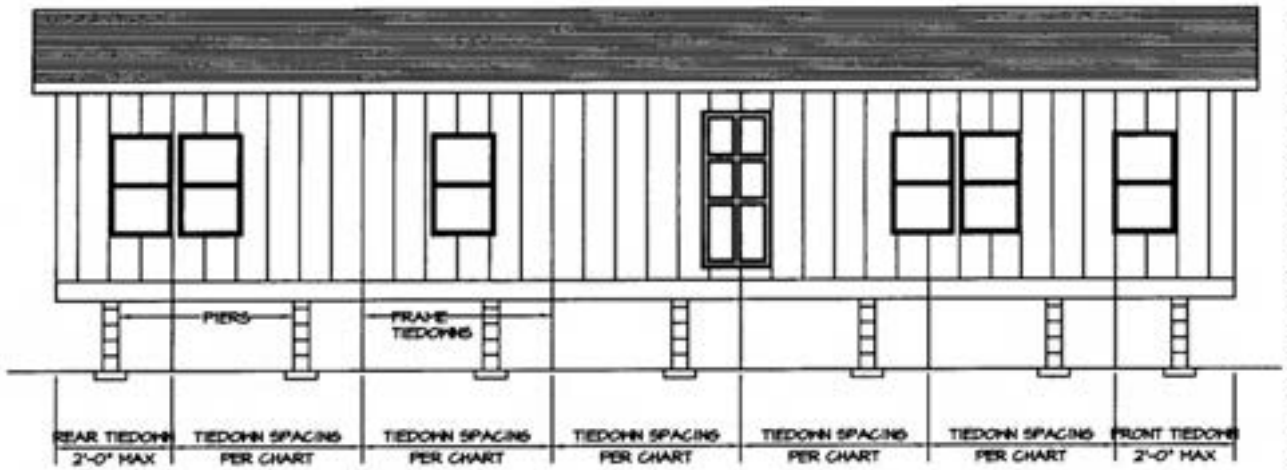
JOHN C. DOEDEN
LICENSED PROFESSIONAL ENGINEER
9/18/2020
16583
STATE OF MISSISSIPPI

ROOF SLOPES OF A MAXIMUM OF 20 DEGREES

FRAME TIEDOWN SPACING CHART			
FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX * PIER HEIGHT
11'-8" SINGLE	6" MAX.	6'-0"	35"
		4'-0"	56"
13'-8" SINGLE	6" MAX.	10'-0"	33"
		8'-0"	46"
15'-0" SINGLE	6" MAX.	10'-0"	43"
		8'-0"	60"
17'-0" SINGLE	6" MAX.	10'-0"	58"
		8'-0"	64"

REF: CA-1.2, CA-1.9, CA-I-F5.1.01

FIGURE 5.1
RECOMMENDED TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS. HOWEVER, IF OVER-THE-ROOF TIEDOWNS ARE REQUIRED BY THE LOCAL JURISDICTION, THEY MAY BE INSTALLED.
3. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY NEW VISION MANUFACTURING. 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 PER SIDE.
8. RESERVED.
9. DESIGN BASED ON 99 1/2" BEAM SPACING 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.
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 D3953-97, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
14. STRAPPING TO BY TYPE I, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

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PROFESSIONAL ENGINEER
5/21/2018

APPROVED BY
NTA INC. 5/23/2018
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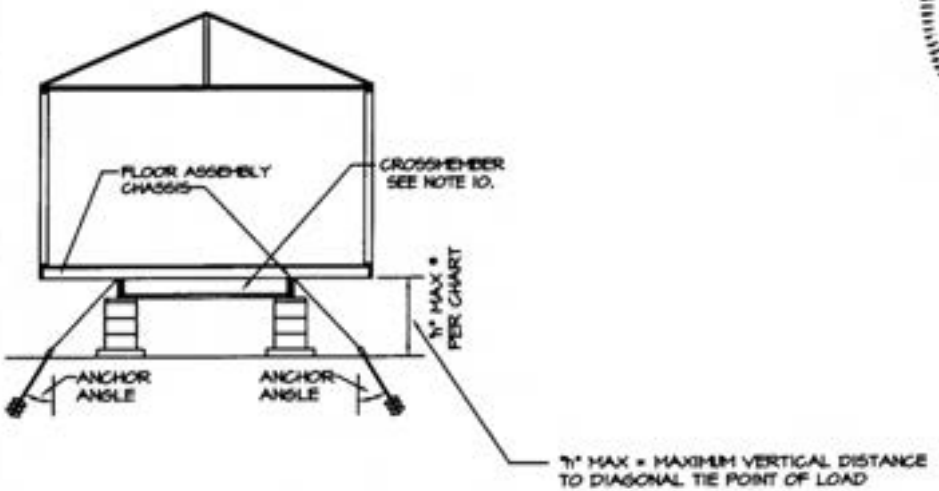

TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

I-25.1

ROOF SLOPES OF A MAXIMUM OF 20 DEGREES

FRAME TIEDOWN SPACING CHART

FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX * PIER HEIGHT
15'-0" SINGLE	6" MAX	10'-0"	43"
		8'-0"	60"
13'-8" SINGLE	6" MAX	10'-0"	33"
		8'-0"	46"

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

Ref: CA-1.2, CA-1.9

TIE-DOWN STRAP AND ANCHORING POSITION
STANDARD INSTALLATION

WIND ZONE I

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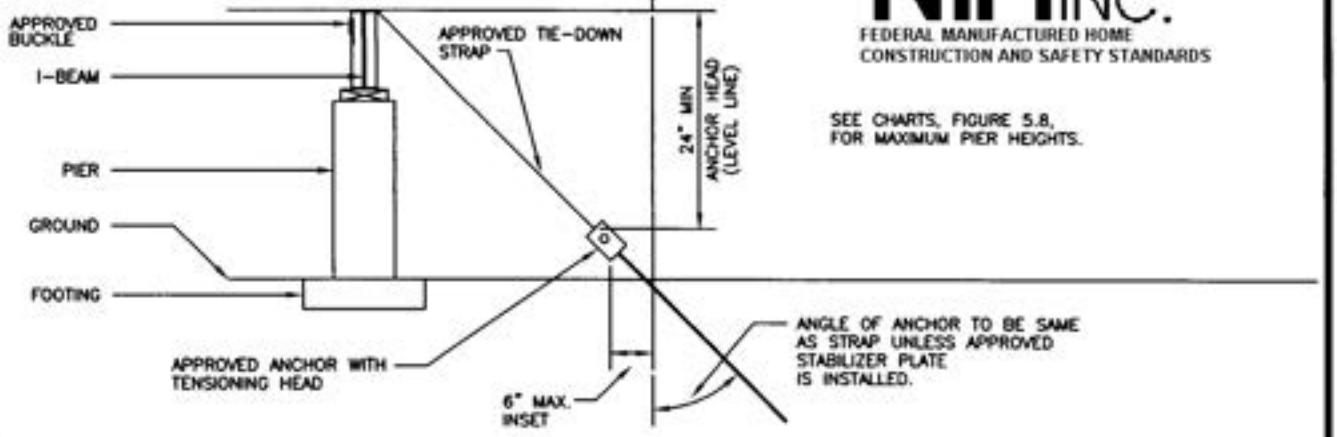
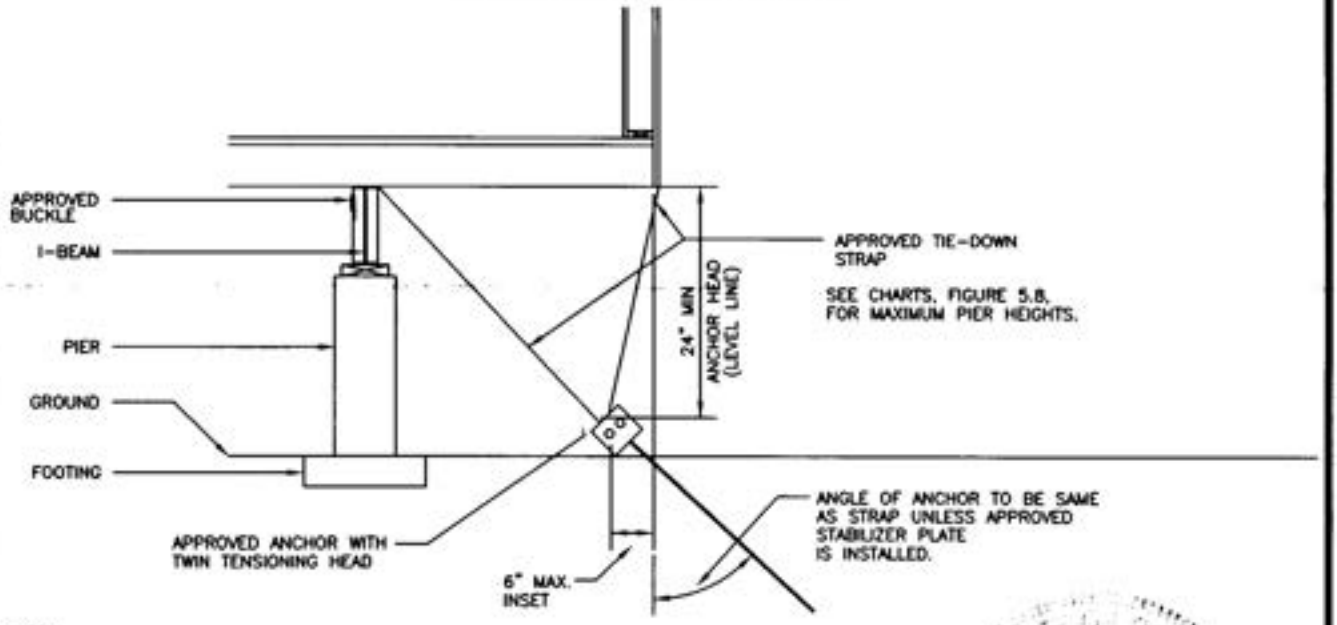


SEE CHARTS, FIGURE 5.8, FOR MAXIMUM PIER HEIGHTS.

TIE-DOWN STRAP AND ANCHORING POSITION
INSTALLATION WITH OVER-THE-ROOF STRAPS



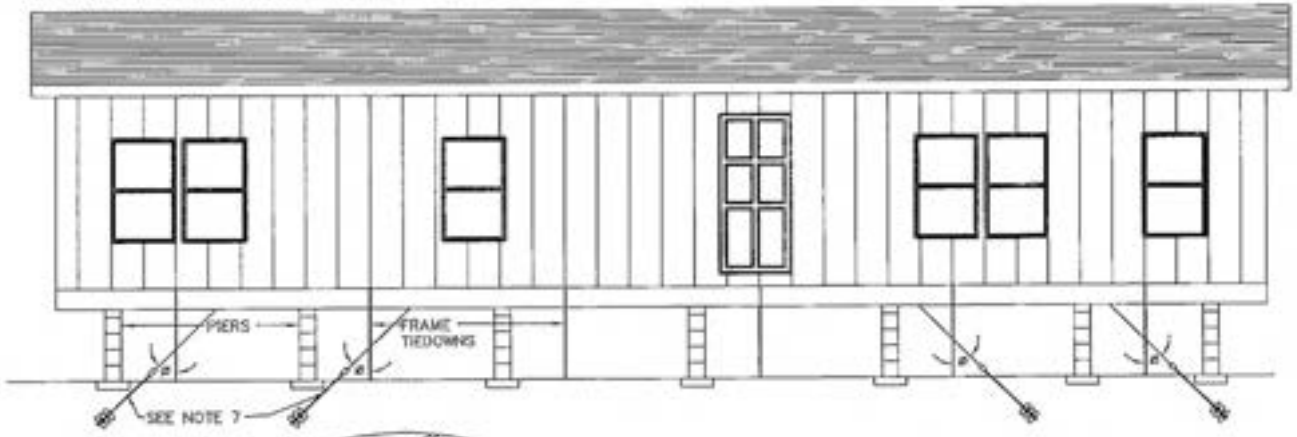
SEE CHARTS, FIGURE 5.8, FOR MAXIMUM PIER HEIGHTS.

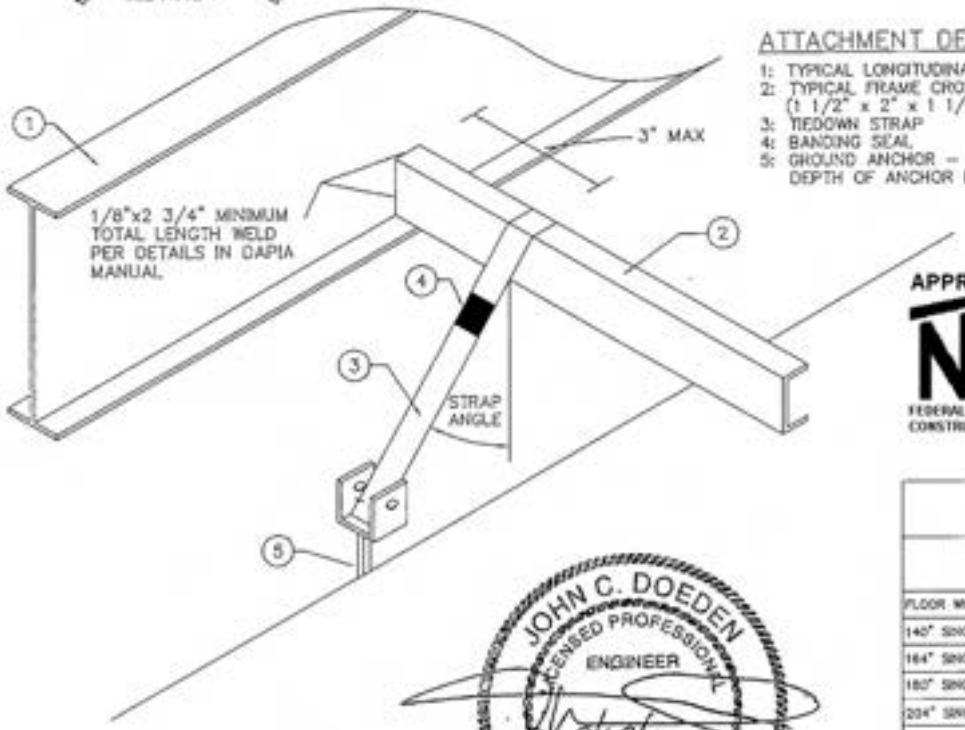
NOTES:
1. OVER-THE-ROOF TIE-DOWN STRAPS ARE NOT REQUIRED, BUT WHEN PROVIDED, MUST BE PROPERLY INSTALLED TO AN ANCHOR.
2. ANCHORS, TIE-DOWN STRAPS AND DEVICES TO HAVE A MINIMUM WORKING LOAD RATING OF 3150# (OVERLOAD OF 4725#) AND MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. PROTECTION SHALL BE PROVIDED AT SHARP CORNERS WHERE THE ANCHORING SYSTEM REQUIRES THE USE OF EXTERNAL STRAPS OR CABLES.

FIGURE 5.2
TIEDOWN & ANCHORING DETAILS

FIGURE 5.3
WIND ZONE 1 (15 PSF LATERAL)
RECOMMENDED TIEDOWN SYSTEM
LONGITUDINAL TIEDOWN REQUIREMENTS

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS





ATTACHMENT DETAIL

1: TYPICAL LONGITUDINAL I-BEAM
2: TYPICAL FRAME CROSSMEMBER (1 1/2" x 2" x 1 1/2" x 13 GA MINIMUM)
3: TIEDOWN STRAP
4: BANDING SEAL
5: GROUND ANCHOR – INSTALLED TO FULL DEPTH OF ANCHOR HEAD

APPROVED BY
NTA INC.
REVISED 9/30/2020
FEDERAL MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS

NOTES:
1. SEE OTHER DRAWINGS FOR FRAME TIEDOWN REQUIREMENTS. THIS DETAIL IS FOR LONGITUDINAL TIEDOWN DESIGN ONLY.
2. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
3. LONGITUDINAL TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
4. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725# & ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
5. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
6. DESIGN BASED ON A MAXIMUM SIDEWALL HEIGHT OF 8'-0".
7. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 3, 4, 5, 13 AND 14.
8. 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.
9. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND
10. GROUND ANCHORS SHALL BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
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12. STRAPPING TO BY TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
13. SELECT A CROSSMEMBER WHERE PIERS DO NOT INTERFERE WITH THE REQUIRED ANGLE OF THE STRAP. INSTALL THE STRAP JUST INSIDE THE MAIN BEAMS LOOPED AROUND THE CROSSMEMBER AND TIE TO AN ANCHOR LOCATED DIRECTLY UNDER THE MAIN BEAM AT THE ANGLE SPECIFIED IN THE CHART BELOW (SEE DETAIL).
14. WHEN THIS ANCHOR ANGLE IS NOT ATTAINABLE INSTALL ANCHOR PER MANUFACTURER'S INSTRUCTIONS WITH AN APPROVED STABILIZING PLATE.
15. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAM AT CROSSMEMBERS AT EACH END AND CANNOT BE DOUBLED.

ROOF SLOPE NOT EXCEEDING 20 DEGREES DOUBLE WIDE UNITS (ALTERNATE WITH BLOCK PIERS*)				ROOF SLOPE NOT EXCEEDING 20 DEGREES NO RESTRICTION AS TO PIER TYPE OR HEIGHT (EXCEPT AS LIMITED BY OTHER DETAILS)		
	MINIMUM UNIT LENGTH		NUMBER OF LONGITUDINAL TIES (TOTAL EACH END) FOR BOTH SECTIONS			
FLOOR WIDTH	SINGLE STACK	DOUBLE STACK		FLOOR WIDTH	MINIMUM QUANTITY EACH END OF EACH SECTION	STRAP ANGLE (DEGREES)
140" SINGLE WIDE	56'-0"	56'-0"	0	140" SINGLE WIDE*	1	30-60
164" SINGLE WIDE	65'-0"	65'-0"	0	164" SINGLE WIDE*	1	30-60
180" SINGLE WIDE	70'-0"	70'-0"	0	180" SINGLE WIDE*	1	33-60
204" SINGLE WIDE	78'-0"	78'-0"	0	204" SINGLE WIDE*	1	38-60

* FOR USE IN ABOVE TABLE)
SINGLE STACK BLOCK PIERS = 24" MAXIMUM HEIGHT
DOUBLE STACK BLOCK PIERS = 60" MAXIMUM HEIGHT
MINIMUM ANGLE OF STRAP = 40 DEGREES.

*MAY REDUCE TO 0 OR 1 LONGITUDINAL TIE PER HALF WITH PIER RESTRICTIONS PER CHART TO LEFT

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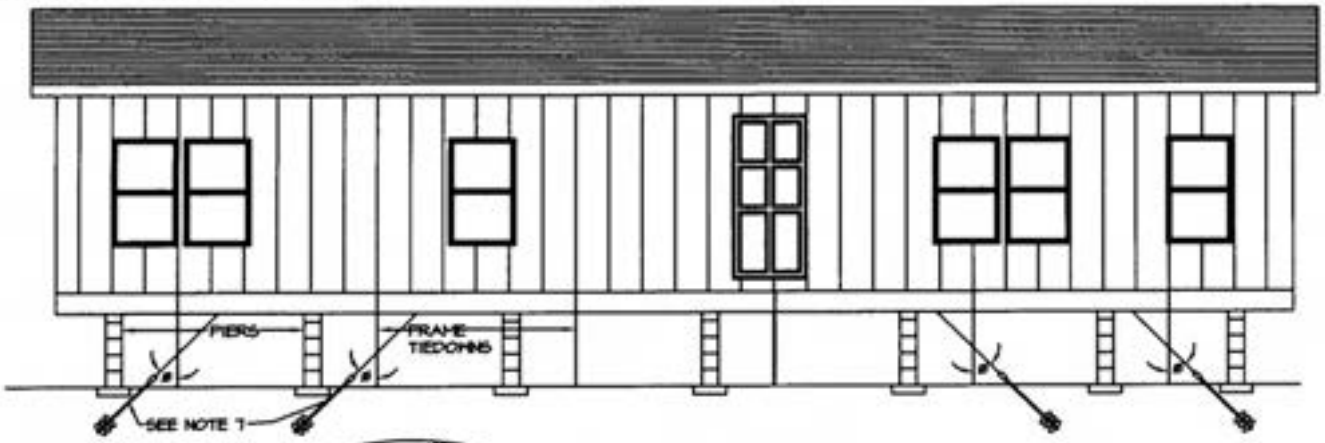
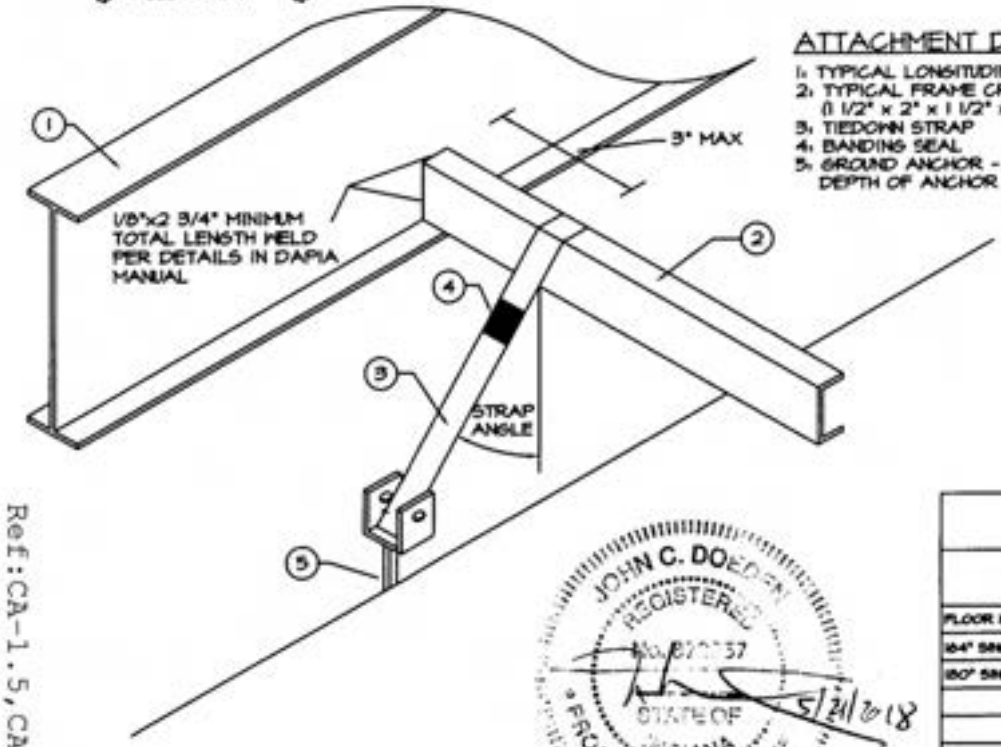
LICENSED PROFESSIONAL ENGINEER
16583
STATE OF MISSISSIPPI

REF: CA-1.5, CA-1.10, CA-I-F5.3.01

FIGURE 5.3
WIND ZONE I (15 PSF LATERAL)
RECOMMENDED TIEDOWN SYSTEM
LONGITUDINAL TIEDOWN REQUIREMENTS

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS





ATTACHMENT DETAIL

1. TYPICAL LONGITUDINAL I-BEAM
2. TYPICAL FRAME CROSSMEMBER (1 1/2" x 2" x 1 1/2" x 13 GA MINIMUM)
3. TIEDOWN STRAP
4. BANDING SEAL
5. GROUND ANCHOR - INSTALLED TO FULL DEPTH OF ANCHOR HEAD

APPROVED BY
NTA INC. 5/23/2018
FEDERAL MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS

NOTES:
1. SEE OTHER DRAWINGS FOR FRAME TIEDOWN REQUIREMENTS. THIS DETAIL IS FOR LONGITUDINAL TIEDOWN DESIGN ONLY.
2. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
3. LONGITUDINAL TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
4. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725# & ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
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6. DESIGN BASED ON A MAXIMUM SIDEWALL HEIGHT OF 8'-0".
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14. WHEN THIS ANCHOR ANGLE IS NOT ATTAINABLE INSTALL ANCHOR PER MANUFACTURER'S INSTRUCTIONS WITH AN APPROVED STABILIZING PLATE.
15. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAM AT CROSSMEMBERS AT EACH END AND CANNOT BE DOUBLED.

JOHN C. DOEDEN REGISTERED PROFESSIONAL ENGINEER STATE OF INDIANA 5/21/2018

ROOF SLOPE NOT EXCEEDING 20 DEGREES DOUBLE WIDE UNITS (ALTERNATE WITH BLOCK PIERS*)				ROOF SLOPE NOT EXCEEDING 20 DEGREES NO RESTRICTION AS TO PIER TYPE OR HEIGHT (EXCEPT AS LIMITED BY OTHER DETAILS)		
	MINIMUM UNIT LENGTH		NUMBER OF LONGITUDINAL TIES (TOTAL EACH END) FOR BOTH SECTIONS			
FLOOR WIDTH	SINGLE STACK	DOUBLE STACK		FLOOR WIDTH	MINIMUM QUANTITY EACH END OF EACH SECTION	STRAP ANGLE (DEGREES)
164" SINGLE WIDE	65'-0"	65'-0"	0	164" SINGLE WIDE*	2	30-60
180" SINGLE WIDE	70'-0"	70'-0"	0	180" SINGLE WIDE*	2	35-60

* FOR USE IN ABOVE TABLE:
SINGLE STACK BLOCK PIERS = 36" MAXIMUM HEIGHT
DOUBLE STACK BLOCK PIERS = 60" MAXIMUM HEIGHT
MINIMUM ANGLE OF STRAP = 40 DEGREES.

*MAY REDUCE TO 0 OR 1 LONGITUDINAL TIE PER HALF WITH PIER RESTRICTIONS PER CHART TO LEFT

Ref:CA-1.5,CA-1.10

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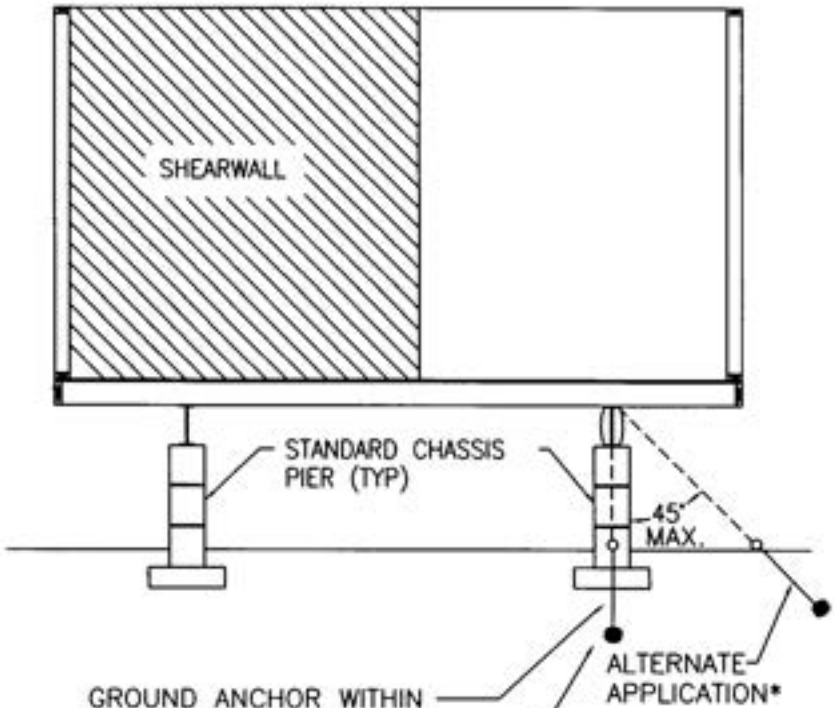


NOTE: TO FACILITATE ANCHOR INSTALLATION AFTER HOME IS SET A HOLE MAY BE DUG, 8" DIAMETER MAX. BACKFILL HOLE AND COMPACT TO ORIGINAL DENSITY AFTER ANCHOR INSTALLATION.

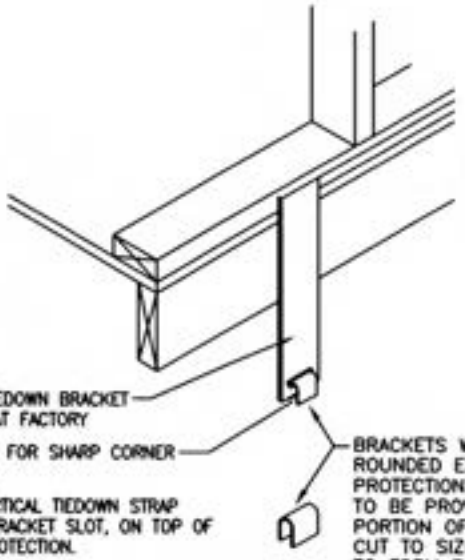
NOTES:
1. SHEARWALL LOCATIONS ARE IDENTIFIED BY FACTORY INSTALLED TAGS OR PAINT OR SHIP LOOSE FLOOR PLANS.
2. FOR SINGLE WIDE ZONE 1, 2 AND 3 UNITS THE END SHEARWALL TIEDOWN STRAP SHOWN ON THIS DETIAL AT THE I-BEAM MAY BE OMITTED AT A FULL DEPTH CROSSMEMBER LOCATION.

FIGURE 5.4
TYPICAL SHEARWALL TIEDOWN INSTALLATION
ALL WIND ZONES

I-28

Ref: CA-1.1

STRAPPING TO BY TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

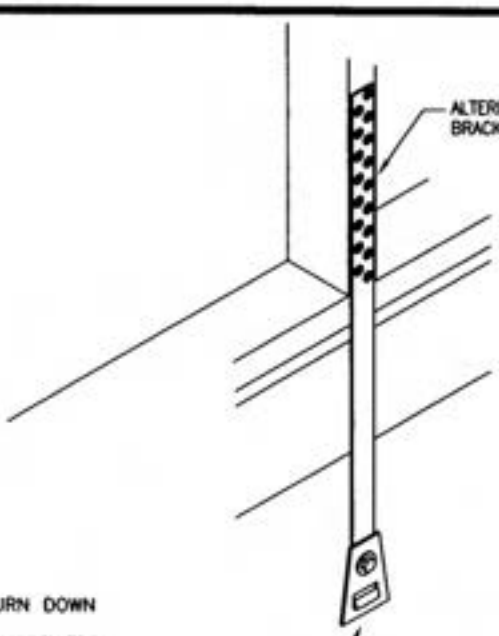


VERTICAL TIEDOWN BRACKET INSTALLED AT FACTORY

PROTECTION FOR SHARP CORNER SEE DETAIL

INSTALL VERTICAL TIEDOWN STRAP THROUGH BRACKET SLOT, ON TOP OF CORNER PROTECTION.

BRACKETS WITH NO TURN DOWN ROUNDED EDGE: PROTECTION AT SHARP CORNERS TO BE PROVIDED BY MEANS OF PORTION OF STRAP MATERIAL CUT TO SIZE AND BENT OVER TO FORM ROUNDED EDGE.

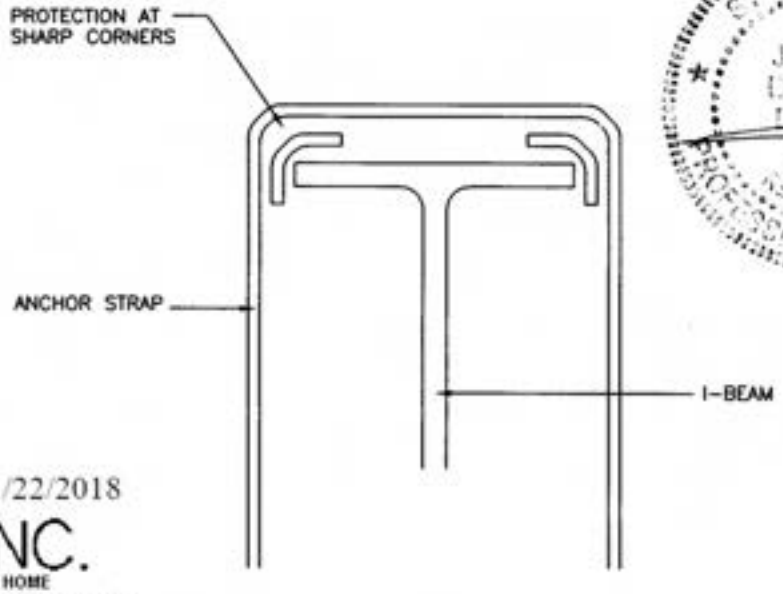


ALTERNATE BRACKET DESIGN

SOME BRACKET DESIGNS PROVIDE A SMOOTH ROUNDED EDGE. NO ADDED PIECE OF STRAP IS REQUIRED.

FIGURE 5.5.1
INSTALLATION INSTRUCTIONS
ANCHOR STRAP PROTECTION

PROTECTION OF ANCHORING STRAPS MUST BE PROVIDED AT SHARP CORNERS, SUCH AS WHERE STRAP IS BENT AROUND STEEL BEAMS. PROTECTION IS TO BE PROVIDED BY MEANS OF A PIECE OF ANCHOR STRAP MATERIAL PLACED BETWEEN BEAM AND STRAP AT THE SHARP CORNER.



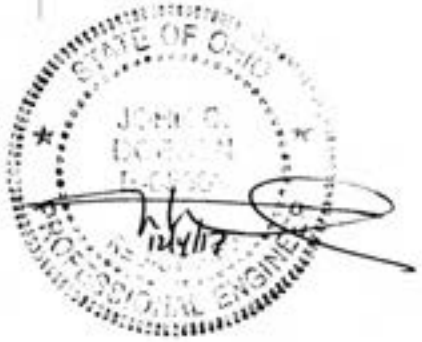


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FIGURE 5.5.2
INSTALLATION INSTRUCTIONS
ANCHOR STRAP PROTECTION

CHAPTER 6 - INSTALLATION OF OPTIONAL FEATURES

6.1 Hinged roofs and eaves. If your home has an optional hinged roof, see specific installation instructions and illustrations provided separately with your home.

6.2 Awnings and carports. Choose free-standing products with columns to support their weight.

6.3 Miscellaneous Lights and Fixtures. Some exterior lights, ceiling fans and chain-hung fixtures may not yet be installed when the home is delivered. All of these fixtures must be grounded by a fixture-grounding screw or wire. For chain-hung fixtures, use both methods. When fixtures are mounted on combustible surfaces such as hardboard, install a noncombustible ring to completely cover the combustible surface exposed between the fixture canopy and the wiring outlet box. If siding has not been installed at a fixture location, remove the outlet box and install the siding with a hole for the outlet box. Then reinstall the outlet box and proceed as for other fixtures. See Section 8.6.6 for system test procedures and equipment.

6.3.1 Exterior lights. Remove the junction box covers and make wire-to-wire connections using wire nuts. Connect wires black to black, white to white, and ground to ground. Caulk around the base of the light fixture to ensure a water-tight seal to the sidewall. Push the wires into the box and secure the light fixture to the junction box. Install the light bulb and attach the globe. Refer to Figure 6.1(a).

6.3.2 Ceiling fans. To reduce the risk of injury, install ceiling fans with the trailing edges of the blades at least 6'4" above the floor. Follow the manufacturer's instructions. If no instructions are available, connect the wiring as shown in Figure 6.1(b).

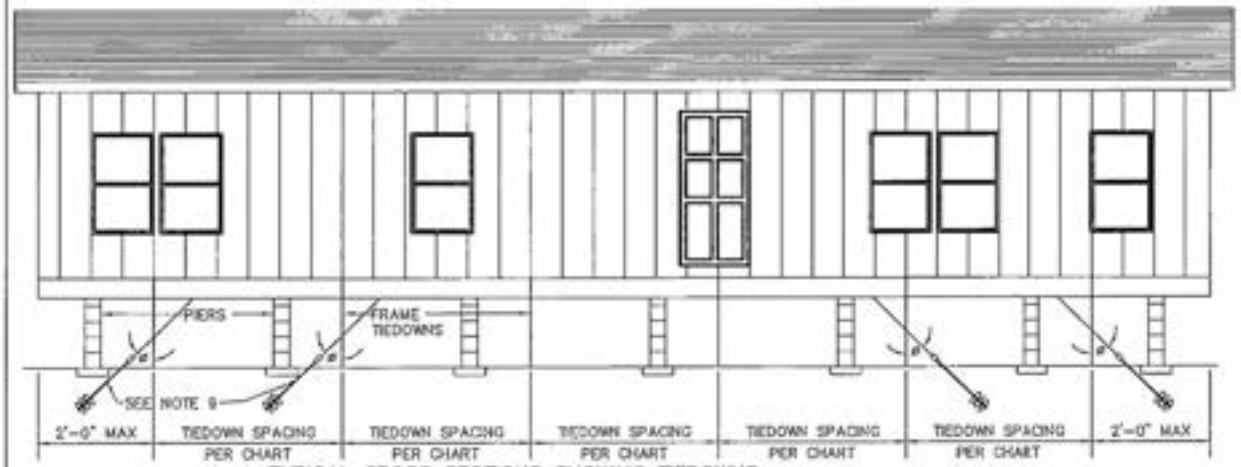
6.4 Telephone and cable TV. CARELESS INSTALLATION OF TELEPHONE AND CABLE TELEVISION LINES MAY BE HAZARDOUS. The walls and floors of your manufactured home contain electrical circuits, plumbing and duct work. Avoid contact with these home systems when drilling through and placing cables within these cavities. Only trained professionals should handle such work. **FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.** Figure 6.2 shows one procedure for telephone crossover connections in multisection homes. Telephone and cable TV wiring should be installed in accordance with requirements of the local authority having jurisdiction and the National Electric Code.

6.5 Special Setup Manual Addendums/and Supplements. Your home may require special Dapia Approved instructions in addition to those included in this manual to properly setup the home. These are provided by New Vision Manufacturing separately.

6.6 Manufacturer Installation Instructions. Provided separately are Dapia Approved Installation Instructions provided by the anchoring devices manufacturer which must be

FIGURE 5.1.1
TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH)

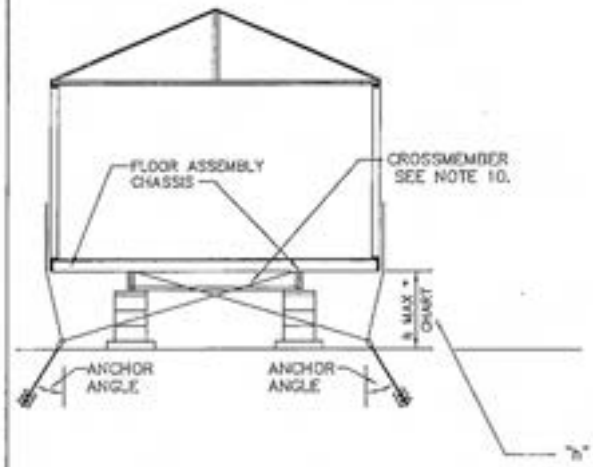
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. VERTICAL TIES ARE REQUIRED IN ADDITION TO FRAME TIEDOWNS.
3. VERTICAL TIES MAYBE SECURED TO THE SAME GROUND ANCHOR AS THE FRAME TIEDOWNS WHEN DOUBLE HEADED ANCHOR IS CAPABLE OF RESISTING COMBINED LOADING. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
5. VERTICAL TIE STRAPS ARE SUPPLIED BY NEW VISION MANUF. ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725# & 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 PER SIDE.
8. DESIGN BASED ON 99--1/2" I--BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 8'--0".
9. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I--BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, AND 7.
10. FRAME TIEDOWNS ARE POSITIONED AT CROSSMEMBER LOCATIONS (WITHIN 3") WHEN STRAP COMES OFF BOTTOM FLANGE OF BEAM WITH APPROVED BUCKLE OR LOOP.
11. 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:
12. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND
13. GROUND ANCHORS SHALL BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
14. 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--97, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
15. GROUND ANCHORS TO BE RATED FOR LOAD TABULATED IN CHARTS TIMES 1.5 SAFETY FACTOR OR ULTIMATE LOAD OF 4725# WHICHEVER IS GREATER.
16. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1--1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953--97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

TYPICAL CROSS SECTION SHOWING TIEDOWNS



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20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)

FLOOR WIDTH	EAVE OVERHANG	WIND ZONE 2		
		SPACING	"h" MAX	ANCHOR ANGLE
140" MAX SINGLE	6" MAX	6'-8"	54"	40-45
164" MAX SINGLE	6" MAX	6'-8"	58"	40-45
180" MAX SINGLE	6" MAX	6'-8"	62"	40-45
204" MAX SINGLE	6" MAX	6'-8"	66"	40-50

LONGITUDINAL TIEDOWN QUANTITY CHART

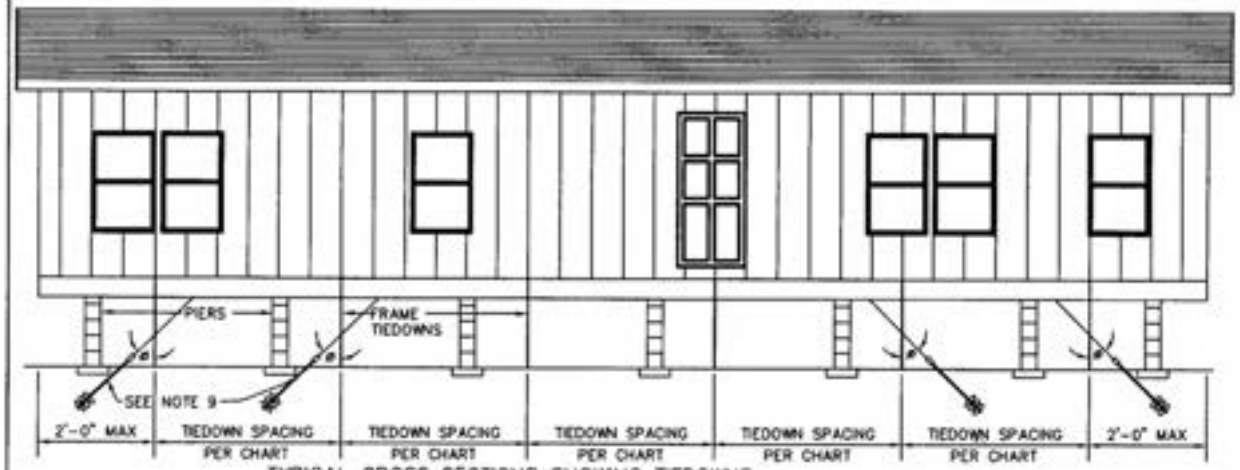
FLOOR WIDTH	QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE Ø
140" MAX SINGLE	2	45-60
164" MAX SINGLE	3	35-60
180" MAX SINGLE	3	39-60
204" MAX SINGLE	3	46-60

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

REF: CA-1.13, CA-I-F5.1.1.01

FIGURE 5.1.2
TIEDOWN SYSTEM
WIND ZONE 3 (110 MPH)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. VERTICAL TIES ARE REQUIRED IN ADDITION TO FRAME TIEDOWNS.
3. VERTICAL TIES MAYBE SECURED TO THE SAME GROUND ANCHOR AS THE FRAME TIEDOWNS WHEN DOUBLE HEADED ANCHOR IS CAPABLE OF RESISTING COMBINED LOADING. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
5. VERTICAL TIE STRAPS ARE SUPPLIED BY NEW VISION MANUF. ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725# & 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 PER SIDE.
8. DESIGN BASED ON 99-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 8'-0".
9. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, AND 7.
10. FRAME TIEDOWNS ARE POSITIONED AT CROSSMEMBER LOCATIONS (WITHIN 3") WHEN STRAP COMES OFF BOTTOM FLANGE OF BEAM WITH APPROVED BUCKLE OR LOOP.
11. 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.
12. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND
13. GROUND ANCHORS SHALL BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
14. 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 D3953-97, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
15. GROUND ANCHORS TO BE RATED FOR LOAD TABULATED IN CHARTS TIMES 1.5 SAFETY FACTOR OR ULTIMATE LOAD OF 4725# WHICHEVER IS GREATER.
16. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

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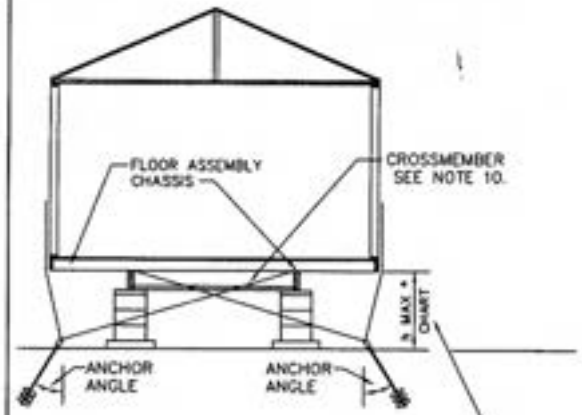
TYPICAL CROSS SECTION SHOWING TIEDOWNS



"h" MAX = MAXIMUM VERTICAL DISTANCE

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20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)

FLOOR WIDTH	EAVE OVERHANG	WIND ZONE 3		
		SPACING	"h" MAX	ANCHOR ANGLE
140" MAX SINGLE	6" MAX	5'-4"	50"	40-45
164" MAX SINGLE	6" MAX	5'-4"	64"	40-45

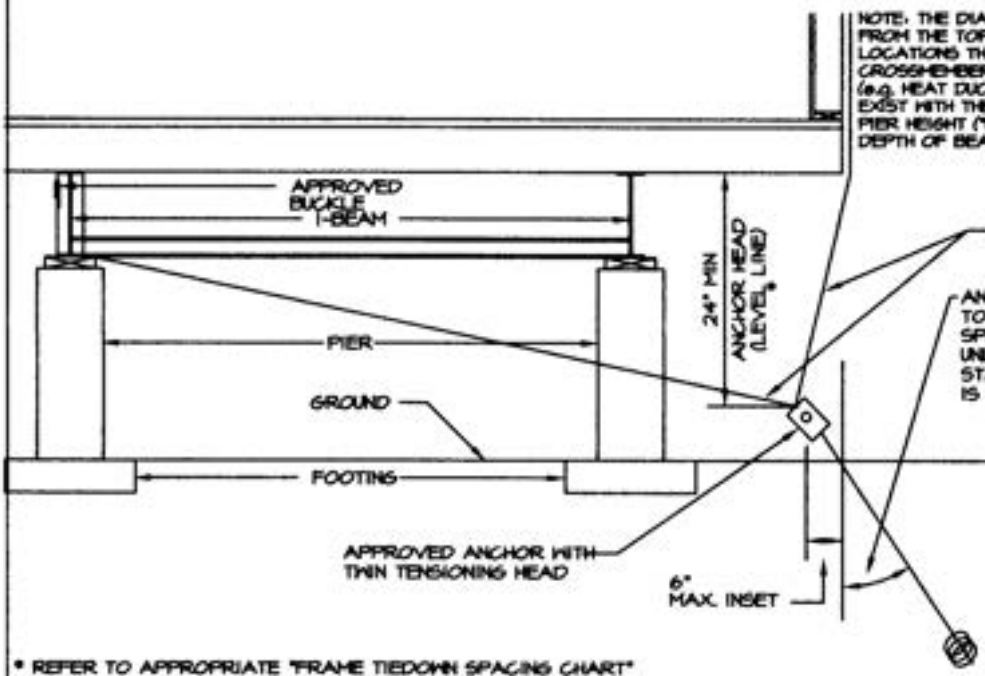
LONGITUDINAL TIEDOWN QUANTITY CHART

FLOOR WIDTH	QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE Ø
140" MAX SINGLE	3	35-60
164" MAX SINGLE	3	43-60

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

TIE-DOWN STRAP AND ANCHORING POSITION
INSTALLATION WITH VERTICAL TIES
(DIAGONAL POSITION AT INSIDE I-BEAM)

WIND ZONE II (100 MPH)



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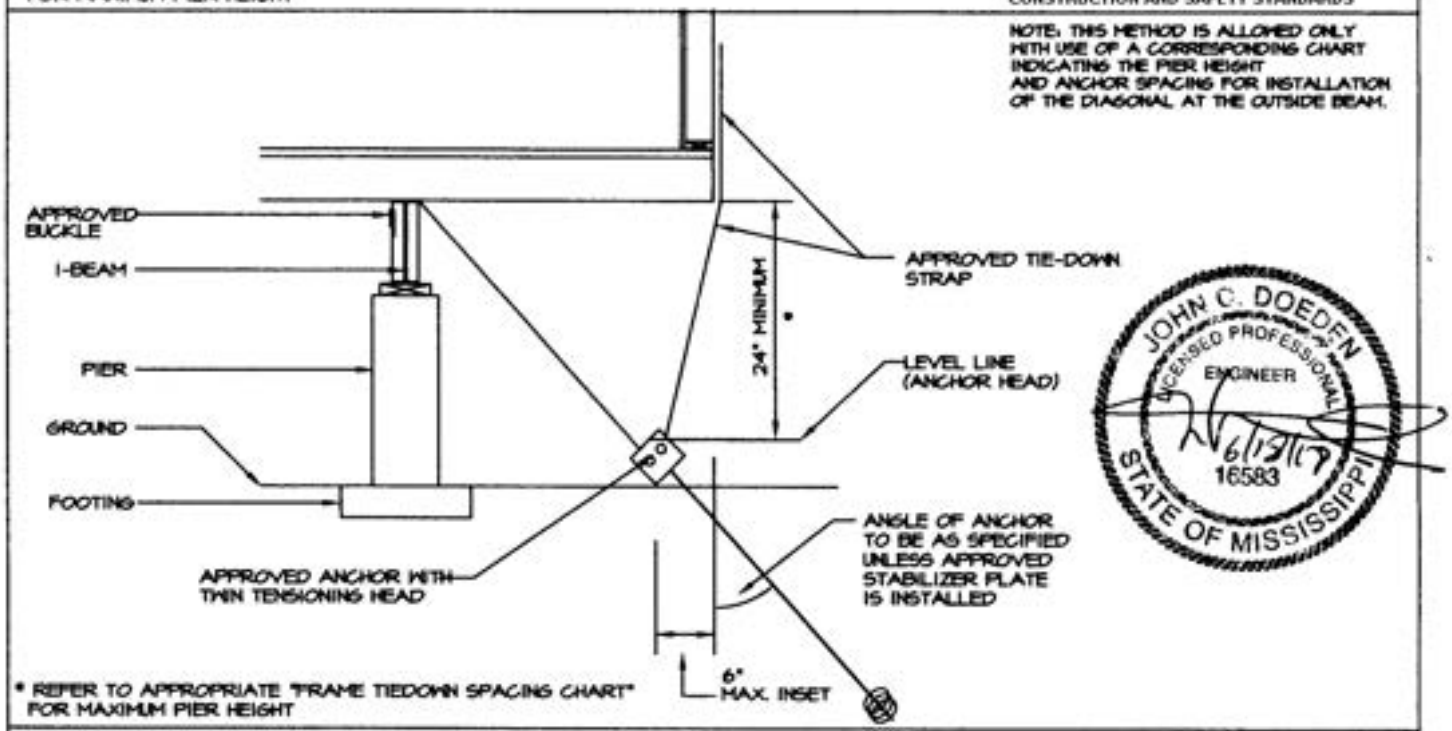
* REFER TO APPROPRIATE "FRAME TIEDOWN SPACING CHART" FOR MAXIMUM PIER HEIGHT



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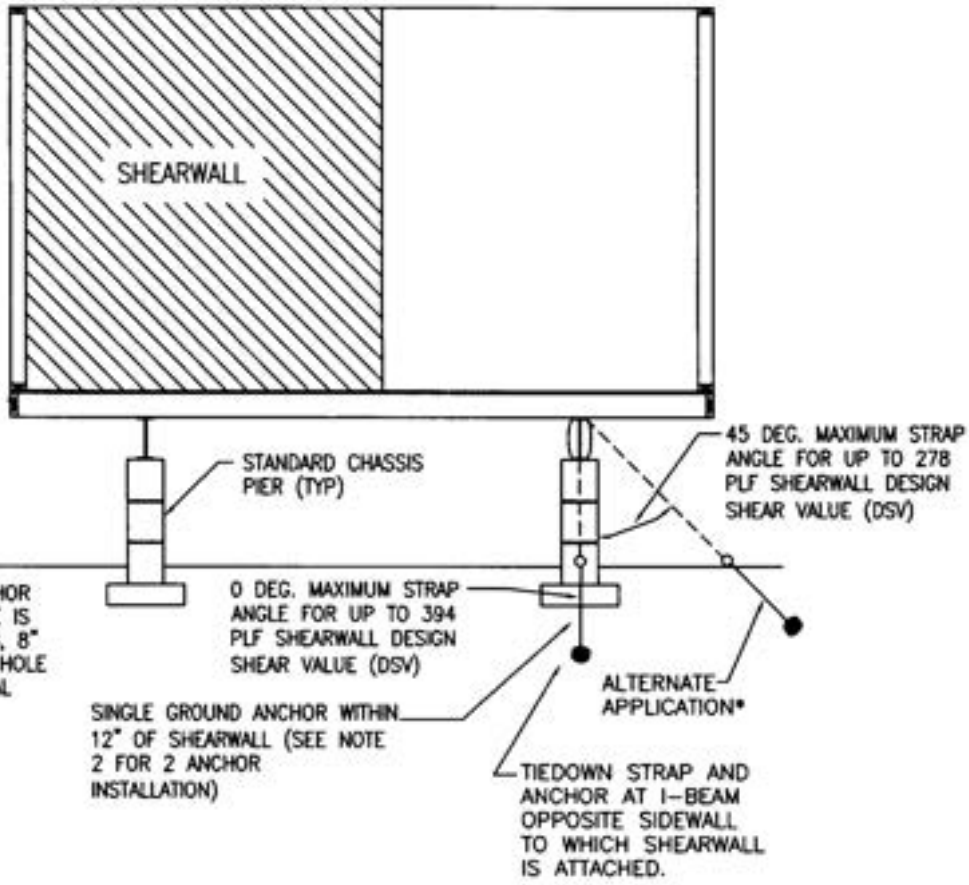
* REFER TO APPROPRIATE "FRAME TIEDOWN SPACING CHART" FOR MAXIMUM PIER HEIGHT

NOTES:
1. VERTICAL TIEDOWN STRAPS ARE REQUIRED AND ARE INSTALLED BY THE HOME MANUFACTURER.
2. TIE-DOWN STRAPS AND DEVICES TO HAVE A MINIMUM WORKING LOAD RATING OF 3150# (OVERLOAD OF 4725#) AND MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. PROTECTION SHALL BE PROVIDED AT SHARP CORNERS WHERE THE ANCHORING SYSTEM REQUIRES THE USE OF EXTERNAL STRAPS OR CABLES.
4. ANCHORS MUST ALSO MEET TABULATED VALUES IN IN THE "RECOMMENDED TIEDOWN SYSTEM" DRAWINGS

NOTE: WHEN INTERFERENCES, SUCH AS DOOR OPENINGS, PREVENT INSTALLATION OF DIAGONAL TIES AT THE MAXIMUM SPACING TABULATED IN THE APPROPRIATE CHART, THE VERTICAL TIE MAY BE LOOPED THROUGH A 1-1/2"x1" 6A STEEL ANGLE BRACKET INSTALLED ON THE BOTTOM OF THE RIM JOIST (AT THE INTERFERENCE AND CROSSMEMBER LOCATION, WHERE APPLICABLE) WITH TWO 5/16"x3" MINIMUM LAG SCREWS. A CRIMP SEAL OR OTHER APPROVED METHOD HAVING THE APPROPRIATE LOAD RATING MUST BE USED.

FIGURE 5.2.1
TIEDOWN & ANCHORING DETAILS



NOTES:
1. SHEARWALL LOCATIONS ARE IDENTIFIED BY FACTORY INSTALLED TAGS OR PAINT AND SHIP LOOSE FLOOR PLANS. REFER TO FLOOR PLAN FOR THE DSV OF THE SHEARWALL AT SHEARWALL ANCHOR LOCATIONS TO DETERMINE MAXIMUM STRAP ANGLE.
2. THE MAX. PLF VALUES MAY BE MULTIPLIED BY 2 WHEN TWO ANCHORS ARE INSTALLED. WHEN TWO ANCHORS AND STRAPS ARE REQUIRED INSTALL ONE EACH SIDE OF SHEARWALL LOCATION 2'-0" MINIMUM AND 3'-0" MAXIMUM FROM SHEARWALL CENTERLINE3.
3. FOR SINGLE WIDE ZONE 1, 2 AND 3 UNITS THE END SHEARWALL TIEDOWN STRAP SHOWN ON THIS DETAIL AT THE I-BEAM MAY BE OMITTED AT A FULL DEPTH CROSSMEMBER LOCATION.

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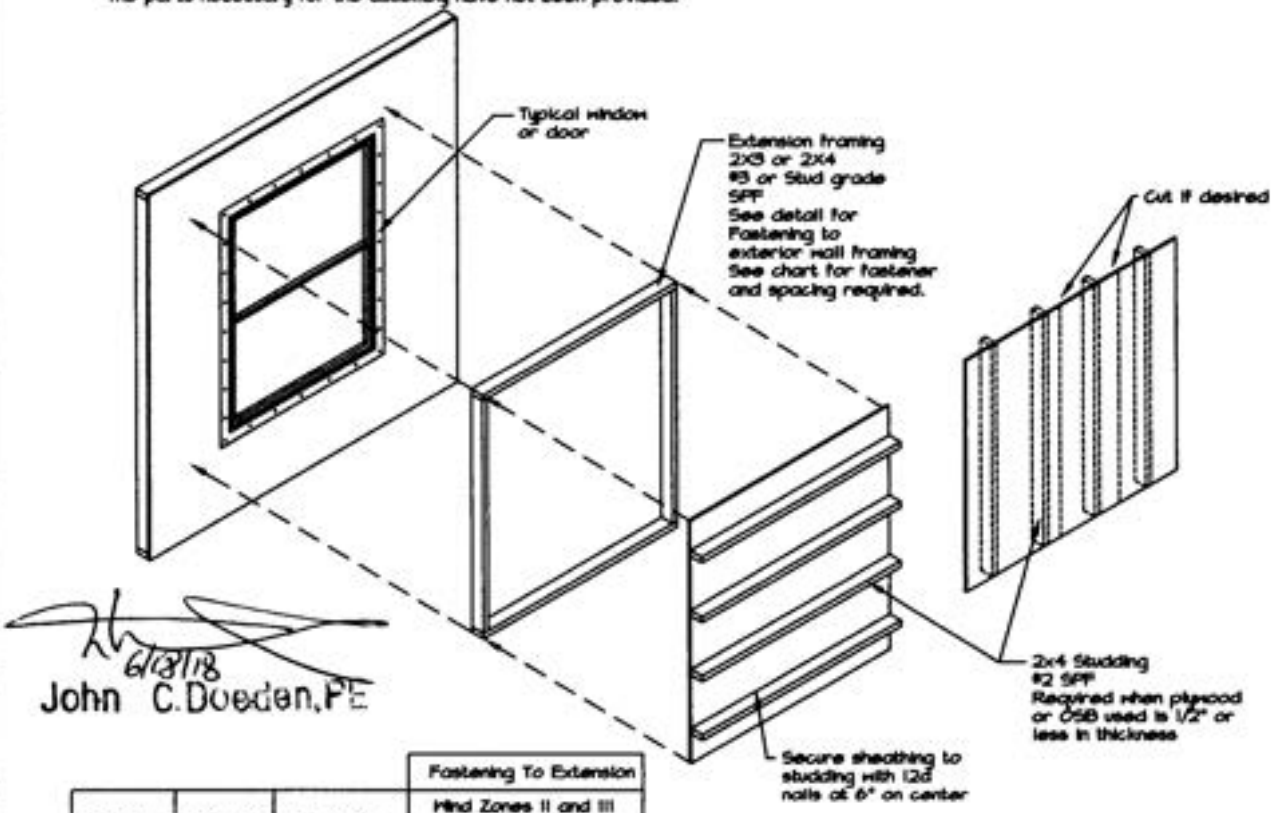
FIGURE 5.4
TYPICAL SHEARWALL TIEDOWN INSTALLATION
ALL WIND ZONES

Ref:CA-1.1

FIGURE 5.6
HIGH WIND PROTECTION FOR WINDOWS AND DOORS

The protective covers described below are intended for installation immediately prior to a severe wind storm or hurricane and are not to be permanently installed.
The parts necessary for the assembly have not been provided.

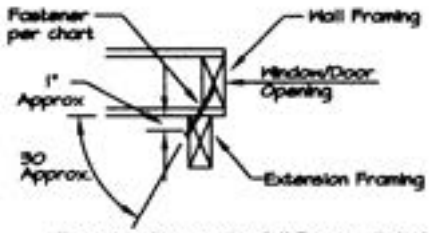


6/28/18
John C. Doeden, PE

Window Width	Extension Framing	Sheathing Thickness	Fastening To Extension Wind Zones II and III	
			Nails	Spacing
Up To 48"	2x3*	7/16", 1/2"	12d	6" o.c.
	2x3	23/32", 3/4"	12d	6" o.c.
Up To 72"	2x3*	7/16", 1/2"	12d	4" o.c.

Window Width	Fastening To Wall Framing							
	Wind Zone II				Wind Zone III			
	16d Nails		#8X3" Screws		16d Nails		#8X3" Screws	
	Interior Zone	End Zone	Interior Zone	End Zone	Interior Zone	End Zone	Interior Zone	End Zone
14 1/2"	24" oc	20" oc	24" oc	24" oc	20" oc	16" oc	24" oc	24" oc
24 1/2"	15" oc	12" oc	24" oc	24" oc	12" oc	10" oc	24" oc	24" oc
30 1/2"	12" oc	9" oc	24" oc	24" oc	10" oc	8" oc	24" oc	24" oc
36 1/2"	10" oc	8" oc	24" oc	24" oc	8" oc	6" oc	24" oc	21" oc
46 1/2"	8" oc	6" oc	24" oc	20" oc	7" oc	5" oc	20" oc	16" oc
72 1/2"	5" o.c.	4" oc	16" oc	13" oc	4" o.c.	3" oc	13" oc	10" oc

* 2X3 Perimeter extension with 2X4 studding at 16" o.c. (See note #6)



Extension Framing To Wall Framing Detail

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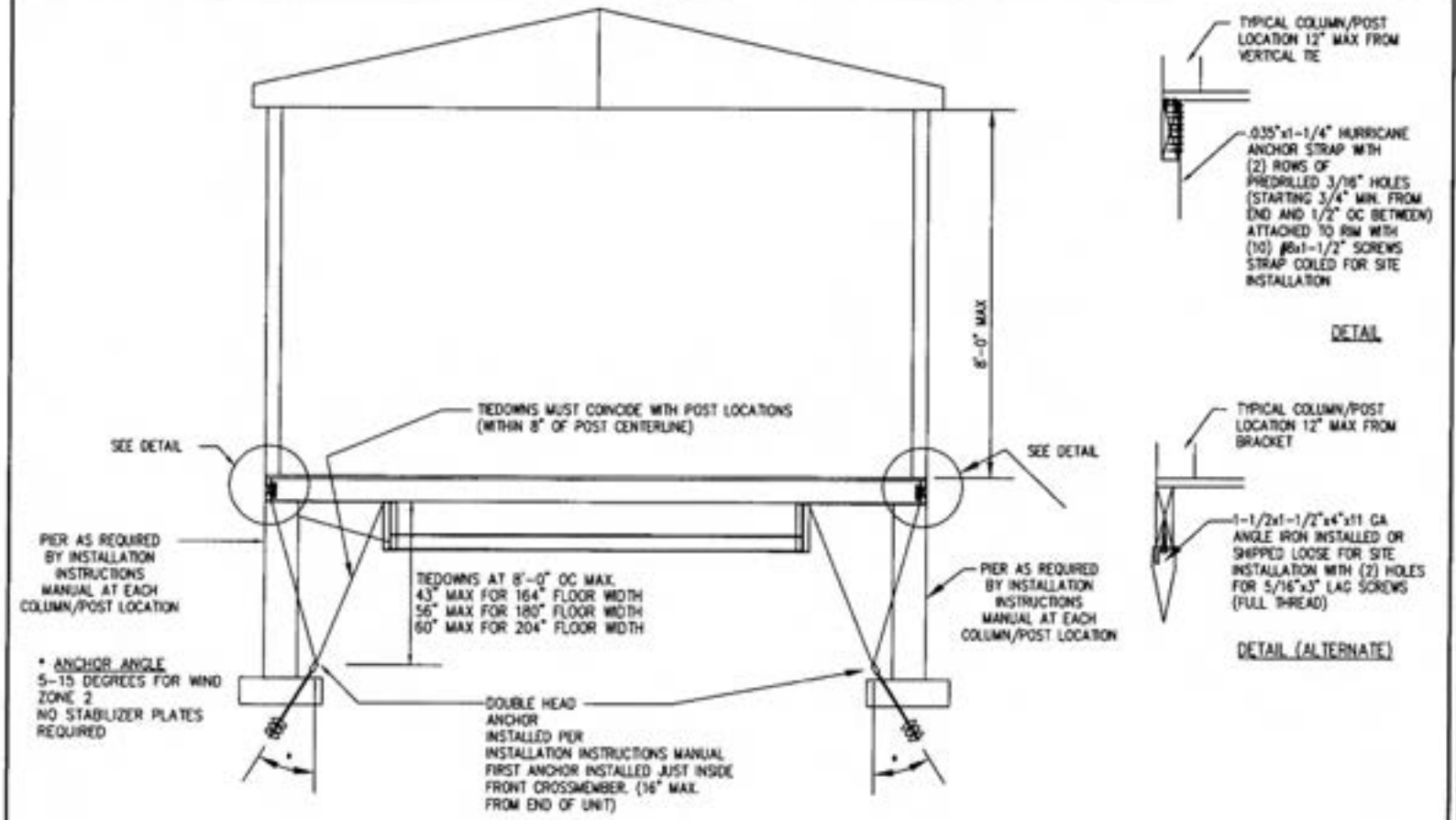
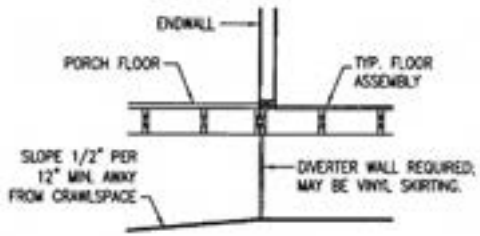
Notes:
1. The fasteners used to fasten extension framing to wall must hit the framing to be effective.
2. Fasten extension framing to wall with 16d double headed nails or #8x3" screws toe nailed/screwed, per the chart above.
3. Fasten assembled panel(s) to extension framing with 12d nails per chart above.
4. Fasten extension framing together with (2) 16d nails at each connection.
5. Use on "common" nails.
6. Design is based on American Plywood Association design considerations. Should you need additional information, you may obtain the APA publication:
Hurrican Shutter Design - Shutters For Wood Frame Buildings"
American Plywood Association
P.O. Box 11700
Tacoma, WA 98411-0700
7. After the storm, remove shutters and patch or caulk nail holes with a suitable caulk.

Ref:CA-1.12



ON-SITE INSTALLATION: FULL WIDTH (3 SIDED OPEN) PORCH



SECTION AT ENDWALL/PORCH

NOTES:
1. A COPY OF THIS DRAWING IS TO BE INCLUDED WITH THE INSTALLATION INSTRUCTIONS.
2. THIS DESIGN FOR 99 1/2" I-BEAM SPACING.
3. THIS DESIGN FOR 164", 180" AND 204" FLOOR WIDTH SINGLE WIDE WITH 6" MAX EAVES
4. ALL FASTENERS AND BRACKETS IN CONTACT WITH ACQ TREATED LUMBER TO BE CORROSION RESISTANT (HOT DIPPED GALVANIZED TO MEET ASTM A153 AND ASTM A653 OR 304 STAINLESS STEEL)
5. FOR LONGITUDINAL TIES SEE INSTALLATION MANUAL (STANDARD METHOD).
6. TIEDOWN DETAILS ON THIS PAGE APPLY TO WIND ZONE 2 ONLY, BUT THE SECTION DETAIL AT LOWER RIGHT FOR ENDWALL/PORCH APPLIES TO WIND ZONE 1 AS WELL.
7. FOR WIND ZONE 1 TIEDOWNS AT PORCH USE STANDARD WIND ZONE 1 DETAILS WITH FIRST DIAGONAL TIE 2'-0" MAX. FROM END.

9/20/19
John C. Doeden, PE

FIGURE 5.7
SINGLE WIDE PORCH
ON-SITE INSTALLATION DETAILS

New Vision Manufacturing, LLC
Madill, OK

GENERAL NOTES

APPROVED BY
NTA INC.
REVISED 5/7/2019
FEDERAL MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS

THIS DOCUMENT HAS BEEN PREPARED BY
NEW EARTH BUILDING DESIGN
3155 SERPIS
GRAND PRAIRIE, TX 75054 (469) 286-9518

REVISIONS

NO	REVISED BY	DATE	CHECKED BY	DATE
1	NEBD	09/19/19		

SINGLE WIDE PORCH
WIND ZONE II

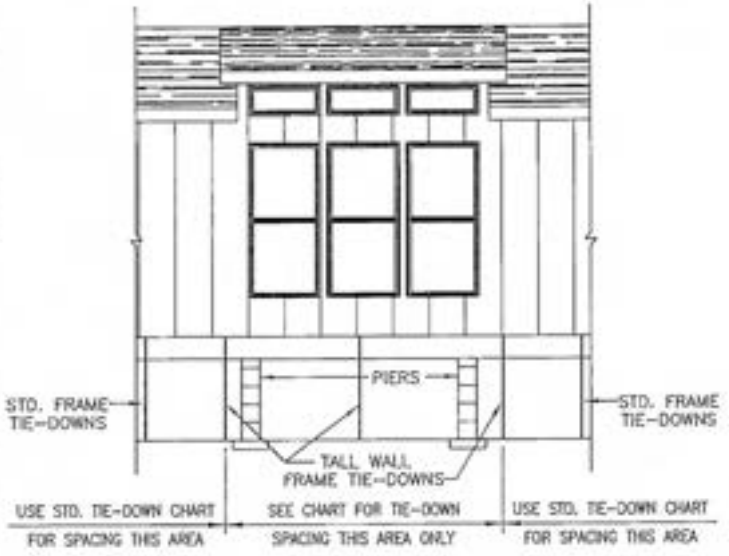
DRAWN BY: NEBD 01/11/2019
CHECKED BY:

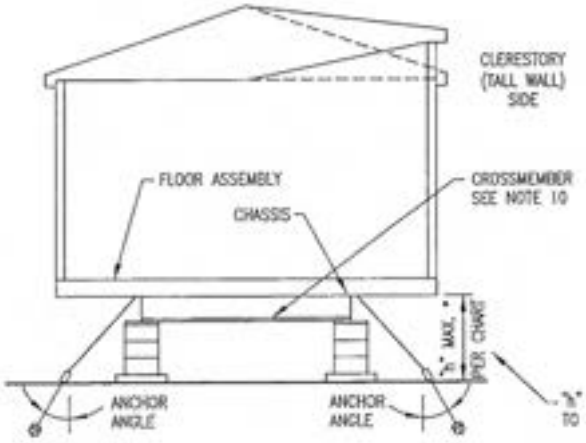
DRAWING NO. I-30.5

REF:CA-I-F5.7.01

FIGURE 5.8
WIND ZONE 1 (15 PSF LATERAL) TALL WALL (114" MAX.) TIE-DOWN FOR CLERESTORY DORMER

TYPICAL SIDE ELEVATION SHOWING TIE-DOWN SPACINGS





"h" MAX = MAXIMUM VERTICAL DISTANCE TO DIAGONAL TIE POINT OF LOAD

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

TYPICAL CROSS SECTION SHOWING TIE-DOWNS

NOTE:
FOR LONGITUDINAL TIE-DOWNS SEE STANDARD CHARTS.

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NTA INC. 5/18/2020
FEDERAL MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS

JOHN C. DOEDEN REGISTERED No. 870357 STATE OF INDIANA PROFESSIONAL ENGINEER

NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIE-DOWNS. HOWEVER, IF OVER-THE-ROOF TIE-DOWNS ARE REQUIRED BY THE LOCAL JURISDICTION THEY MAY BE INSTALLED.
3. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIE-DOWNS.
4. FRAME TIE-DOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY NEW VISION MANUFACTURING. ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725# 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 PER SIDE.
8. RESERVED.
9. DESIGN BASED ON 99-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 114" (9'-6").
10. FRAME TIE-DOWNS ARE POSITIONED AT CROSSMEMBER LOCATIONS (WITHIN 3") WHEN STRAP COMES OFF BOTTOM FLANGE OF BEAM WITH APPROVED BUCKLE OR LOOP.
11. 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.
12. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE, AND BE AT LEAST 12" ABOVE THE WATER TABLE. 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 D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
14. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AN 0.035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D-3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIE-DOWN SPACING CHART

FLOOR WIDTH	EAVE OVERHANG	TIE-DOWN SPACING	MAX * PIER HEIGHT
13'-8" SINGLE	6" MAX	8'-0"	36"
15'-0" SINGLE	6" MAX	10'-0"	31"
		8'-0"	46"
17'-0" SINGLE	6" MAX	10'-0"	42"
		8'-0"	63"

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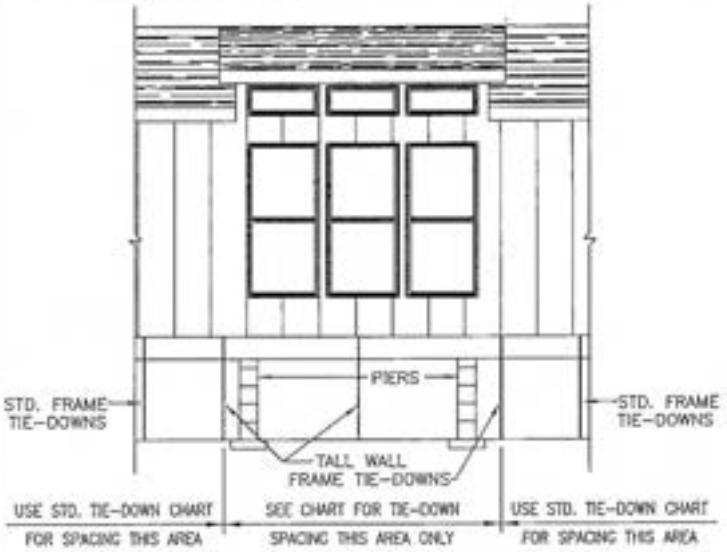
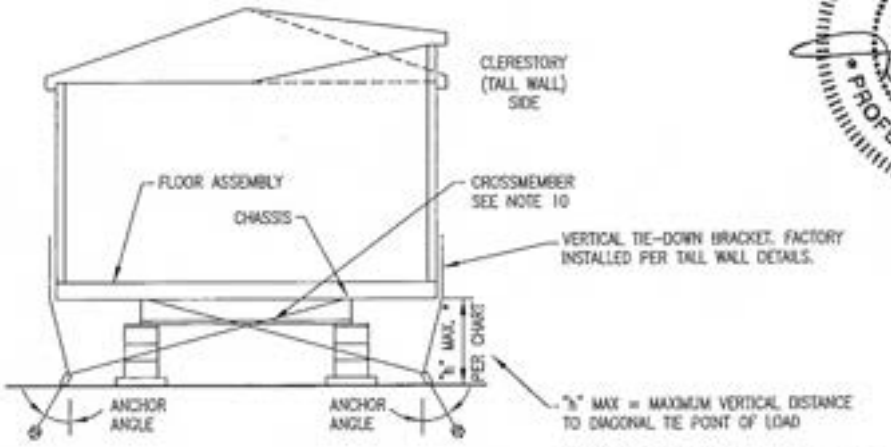
FIGURE 5.8.1
WIND ZONE 2 (100 MPH)
TALL WALL (114" MAX.) TIE-DOWN
FOR CLERESTORY DORMER

TYPICAL SIDE ELEVATION SHOWING TIE-DOWN SPACINGS



NOTE:
FOR LONGITUDINAL TIE-DOWNS SEE STANDARD CHARTS.



TYPICAL CROSS SECTION SHOWING TIE-DOWNS

JOHN C. DOEDEN REGISTERED No. 870357 STATE OF INDIANA PROFESSIONAL ENGINEER 5/11/2020

NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. VERTICAL TIES ARE REQUIRED IN ADDITION TO FRAME TIE-DOWNS.
3. VERTICAL TIES MAY BE SECURED TO THE SAME GROUND ANCHOR AS THE FRAME TIE-DOWNS WHEN DOUBLE-HEADED ANCHOR IS CAPABLE OF RESISTING COMBINED LOADING. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE, A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
4. FRAME TIE-DOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
5. VERTICAL TIE STRAPS ARE SUPPLIED BY NEW VISION MANUFACTURING. ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725# 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 PER SIDE.
8. DESIGN BASED ON 99-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 114" (9'-6").
9. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, & 7.
10. FRAME TIE-DOWNS ARE POSITIONED AT CROSSMEMBER LOCATIONS (WITHIN 3") WHEN STRAP COMES OFF BOTTOM FLANGE OF BEAM WITH APPROVED BUCKLE OR LOOP.
11. 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.
12. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE, AND BE AT LEAST 12" ABOVE THE WATER TABLE. 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 D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
14. GROUND ANCHORS TO BE RATED FOR LOAD TABULATED IN CHARTS TIME 1.5 SAFETY FACTOR OR ULTIMATE LOAD OF 4725#, WHICHEVER IS GREATER.
15. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AN 0.035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D-3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

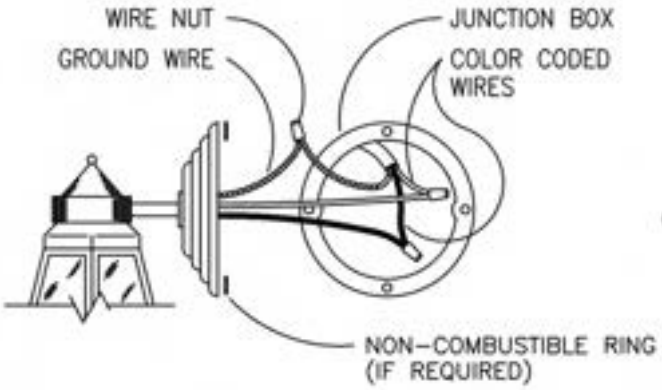
20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIE-DOWN SPACING CHART

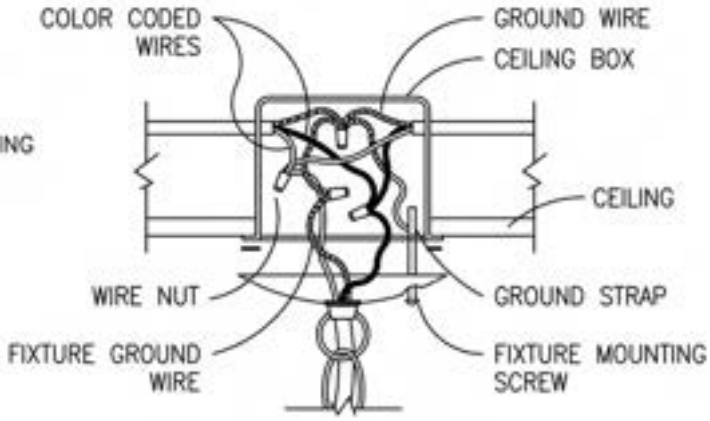
FLOOR WIDTH	EAVE OVERHANG	TIE-DOWN SPACING	MAX * PIER HEIGHT	ANCHOR ANGLE
13'-8" SINGLE	6" MAX	6'-8"	39"	45° - 50°
15'-0" SINGLE	6" MAX	6'-8"	42"	45° - 50°
17'-0" SINGLE	6" MAX	6'-8"	44"	45° - 50°

followed. The instructions provided may not be the same as the anchoring devices you are using. If this is the case, use the instructions which are provided with your anchors.

6.7 Technical Information Requests. To obtain diagrams for your structural, electrical, plumbing, heating, cooling, and transportation systems contact New Vision Manufacturing.



(A) EXTERIOR LIGHT FIXTURE



(B) CHAIN HUNG FIXTURE OR CEILING FAN

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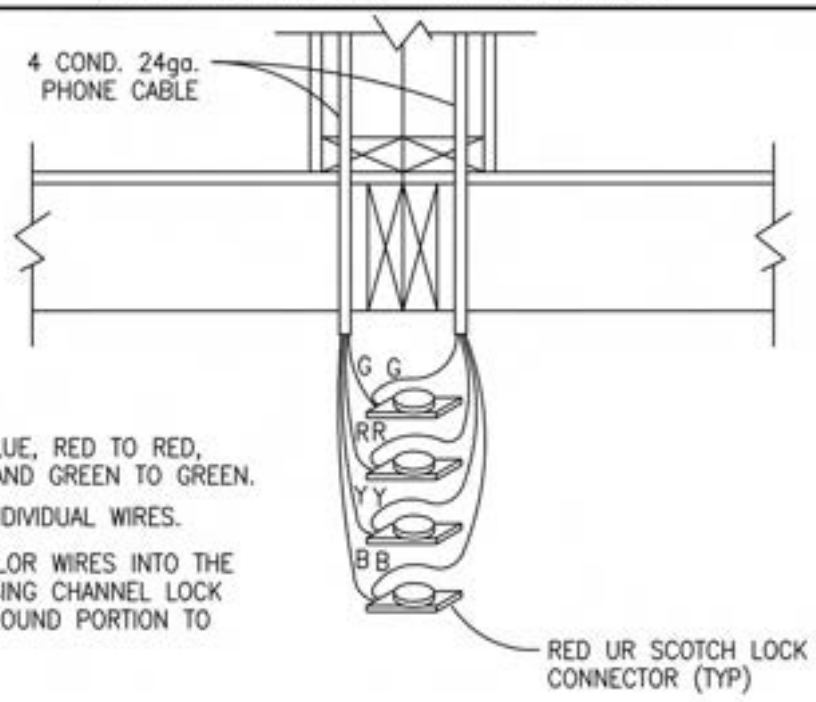
FIGURE 6.1
INSTALLATION OF LIGHTS



NOTES:

1. CONNECT BLUE TO BLUE, RED TO RED, YELLOW TO YELLOW, AND GREEN TO GREEN.
2. DO NOT STRIP THE INDIVIDUAL WIRES.
3. INSERT THE SAME COLOR WIRES INTO THE CONNECTOR, THEN USING CHANNEL LOCK PLIERS, PRESS THE ROUND PORTION TO MAKE CONNECTION.

FIGURE 6.2
TELEPHONE WIRING

CHAPTER 7 - PREPARATION OF APPLIANCES

7.1 Clothes dryer vent. Your clothes dryer must exhaust to the exterior of the home, or of any perimeter skirting installed around it, through a moisture-lint exhaust system, as shown in Figure 7.1. **IMPORTANT: Do NOT let the exhaust system end under the home where excess moisture or flammable material can accumulate.** Vent openings are located in either the wall or the floor. After the duct is installed, seal the openings, both inside and outside. Follow the dryer manufacturer's instructions for installing the exhaust system.

If your home did not come equipped with a gas dryer, remember that installing one requires substantial alteration to the home. You must provide gas supply piping and adequate venting as specified by the gas dryer manufacturer. Only a trained and experienced person should install a gas dryer. Cutting major structural elements (such as rafters or floor joists) to allow for gas dryer installation is not permissible. New Vision Manufacturing is not responsible for any weakening of the home's structural soundness resulting from dryer installation.

7.2 Comfort Cooling systems. Only qualified personnel may install any comfort cooling system not provided with the home. Follow the manufacturer's installation instructions and conform to all local codes.

7.2.1 Air conditioners. The air distribution system of this home has been designed for a central air conditioning system. Equipment you install must not exceed the BTUh rating shown on the home's compliance certificate for duct system capacity.

The home's electrical distribution panel may contain optional factory-installed circuits for air conditioning. The maximum full load ampere draw for the desired air conditioning unit must not exceed the circuit rating shown.

On the other hand, electrical circuits within the home may **not** have been sized for the additional load of non-factory-installed air conditioning, and a separate, outside electrical supply may have to be provided.

Any field-installed wiring beyond the junction box must include a fused disconnect located within sight of the condensing unit. The maximum fuse size is marked on the condenser data plate. Local codes will determine the acceptability of the air conditioning equipment, rating,location of disconnect means, fuse type branch circuit protection, and connections to the equipment.

"A" coil air conditioning units must be compatible and listed for use with the furnace in the home. Follow the air conditioner manufacturer's instructions.

If a remote (self-contained, packaged) air conditioner (cooling coil and blower located outside the home, Figure 7.2) is to be connected to the heating supply duct, install an automatic damper between the furnace and the home's air duct system, and another between the remote unit and the home's air duct system. Secure the duct system leading from the

remote unit to the home and do not allow it to touch the ground. Insulate ducts with material of thermal resistance (R) not less than 8, and a perm rating of not more than 1 perm. Connect the duct carrying air to the home to the main duct at a point where there are approximately as many registers forward of the connection as there are to the rear. Locate the return air duct in the center of the home. Do not cut or damage floor joists. Replace insulation removed during the installation, and seal the bottom board around the duct connections. Direct all condensation runoff away from the home by connecting a hose to the equipment runoff outlet or by other means specified by the equipment manufacturer. Do not restrict the flex duct opening. Do not allow the duct insulation to contact the A-coil and do not allow the duct to become kinked, restricted or configured to form a trap

7.2.2 Heat Pumps. Install heat pumps according to the heat pump manufacturer's instructions.

7.3 Fireplace and wood stove chimneys and air inlets. Fireplaces and wood stoves require on-site installation of additional section(s) of approved, listed chimney pipe, a spark arrestor and a rain cap assembly. See Figure 7.3.

7.3.1 Minimum extensions above roof. To assure sufficient draft for proper operation, extend the finished chimney at least 3' above the highest point where it penetrates the roof and at least 2' higher than any building or other obstruction located within a horizontal distance of 10'. If the site has obstructions extending higher than the home's roof peak within 10' of the chimney, the installer may have to provide an additional section of chimney pipe if required by local codes.

7.3.2 Required components. The required components of a correctly-installed chimney are as shown in Figure 7.3.

7.3.3 Assembly and sealing sequence. Assemble and seal your fireplace or wood stove chimney per fireplace manufacturer's instruction.

7.3.4 Combustion air duct inlets. Combustion air intake ducts end just below the bottom covering of the floor. You must extend them to the outside when your home has a basement or crawl space. These added ducts are supplied, or may be purchased at your local hardware store. The fireplace manufacturer's instructions for installing combustion air ducts are in the fireplace/stove or with the chimney parts. Do not allow the combustion air inlet to drop material from the hearth beneath the home. Locate its inlet damper above expected snow level, as shown in Figure 7.3.

7.4 Range, cooktop and oven venting. If your home is equipped with a combination range (cook-top)/grill or oven that contains its own exhaust system, route the exhaust so that it does not exit under the home. Connect flexible metallic duct between the elbow protruding from the floor and the termination fitting, and support it according to the manufacturer's installation instructions.

7.5 Window Air Conditioner Installation. Do not plug a window air conditioner unit into one of your homes lighting or appliance circuit receptacles. The majority of window air conditioners require that a separate circuit be installed for the connection of the unit. See the

air conditioner manufacturer's installation instructions for the electrical requirements for your specific model. The circuits installed in the home are for standard lighting and small appliance fixtures only.

CAUTION: Use of these receptacles for other purposes may cause an overload and the possibility of a potential fire hazard arises.

The only exception to the above is if there is a separate circuit installed and labeled in the main panel box as being for the use of an air conditioner unit. All wiring which is to be installed for an air conditioner unit must be performed by an authorized electrician and in conformance with all applicable codes.

7.6 Furnace Deration. If your home is located at 4500 feet or more above sea level, or as indicated in the manufacturer's instructions, your gas furnace must be derated for the altitude. This must be done by a qualified serviceman. A licensed technician may be required. Check with your local authorities.

CAUTION: Failure to derate the furnace can cause the furnace to over-heat, operate poorly and cause excessive sooting. Dangerous levels of carbon monoxide could accumulate in the home.

7.7 Water Heater Pan and Overflow: Reference figure 8.13 for the site installation requirements of the water heater drain pan overflow lines.

7.8 Gas Burning Applicance Vents: Gas burning appliance vents must be inspected to ensure connection points and penetrations through the roof.

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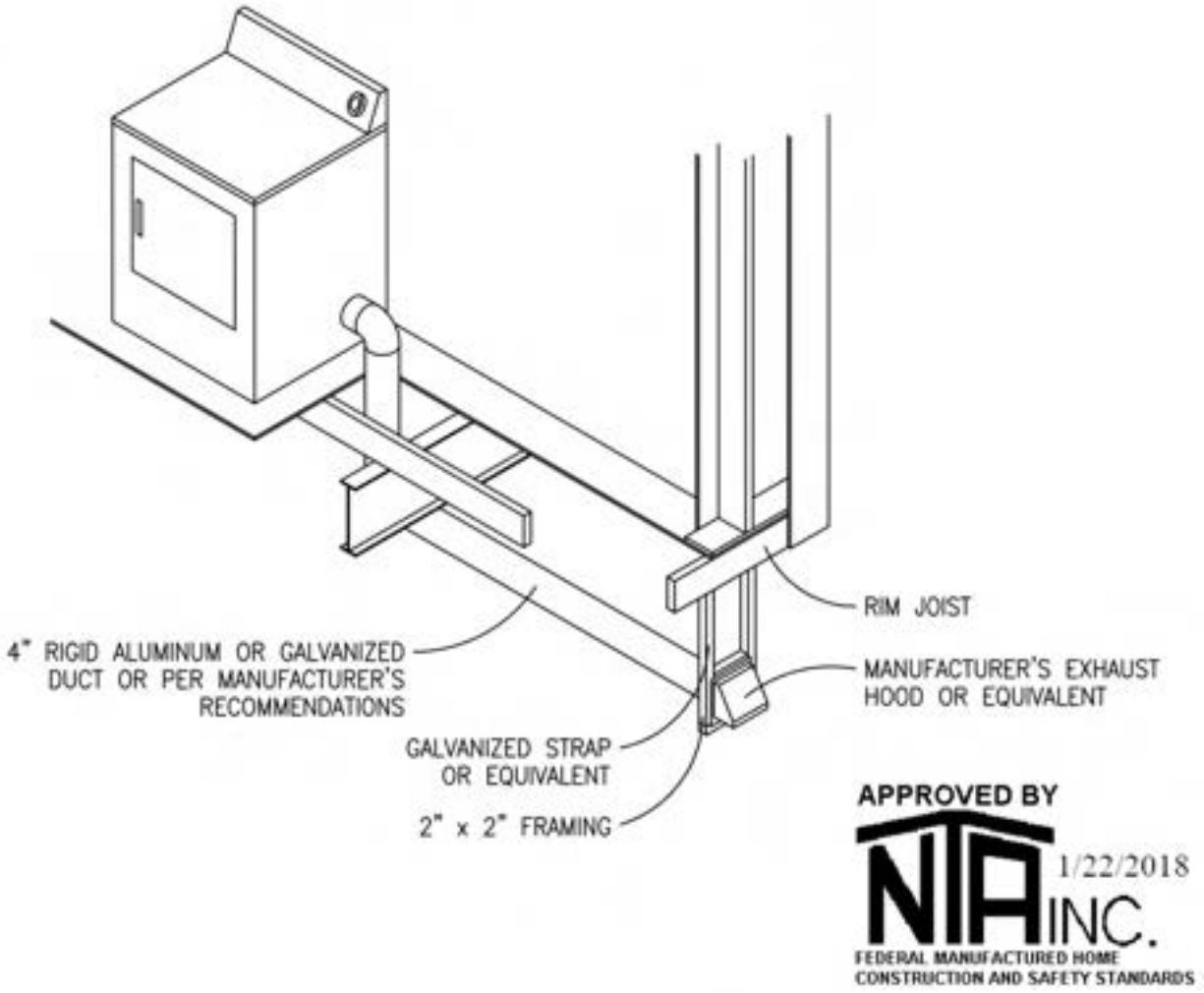

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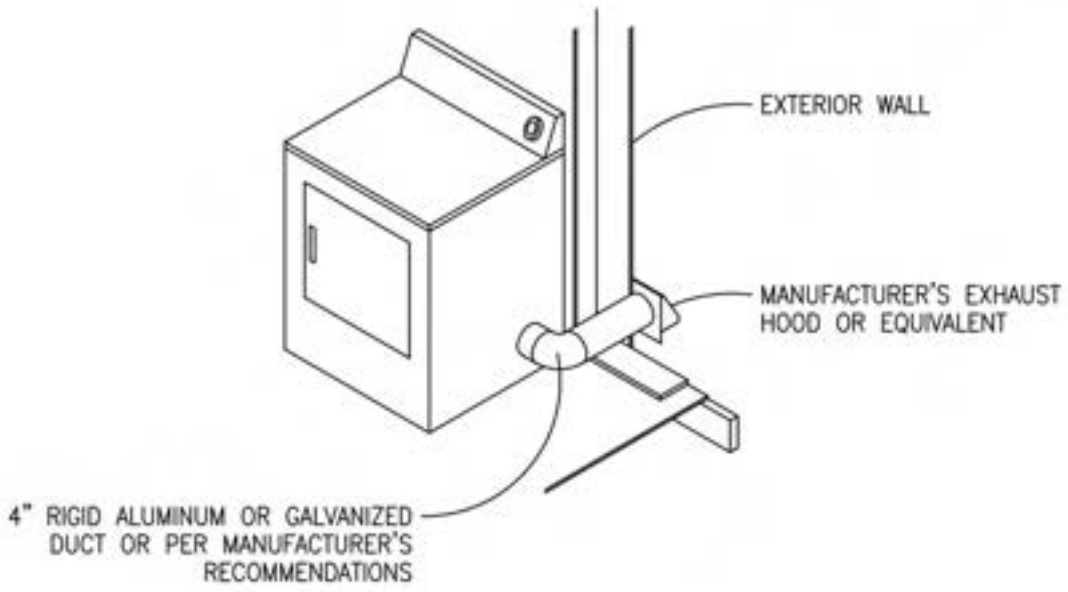
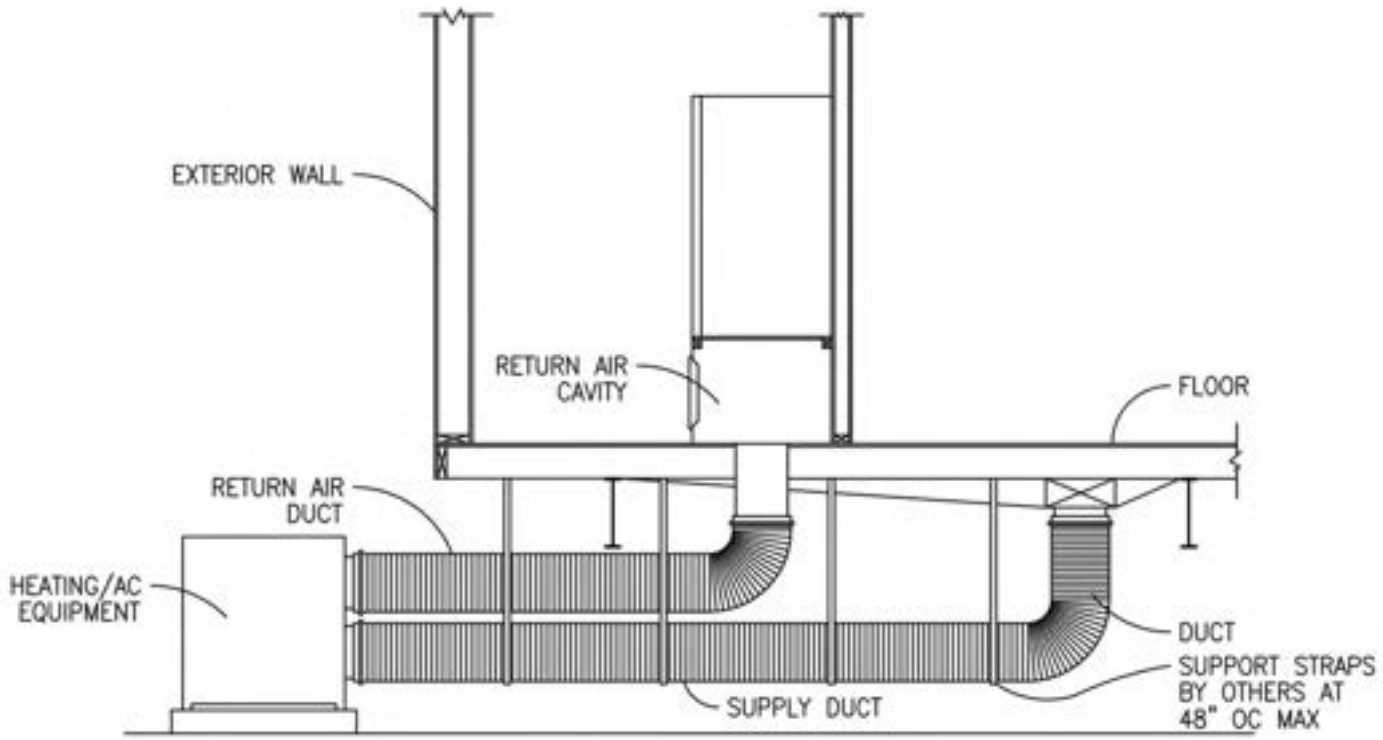


FIGURE 7.1
RECOMMENDED DRYER VENTING METHOD



NOTES:
1. RETURN AIR DUCT AND SUPPLY DUCT TO BE SUPPORTED AT 4'-0" OC SPACING MAXIMUM.

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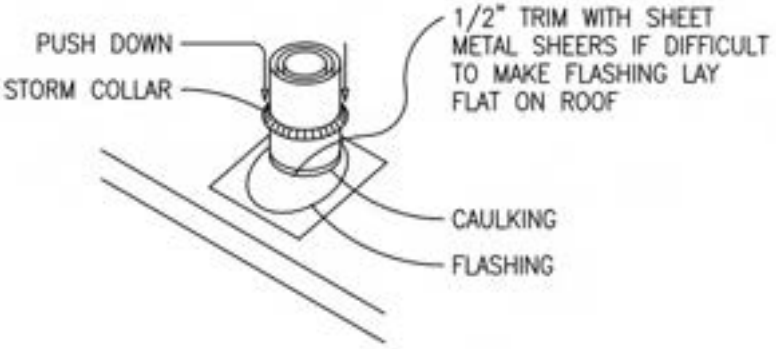
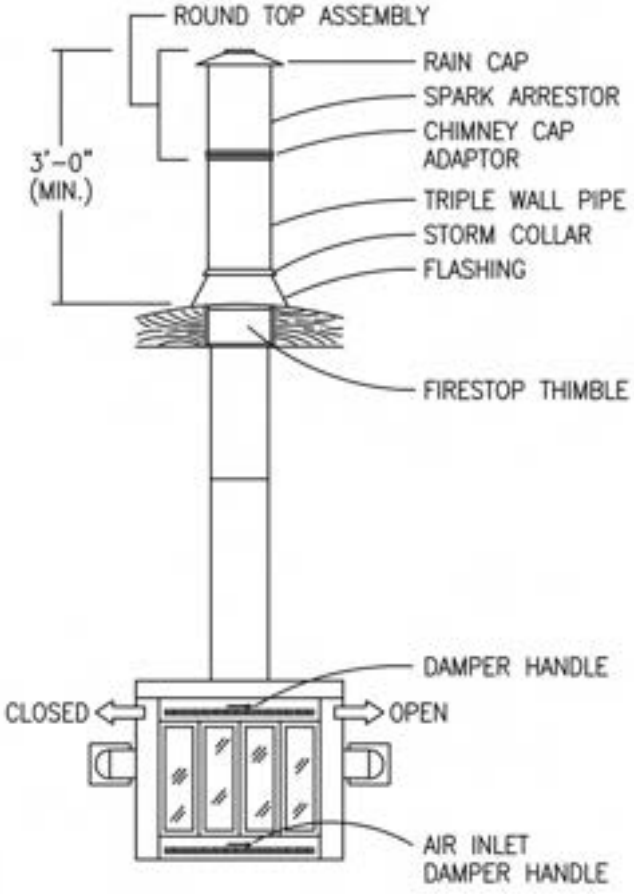
FIGURE 7.2
TYPICAL INSTALLATION WHEN HEATING AND/OR AIR CONDITIONING EQUIPMENT IS FURNISHED AND INSTALLED BY OTHERS





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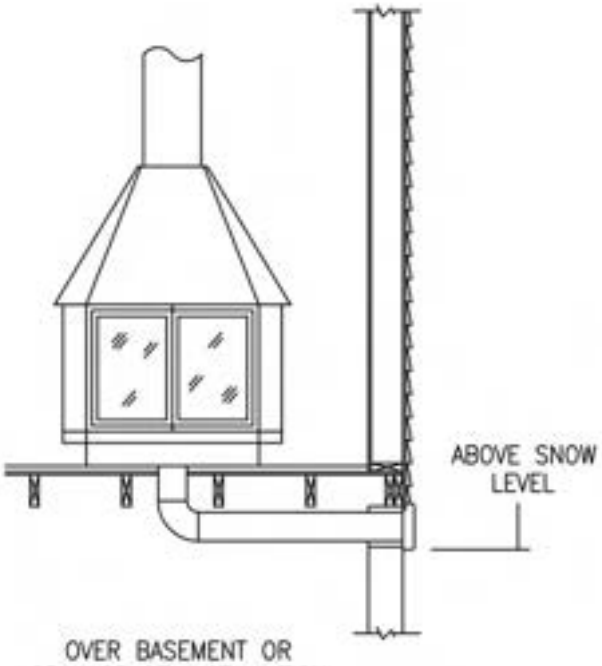

OVER BASEMENT OR CRAWLSPACE INSTALLATION

FIGURE 7.3
FIREPLACE OR WOOD STOVE
CHIMNEY AND AIR INTAKE INSTALLATION

CHAPTER 8 - UTILITY SYSTEM CONNECTION AND TESTING

8.1 Proper Procedures. Consult local, county or state authorities before connecting any utilities. Only qualified service personnel, familiar with local codes and licensed where required, should make utility connections and conduct tests.

8.2 Water supply

8.2.1 Maximum supply pressure and reduction. The water systems of your home were designed for a maximum inlet pressure of 80 psi. **If you are located in a water district where the local water supply pressure exceeds 80 psi, install a pressure-reducing valve.**

8.2.2 Connection procedures

8.2.2.1 To supply main. Connect the home's water system to the water source through the inlet located under the home, usually below the water heater compartment. A tag on the side of the home marks its location.

8.2.2.2 Mandatory Shutoff Valve. You must install an accessible shutoff valve between the water supply and the inlet, as shown in Figure 8.1. It must be a full flow gate or ball valve.

8.2.3 Freezing protection

8.2.3.1 Necessity. In areas subject to subfreezing temperatures, protect exposed sections of water supply piping, shut-off valves and pressure reducers, and pipes in water heater compartments with uninsulated doors, from freezing. Otherwise, burst pipes and costly damage may result.

8.2.3.2 Use of Heat tapes. Heat tapes (either automatic or non-automatic) can protect exposed plumbing from freezing. **USE ONLY HEAT TAPES LISTED BY A NATIONALLY-RECOGNIZED TESTING LABORATORY FOR USE WITH MANUFACTURED HOMES, AND INSTALL THEM ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.** Plug the 3-wire, grounded cordset of the heat tape into the outlet located under the home near the water supply inlet (Figure 8.1).

8.2.3.2.1 Automatic Heat Tape. This tape (with a thermostat) is approved for installation on **all** types of water pipe, including plastic. Secure it to the pipe, insulate it, and weatherproof it, according to the manufacturer's instructions.

8.2.3.2.2 Non-Automatic Heat Tape. This tape (without a thermostat), may not be approved for plastic pipe unless it is left exposed, with no outer wrap of insulation. Installation is otherwise the same as with automatic heat tape.

8.2.3.3 Freezing Protection for Unoccupied Homes. If the home is to be left unheated in cold weather, drain the water lines and blow them clear with compressed air to prevent damage from freezing.

8.2.4 Testing procedures. Even though the water system was tested at the factory, it must be rechecked for leaks at the installation site. Close all water faucets, spigots and stool tank float valves, and use one of the following procedures:

8.2.4.1 Hydrostatic. Be sure the water heater tank is full of water. Pressurize the system with water at 100 psi, and then isolate it from the pressure source. The system must hold this pressure for at least 15 minutes without any loss. If the pressure falls off, repressurize the system and locate and correct leaks.

8.2.4.2 Pneumatic. CAUTION: IF THIS PROCEDURE IS USED, YOU MUST BYPASS THE HOT WATER TANK BY HOOKING ITS COLD INLET AND HOT OUTLET LINES TOGETHER. THIS PROCEDURE WILL PROTECT THE APPLIANCE FROM DAMAGE AND PROTECT THOSE INVOLVED IN THE TEST FROM POSSIBLE INJURY. Connect air pump and pressure gauge to the water inlet and pressurize the system to 100 psi. Isolate the pressure source from the system. The gauge must stand for at least 15 minutes with no drop in pressure. Correct any leaks indicated by bubbles from soapy water, repeating the procedure until all have been eliminated. Reconnect the water heater and the water supply.

8.3 Drainage system

8.3.1 Assembly and support. If portions of the drainage system were not installed at the factory, all materials and diagrams required to complete it have been shipped as loose items in the home. Assemble the drainage system following the specific instructions and diagrams provided with the home. Start at the most remote end and work toward the outlet, supporting the piping with temporary blocking to achieve the proper slope (see paragraph 8.3.2). When the entire system has been completed, install permanent drain line supports at 4' on center, as shown in Figure 8.3.

8.3.2 Proper slopes and connector sizes. Drain lines must slope at least 1/4" fall per foot of run unless otherwise noted on the schematic diagram (see Figure 8.4). **Exception:** 1/8" fall per foot is allowed when a cleanout is installed at the upper end of the run. Connect the main drain line to the site sewer hookup using an approved elastomer coupler (Figures 8.2 and 8.5).

8.3.3 Reserved.

8.3.4 Solvent welding procedures. The solvent cement used to connect drain lines must be compatible with the pipe installed in the home. Follow the manufacturer's instructions on the container. (See Figure 8.8.)

8.3.5 Protection from freezing. New Vision Manufacturing has insulated fittings in the drainage system subject to freezing, such as P-traps in the floor. Replace this insulation if removed during assembly or testing. Insulate drain lines installed below the bottom board in areas subject to freezing as shown in Figure 8.7. If the home is to be left unheated in cold weather, pour an approved antifreeze into P-traps at all fixtures and stools. Antifreeze used must not be corrosive to plastic or fixture material.

8.3.6 Flood level test procedure. You must conduct a flood level test on the completed drainage system before connecting it to the site sewer. With the home in a level position, all fixtures connected, and all tub and shower drains plugged, connect the drainage piping system to the site water inlet and fill the system with water to the rim of the toilet bowl. Release all trapped air. Allow the system to stand for at least 15 minutes. Check for leaks. Drain the system. Plug all fixtures, sinks, showers and tubs, and fill with water. Release the water in each fixture simultaneously to obtain the maximum possible flow in the drain piping. Check all P-traps and the drain system for possible leaks. Repair any leaks and retest.

8.4 Gas supply

8.4.1 Type of gas system furnished with home. All gas appliances in this home, including the heating system, are equipped for natural (or LP) gas. If LP (or natural) gas is to be used as the supply instead, a qualified service person must convert the appliances to LP (or natural) gas following the instructions provided by each appliance manufacturer.

8.4.2 Proper supply pressure. THE GAS PIPING SYSTEM IN YOUR HOME HAS BEEN DESIGNED FOR A PRESSURE NOT TO EXCEED 14" OF WATER COLUMN (8 OZ. OR 1/2 PSI). IF GAS FROM ANY SUPPLY SOURCE EXCEEDS, OR MAY EXCEED, THIS PRESSURE, YOU MUST INSTALL A PRESSURE REDUCING VALVE. To operate gas appliances safely and efficiently, do not exceed the design pressure limitations. For natural gas systems, the incoming gas pressure should remain between 6" and 8" of water column. For LPG systems, the pressure should lie between 12" and 14" of water column.

8.4.3 Orificing for specific gases. SPECIAL ORIFICES AND REGULATORS ARE REQUIRED FOR EACH KIND OF GAS, AND AT ALTITUDES ABOVE 3,000 FEET. SEE THE INSTRUCTIONS ACCOMPANYING EACH GAS-BURNING APPLIANCE FOR MODIFICATION INSTRUCTIONS. BEFORE MAKING ANY CONNECTIONS TO THE SITE SUPPLY, CHECK THE INLET ORIFICES OF ALL GAS APPLIANCES TO ENSURE THEY ARE CORRECTLY SET UP FOR THE TYPE OF GAS TO BE SUPPLIED.

8.4.4 Reserved.

8.4.5 Testing prior to connection to mains. Even though the gas system was tested at the factory, it is essential that it be rechecked for leaks at the site. **DO NOT APPLY PRESSURES IN EXCESS OF THOSE SPECIFIED BELOW OR YOU MAY DAMAGE GAS VALVES AND/OR PRESSURE REGULATORS.** Conduct one of the

following two tests when the air and piping temperatures are nearly equal and will remain stable.

8.4.5.1 Piping Only Test. Close all appliance shut-off valves. Attach a pressure gauge calibrated in ounces at the home gas inlet. Pressurize the system with air to at least 3 psi (48 oz.). Isolate the pressure source from the system. The gauge must stand for at least 10 minutes with no drop in pressure. If any pressure loss occurs, check all joints in the piping system and at all shut-off valves with soapy water or bubble solution until the leaks are located. **Repair** the leaks and retest until the pressure holds.

8.4.5.2 Test of Entire System. Close all gas equipment controls and pilot light valves according to the individual gas equipment manufacturer's instructions. Assure that gas shut-off valves for all gas equipment are in the OPEN position. Attach a pressure gauge calibrated in ounces at the home gas inlet. Pressurize the system with air to at least 6 oz. Check all gas shut-off valves and flex line connections to valves and appliances for leaks, using soapy water or bubble solution. **DO NOT BUBBLE CHECK BRASS FITTINGS WITH SOLUTIONS CONTAINING AMMONIA.** Repair any leaks found, and retest. Close all equipment shut-off valves upon completion of testing.

8.4.6 Connection procedures. Inspect gas appliance vents to ensure they have been connected to the appliance, and make sure that roof jacks are installed and have not come loose during transit. Have the gas system connected to the gas supply only by an authorized representative of the gas company.

8.4.7 Gas appliance startup procedures. One at a time, open each equipment shut-off valve, light pilots and adjust burners according to each appliance manufacturer's instructions. **MAKE SURE THE WATER HEATER IS FILLED WITH WATER BEFORE LIGHTING ITS PILOT.** Check the operation of the furnace and water heater thermostats and set them to the desired temperatures.

8.5 Heating oil systems. Homes equipped with oil-burning furnaces must have their oil supply tankage and piping installed on site. These items are not supplied by New Vision Manufacturing. Consult the oil furnace manufacturer's instructions for proper pipe sizing and installation procedures. **ALL OIL STORAGE TANK AND PIPING INSTALLATIONS MUST MEET ALL APPLICABLE LOCAL REGULATIONS AND SHOULD BE MADE ONLY BY EXPERIENCED, QUALIFIED PERSONNEL.**

8.5.1 Tank installation requirements. Unless the home is installed in a community with a centralized oil distribution system, you must install an oil storage tank outside the home. Locate the tank where it is accessible for service and supply and safe from fire and other hazards.

8.5.1.1 Vaporizing (gravity-feed) furnaces. Install oil tanks that feed vaporizing-type

oil furnaces so that oil flows freely by gravity. To achieve efficient gravity flow, install the tank so that its bottom is at least 8" above the level of the furnace's oil control and its top is within 8' of the oil control level.

8.5.1.2 Gun (pump-fed) furnaces. Since the furnace includes a fuel pump, the tank may be installed above or below ground. For tanks installed below ground, do not exceed the lifting capacity of the pump, and extend the filler neck 1' above grade and provide a 1-1/4" diameter minimum vent pipe extending at least 2' above grade.

8.5.1.3 Sloping and draining requirements. Regardless of the type of oil furnace or the tank location, install the tank to provide a gradual slope toward the fill end or drain plug (if so equipped). This facilitates pumping or draining of water or sludge.

8.5.2 Shutoff valve and fuel line filter. Install an accessible and approved manually-operated shut-off valve at the oil tank outlet. New Vision Manufacturing also recommends installing a suitable filter in the fuel line near the tank to trap dirt and water.

8.5.3 Leak test procedure. Before operating the system, check for leaks in the tank and supply piping. Fill the tank to capacity with fuel and examine all joints in the system for leakage.

8.6 Electricity. A large enough power supply must be available at the site. An inadequate power supply may result in improper operation of, and possible damage to, motors and appliances. It may also increase your electricity costs. The current rating in amperes of your home can be found on the tag located outside next to the feeder or service entrance and also on the electrical distribution panel.

8.6.1 Description and rating of house wiring. Your home is designed for connection to an electrical wiring system rated at 120/240 volt AC. **PROPER AND SAFE CONNECTION DEPENDS ON THE TYPE OF SUPPLY SYSTEM YOUR HOME IS EQUIPPED WITH.** The connection to this home is a feeder requiring wiring at the site, or, the connection to this home is a factory-installed service meter base. The following paragraphs describe the wiring and grounding of electrical feeders; if your home is equipped with a service meter base, skip directly to section 8.6.4.4.

8.6.2 Proper feeder wire and junction box material and size. The main breaker and the label on the electrical distribution panel give the feeder current capacity in amperes. Using this information, determine the required feeder size from the following tables. These sizes are based on an ambient temperature of 86°F. and do not take voltage drop into consideration.

8.6.2.1 Overhead Feeders. Homes equipped with overhead (mast weatherhead) feeder entrances contain all necessary conduit to the electrical distribution panel and feeder conductors. Refer to Figure 8.9.

8.6.2.2 Underside Feeders. Homes with an under-the-floor entrance come with a permanently-attached conduit raceway that runs from the electrical distribution panel to a point under the floor. Install an approved conduit fitting or junction box at the termination point. Refer to Figure 8.10.

8.6.3 Grounding of homes with feeder connections

8.6.3.1 Necessity. The home must be grounded properly to protect the occupants. The only safe and approved method of grounding your feeder-connected home is through the **grounding bar** in the electrical distribution panel. This bar grounds all noncurrent-carrying metal parts of the electrical system at a single point.

8.6.3.2 Procedure. The ground conductor of the power supply feeder cable connects the grounding bar to a good electrical ground. Follow the feeder connection procedures described in 8.6.4.1, -.2, or -.3 to achieve proper grounding. **[Exception:** homes with a factory-installed service meter base must be grounded differently. Refer to the specific instructions in 8.6.4.4 if applicable.]

Insulate the grounded circuit conductor (neutral or white wire) from the grounding conductors (green wires) and from equipment enclosures and other grounded parts. Insulate neutral circuit terminals in the distribution panel board - and in ranges, clothes dryers, and counter-mounted cooking units - from the equipment enclosure. Bonding screws, straps or buses in the distribution panel board or in the appliances should have been removed and discarded at the manufacturing facility.

8.6.3.3 Unacceptable methods of grounding homes. Grounding to a rod, a water pipe, or through the home's hitch caster will not satisfy the important grounding requirement. Never use the neutral conductor of the feeder cable as a ground wire. Do not ground the neutral bar in the electrical distribution panel.

8.6.4 Connection procedures. Connections should be made only by a qualified electrician using one of the following methods:

8.6.4.1 50 A feeder cord. Your home may be equipped with a permanently-connected 50 amp. feeder cord stored in a compartment under the floor. If so, it is ready to be plugged into a 50 amp., 3-pole, 4-wire, 120/240 volt grounding service receptacle after electrical tests have been completed (see 8.6.6). **WARNING: MANY HOMES ARE EQUIPPED FOR 100 AMP. OR GREATER SERVICE. UNLESS YOU HOME IS EQUIPPED FOR ONLY 50 AMP. SERVICE, DO NOT ATTEMPT TO USE A FEEDER CORD OR "PIGTAIL" CONNECTION.** Connect homes equipped for 100 amp. or greater service by one of the three following methods:

8.6.4.2 Mast weatherhead feeder. The routing, connection and support of the service drop must meet local codes. Homes equipped this way contain all necessary conduit to the electrical distribution panel including feeder conductors. If the

masthead is located above the roof overhang, allow a minimum 8' clearance above all roof points the conductors pass over. There are two exceptions to this rule: (1) The vertical clearance may be reduced to 3' if the roof has a minimum slope of 4 in 12; and (2) The vertical clearance may be reduced to 18" if no more than 4' of service-drop conductors pass above the roof overhang, and if they terminate at a through-the-roof raceway or approved support. A minimum clearance must also be provided from the final grade to the service-drop conductors. This measurement may vary from 10' to 18' depending on the types of traffic anticipated below the service drop (refer to the National Electric Code). Unless impractical, locate service heads above the point of attachment of the service-drop conductors and make them rain-tight. If individual conductors do not extend downward, form drop loops.

8.6.4.3 Underside junction box feeder. A raceway from the main panelboard to the underside of the home allows for installing an approved junction box or fitting, which must be used to connect it to the supply raceway. Install properly-sized conductors from the main power supply to the panelboard. Refer to Figure 8.11(a) and (b) for conductor and junction box requirements. The homeowner or installer must provide the supply connection including the feeder conductors, junction box and raceway connectors. Protect conductors emerging from the ground from a minimum of 18" below grade to 8' above grade, or to the point of entrance to the home. The distance measured from the top surface of a buried cable, conduit or raceway to the finished grade must meet minimum burial requirements outlined in the National Electric Code. Use a moisture-proof bushing at the end of the conduit from which the buried cable emerges.

8.6.4.4 Service equipment meter base. Either an overhead or underground entrance may be provided. The exterior equipment and enclosure must be weatherproof, and conductors must be suitable for use in wet locations. When a meter is provided on the home, connect the neutral (white) conductor to the system grounding (green) conductor on the supply side of the main disconnect. Refer to Figure 8.12 for typical meter base installations and one method of grounding the service equipment. The homeowner must provide the grounding electrode conductor(s). The grounding electrode should be an 8' length of 1/2" dia. copper rod or 3/4" galvanized steel pipe. Drive it into the ground at least 12" below the surface and 2' from the foundation, or bury it horizontally in a 2 1/2'-deep trench. Connect the grounding conductor wire to the grounding electrode with a grounding clamp. For added protection, homes with metal frames or siding should be connected to earth by means of additional bonding jumper ground fault return paths to underground metallic water pipes, ground rings, additional ground rods, etc. to prevent the buildup of hazardous voltages.

8.6.5 Reserved.

8.6.6 System test procedures and equipment

8.6.6.1 Pre-connection tests. Conduct **both** of the following tests before any electrical power is supplied to the home:

8.6.6.1.1 Circuit conductor continuity. Conduct a continuity test by placing all branch circuit breakers and switches controlling individual outlets in the "on" position. The test should give no evidence of a connection between any of the supply conductors (including the neutral) and the grounding circuit. You may use a flashlight continuity tester.

8.6.6.1.2 Grounding continuity. Using a continuity tester, test **all** noncurrent-carrying metal parts to assure continuity to ground. The parts to be checked include:

- appliance enclosures, including fans;
- fixture enclosures and canopies;
- metal siding and roofs;
- metal water supply and gas lines;
- metal ducts (except foil-covered insulated ducts);
- the home's frame.

NOTE: GROUNDING IS NOT REQUIRED ON THE METAL INLET OF A PLASTIC WATER SYSTEM OR ON PLUMBING FIXTURES SUCH AS TUBS, FAUCETS, SHOWER RISERS, AND METAL SINKS WHEN THEY ARE CONNECTED ONLY TO PLASTIC WATER AND DRAIN PIPING.

8.6.6.2 Post-connection tests. Conduct the following three tests after turning on the main circuit breaker and each individual circuit breaker. **CAUTION: ALLOW THE WATER HEATER TO FILL COMPLETELY BEFORE ACTIVATING THE WATER HEATER CIRCUIT. FAILURE TO DO SO WILL CAUSE THE WATER HEATER ELEMENT TO BURN OUT, AN EVENT NOT COVERED BY THE WARRANTY.**

8.6.6.2.1 Polarity and grounding of receptacles. With receptacle and lighting circuits energized, check the polarity and grounding of each 120-volt receptacle and light socket using a polarity tester capable of determining an incorrect wiring configuration. A conversion device may be required to test various fixture bulb sizes and outlet configurations. Investigate any indication of reversed polarity, open grounds or shorts and correct it.

8.6.6.2.2 Ground Fault Circuit Interruption (GFCI). Make certain that all receptacles requiring GFCI protection are in fact on the correct circuit(s). Check each ground fault circuit interrupter device by pushing the test button to determine if the power route to the receptacle has been interrupted, or follow the manufacturer's

instructions. Replace any GFCI that does not operate properly.

8.6.6.2.3 Operational checks. Check all light fixtures by placing a bulb in the socket and turning the switch on and off. Using a pigtail light, check all 240-volt receptacles to determine if both legs of the circuit are powered. Check all 120-volt receptacles to be sure that each is operational. Switched receptacles require the switch to be turned on and off. It is not necessary to check appliances, but their power sources must be assured. Failure of electrical wiring or fixtures requires repair and retesting.

8.7 Smoke Alarms Testing and Inspection Procedures

8.7.1 Step 1: All interconnected smoke alarms must be tested individually, one at a time. Assure that all units are connected and that each sounds an alarm while each is tested.

8.7.2 Step 2: Once connections are made, press and hold the test button on the cover of the smoke alarm until the alarm sounds. Verify all other smoke alarms interconnected will sound the alarm. Note: When installed, make sure visual alarm (strobe light) is operating as well during testing.

8.7.3 Step 3: Step 2 above is to be performed on each smoke alarm installed.

8.7.4 Step 4: If an error is indicated in the fixture(s), it must be repaired as required and retest. If the alarm does not function correctly on the retest, the defective alarm must be replaced with a new alarm and the new alarm retested.

8.8 Mixing Valves and Water Temperature Limiting Valves

8.8.1 This home is equipped with mixing valves and water temperature limiting valves (anti-scald valves) on the tubs and showers. Because the water temperature and pressure varies per site location it is required that you adjust the water temperature to a maximum of 120 degrees.

8.8.2 The shower and tub/shower anti-scald valves are located behind the on/off handle of the faucet. Garden tubs have the anti-scald valves located inside the tub base.

8.8.3 The instructions for adjusting the water temperature on the anti-scald valves are including in this Installation Instructions packet.

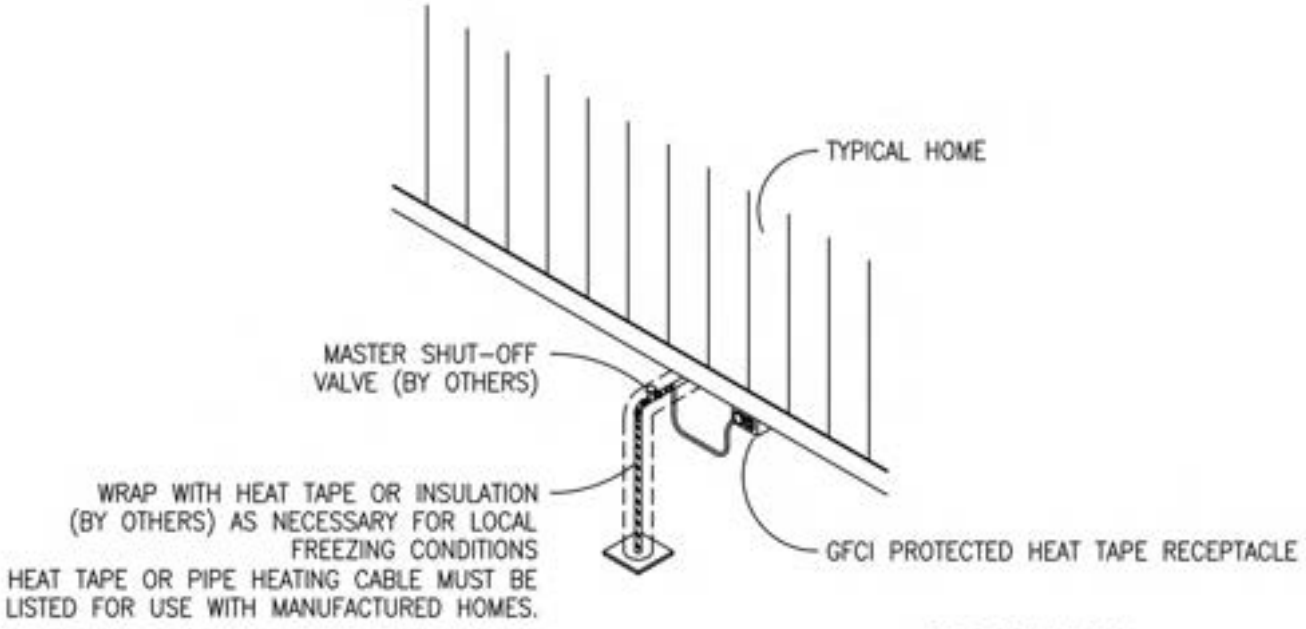

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FIGURE 8.1
TYPICAL WATER CONNECTION

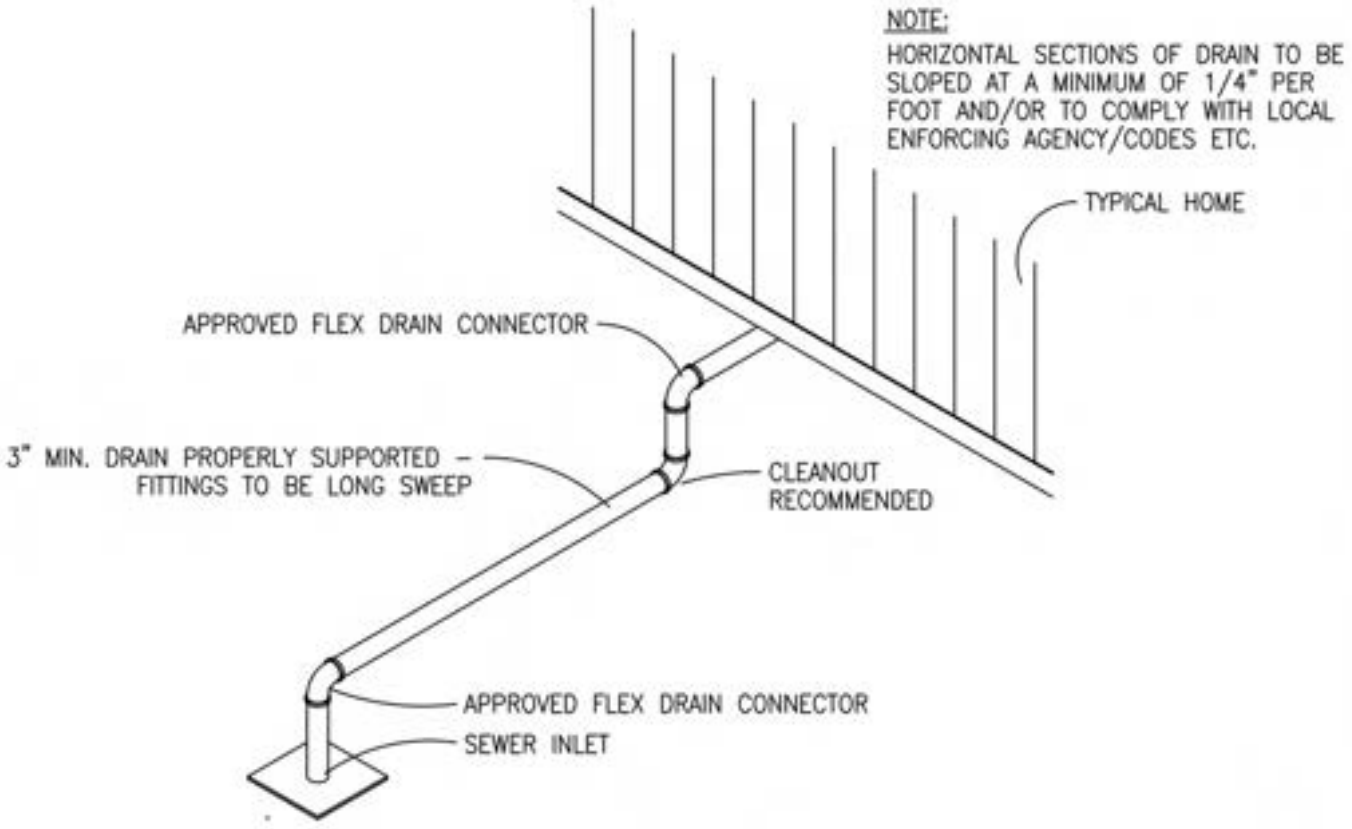

FIGURE 8.2
TYPICAL CONNECTION OF MAIN DRAIN TO SEWER

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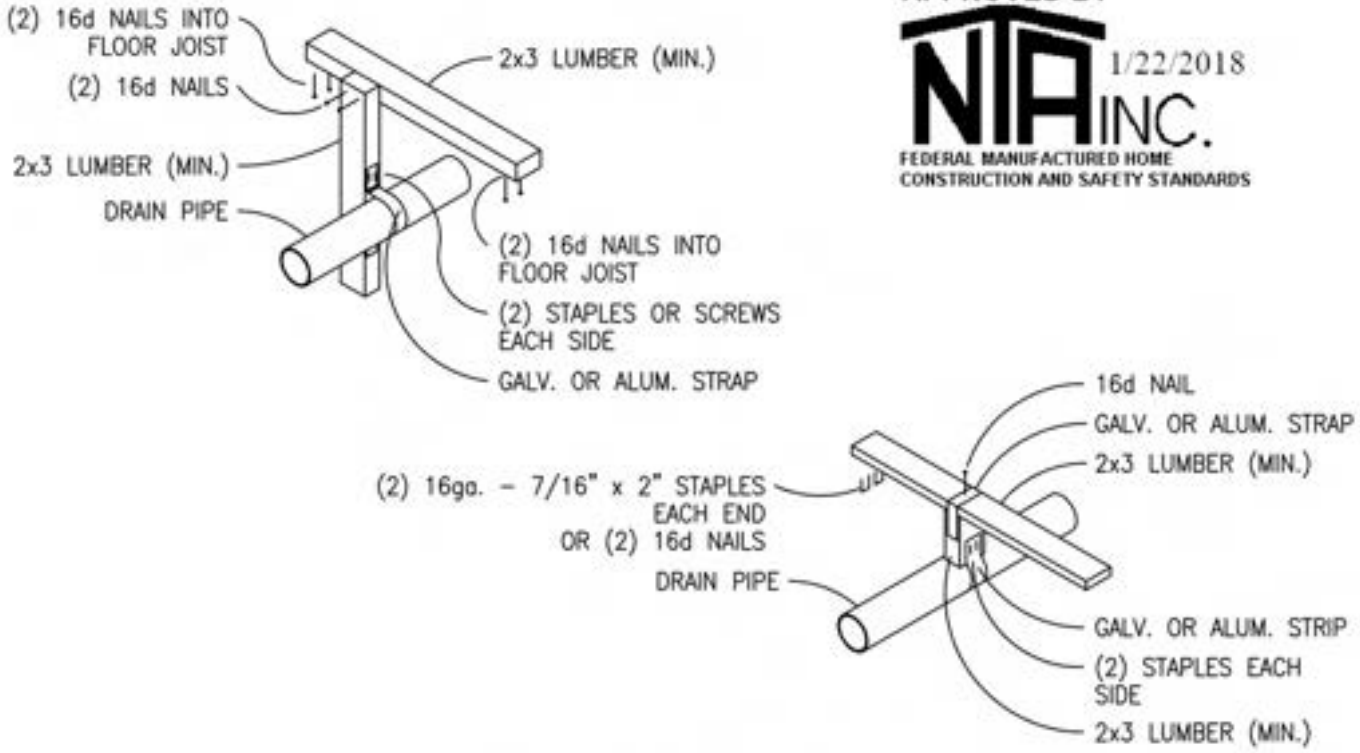


FIGURE 8.3
DRAIN PIPE SUPPORT METHODS

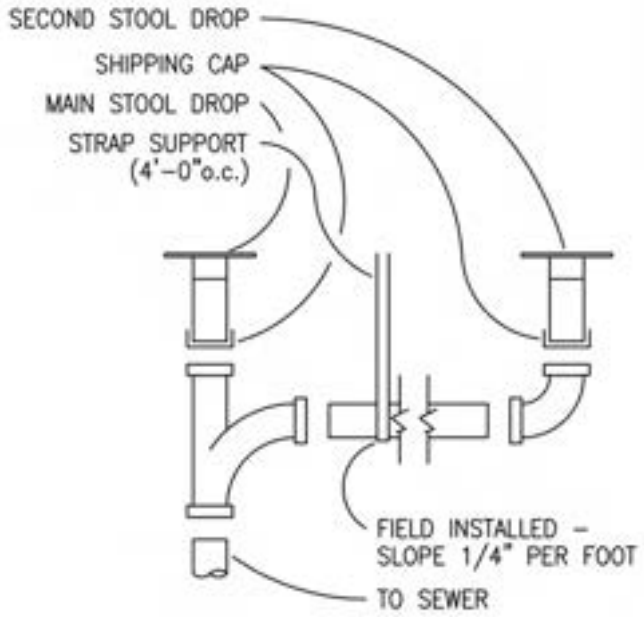
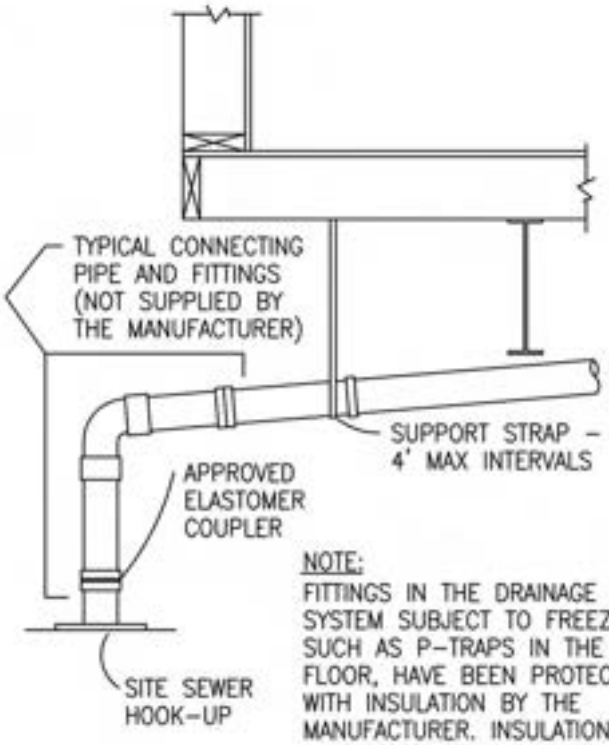


FIGURE 8.4
DRAIN PIPE SLOPES
AND CONNECTIONS



NOTE:
FITTINGS IN THE DRAINAGE SYSTEM SUBJECT TO FREEZING SUCH AS P-TRAPS IN THE FLOOR, HAVE BEEN PROTECTED WITH INSULATION BY THE MANUFACTURER. INSULATION MUST BE REPLACED IF REMOVED FOR ACCESS TO THE P-TRAP.

FIGURE 8.5
CONNECTION TO SEWER

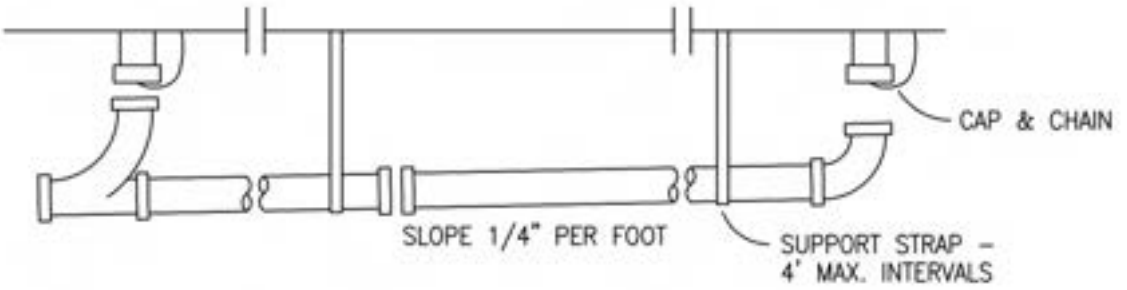


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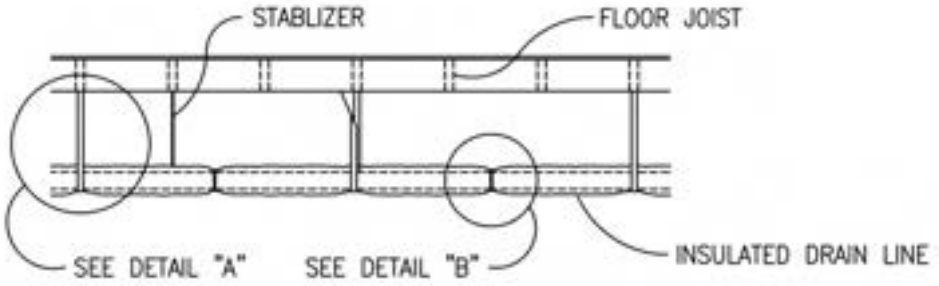
FIGURE 8.6
DRAIN LINE SITE INSTALLATION AND CONNECTION



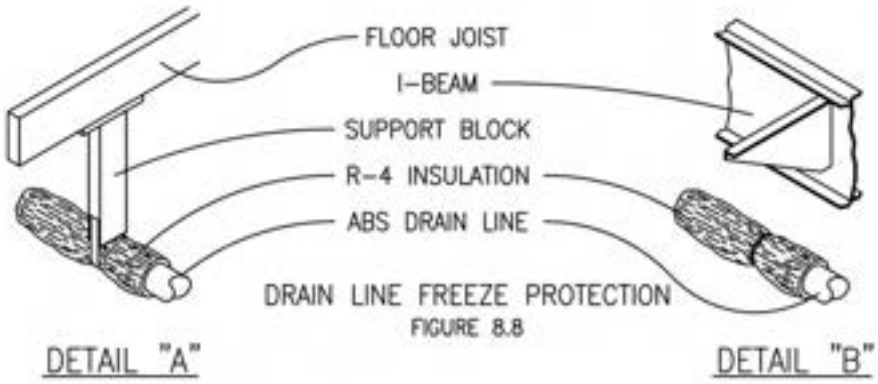


FIGURE 8.7
DRAIN LINE FREEZE PROTECTION

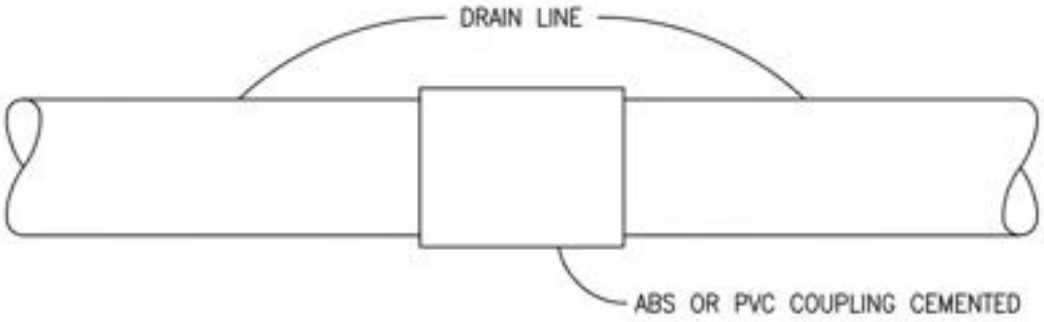


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FIGURE 8.8
DRAIN CONNECTION (TYPICAL)

NOTES:

1. COLOR CODED WIRES (RED, BLACK, WHITE, AND GREEN) SUPPLIED BY OTHERS.
2. GREEN WIRE GROUNDED TO EARTH.

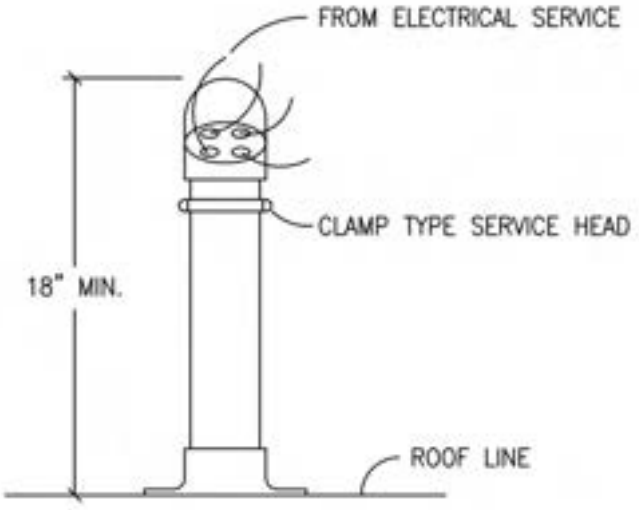

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FIGURE 8.9
TYPICAL OVERHEAD FEEDER ASSEMBLY

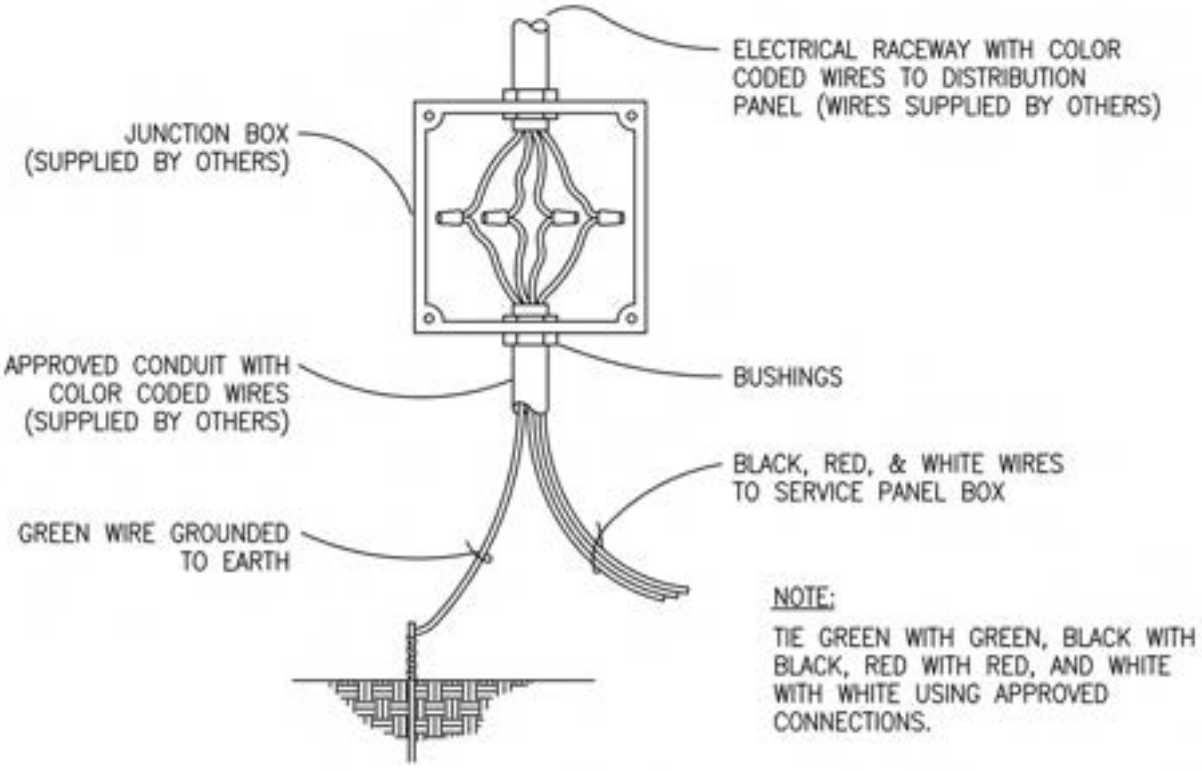

FIGURE 8.10
TYPICAL UNDERSIDE FEEDER ASSEMBLY

Table 8.11(a)
COPPER CONDUCTOR SIZE

SERVICE AMPS	WIRE SIZE		CONDUIT SIZE
	FEEDER	GROUNDING CONDUCTOR	
100	#4	#8	1-1/2"
125	#2	#6	2"
150	#1	#6	2"
200	#2/0	#4	2"

Refer to notes 1 and 2 for minimum box size.
Conductor types: RH-, RHH, -RHW, -THHN, -THW, -THWN, -XHHN, USE

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Table 8.11(b)
JUNCTION BOX SIZE

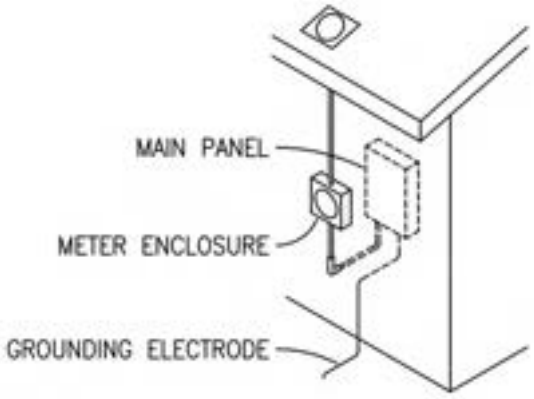
Notes:

1. For straight pulls, the length of the box shall not be less than eight times the trade diameter of the largest raceway.

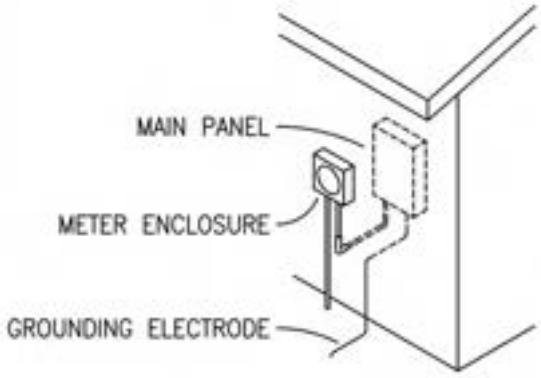
2. For angle pulls, the distance between each raceway entry inside the box and the opposite wall of the box shall not be less than six times the trade diameter of the largest raceway.

   Note: For angle pulls, if one of the raceway entries is opposite a cover, the distance between the entry and the cover may be less than indicated above, but shall not be less than given in the following table:

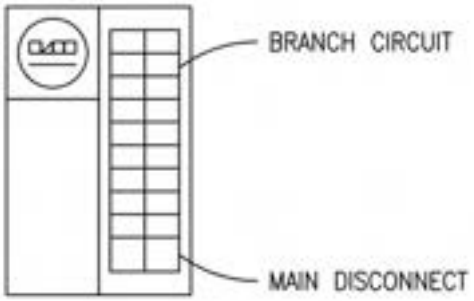
SIZE OF FEEDER CONDUCTORS TO BE INSTALLED Awg OR MCM	DISTANCE, RACEWAY ENTRY TO COVER IN.
4-3	2"
2	2-1/2"
1	3"
1/0-2/0	3-1/2"
3/0-4/0	4"
250	4-1/2"
300-350	5"



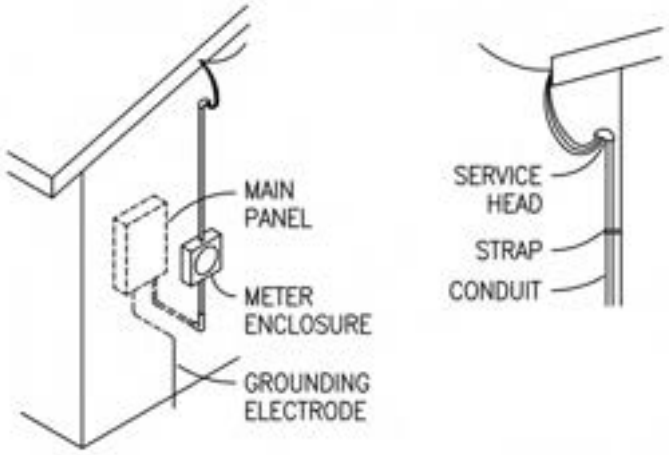
OVERHEAD ENTRANCE



UNDERGROUND ENTRANCE



EXTERIOR METER / PANEL BOX COMBONATION



ENTRANCE BELOW ROOF LINE

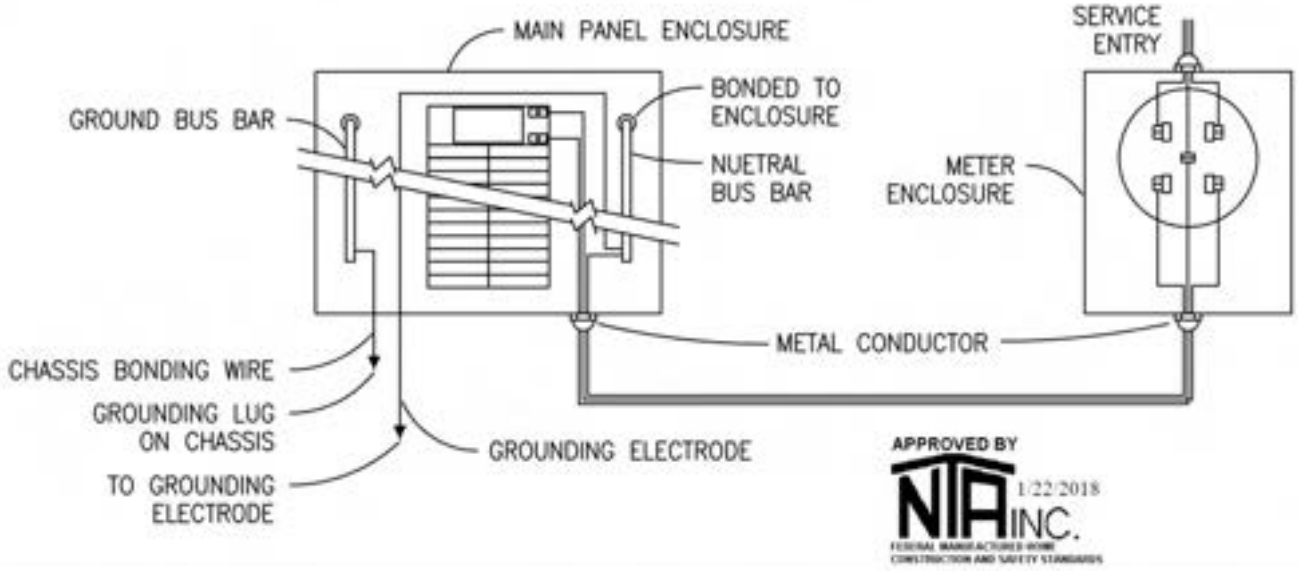


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FIGURE 8.12
TYPICAL METER BASE INSTALLATIONS AND GROUNDING

PROCEDURE:

1) REMOVE SHIPPING COVERS FROM ALL EXPOSED PIPING OR FITTINGS THAT EXTEND BELOW THE BOTTOM BOARD.
2) ALL PIPE AND FITTING CONNECTIONS SHALL BE PER THE CEMENT MANUFACTURERS INSTRUCTIONS WHICH IS PROVIDED. ANY PIPE SUPPLIED WITH SCREW FITTINGS MUST BE SEALED WITH TEFLON TAPE.

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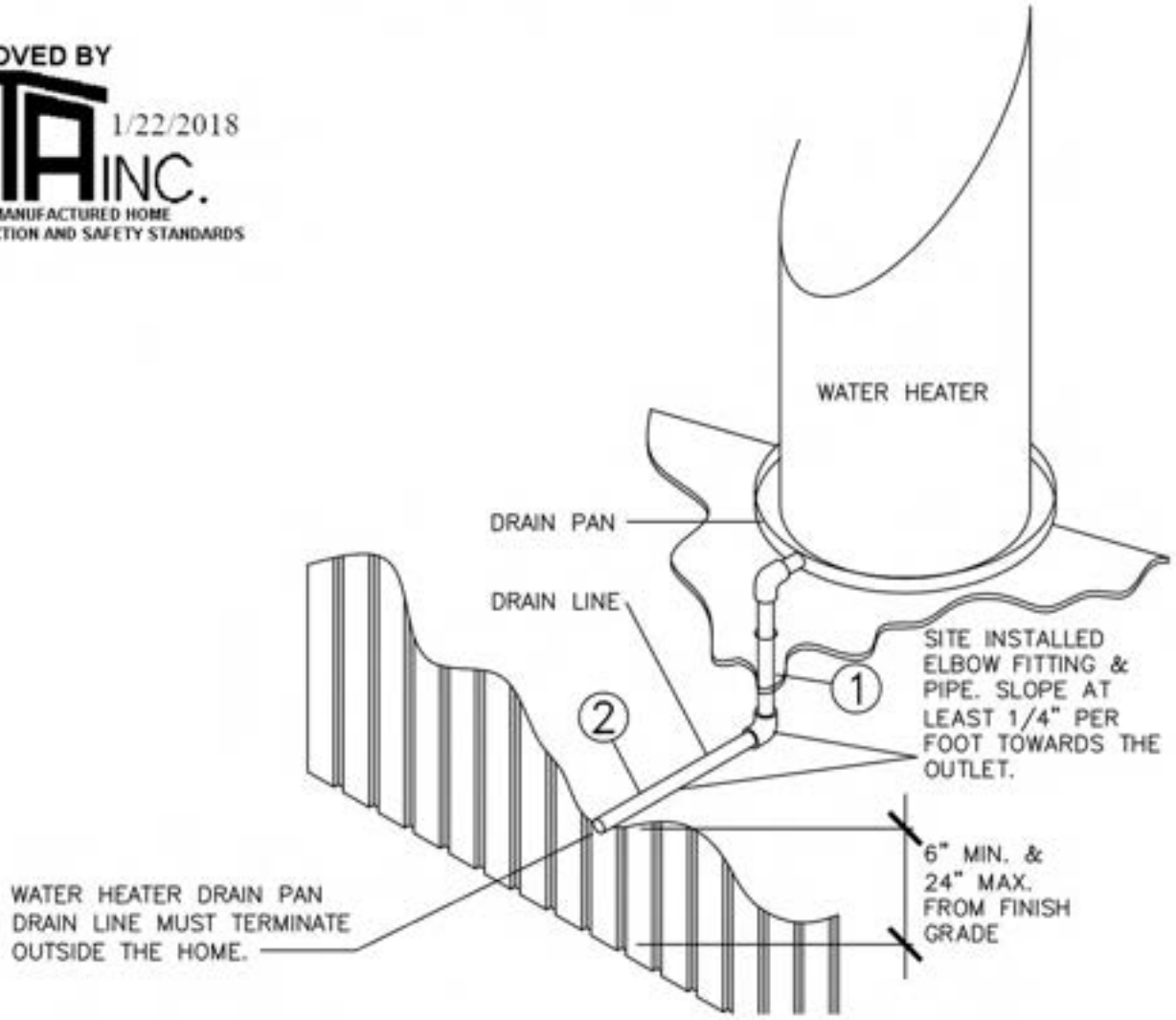

NOTES:
1. WATER HEATER TEMPERATURE AND PRESSURE (T&P) VALVE LINE MUST ALSO TERMINATE OUTSIDE THE HOME.
2. ALL TERMINATION POINTS MUST BE RODENT PROOF

FIGURE 8.13
WATER HEATER DRAIN INSTALLATION.

CHAPTER 9 - FINAL INSPECTION

Make a final inspection when home installation is complete to make sure that no items have been overlooked and that all work was done properly Place special emphasis on the following "checklist" items:

9.1 **Water and drain systems.** All water and drain systems work properly and do not leak.

9.2 **Appliance function and operation.** Appliances have been tested and work properly.

9.3 **Windows, doors and drawers.** All windows, doors and drawers work properly.

9.4 **Exit windows.** One window in each bedroom is designated as secondary exit to be used in case of emergency. Each exit window is labeled as such with operating instructions. All shipping hardware should be removed and the window should operate as explained in the window manufacturer's instructions.

9.5 **Exterior siding and trim.** There are no gaps, voids, or missing fasteners, and all seams are sealed.

9.6 **Stack heads and vent pipe flashings on roof.** All stack head or vent pipe flashings are properly attached and sealed.

9.7 **Composition roof.** All shingles are properly attached, none are loose or missing, and all holes are filled.

9.8 **Skirt venting.** Skirting installed around the home should have nonclosing vents located at or near each corner and as high as possible to cross-ventilate the entire space under the home. Vent free area should be equal to at least one square foot for every 150 square feet of the home's floor area, and this area should be further increased when insect screens, slats, etc. are used over the open vent area. The total area of ventilation may be reduced to 1 square foot for every 1500 square feet of home floor area when a uniform 6-mil polyethylene sheet material or other acceptable vapor retarder is installed. In freezing climates, install skirting so as to accommodate 1-2 inches of frost heave uplift to prevent buckling of floors. Skirting must not be attached in a manner that can cause water to be trapped between the siding and trim or farced up into the wall cavities trim to which it is attached. Skirting also must not be attached in a manner that impedes the contraction and expansion characteristics of the home's exterior covering.

9.9 **Low-hanging trees and bushes.** If there are any low-hanging trees or bushes near your home, trim or cut them. Think about the plants' possible movement during windy conditions or under snow or ice loads in limiting their future growth.

9.10 **Exhaust fan operation and air flow.** Check all exhaust fans for proper operation and air flow.

9.11 **Bottomboard.** Carefully inspect the bottom covering of the home for loosening or tears

from installation of pipes or wires. Seal openings around the floor perimeter, pipes or pipe hangers and splits or tears with weather-resistant tape. See bottomboard manufacturers patching and repair instructions for proper methods (separately provided with this manual).

9.12 **Ground cover.** Repair any cuts or tears in the ground cover with tape.

9.13 **Anchors and straps.** Be sure the correct number of anchors have been installed at the proper angle, and that all straps have been tightened.

9.14 **Interior details.** Inspect for, and correct, all interior finishing details, such as loose molding, carpet seams, etc.

9.15 **Skirting Access Opening.** An access opening in the skirting, not less than 18" in width and 24" in height and not less than 3 square feet in area must be provided and must be located so that any utility connections located below the home are accessible.

9.16 **P-Traps.** P-Traps must be checked to be sure they are well insulated and covered.

9.17 **Gas Lines**. The gas lines have been inspected and tested for leaks after completion at the site.

9.18 **Electrical System.** The electrical system has been inspected and tested after completion at the site.

The retailer's representative should inspect the home with the homeowner, give the homeowner a copy of the Homeowner's Manual, and brief the homeowner about maintaining the home.

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CHAPTER 10 - RELOCATING THE HOME

10.1 Relocation of the home. If it is necessary to move your home, **HAVE IT MOVED BY A PROFESSIONAL MANUFACTURED HOME MOVER, MAKE SURE HE USES ENOUGH TEMPORARY WOOD BLOCKING,** and check the following items:

10.1.1 New Zones. Check the roof and wind load and the temperature requirements at the new location. If the new requirements are greater than those shown on your home's compliance certificate, check the cost of adapting the home before moving. Otherwise, **any resulting damage will not be covered under your warranty, and you may be held liable for any failures.** Check with New Vision Manufacturing, your home retailer, or a qualified manufactured home mover about making these home improvements.

10.1.2 Tires and axles. Replace any removed tires or axles as required by the manufacturer. Be sure that tires are inflated correctly, have at least 1/16" tread, and do not have any cracks or splits. Check and repair bearings and brakes as necessary.

10.1.3 Appliances. Secure appliances to prevent movement during transportation.

10.1.4 Dust caps. Place dust caps on the ends of all pipe connections.

10.1.5 Blocking during storage. Any home placed in storage, including those on sales lots, must be immediately blocked under each I-beam for anticipated roof and floor loads to prevent excessive deflection and possible structural damage. Follow the blocking procedure specified in this manual or consult a registered professional engineer.

10.1.6 Transit of furniture and belongings. Substantial damage may result if furniture, personal belongings, setup materials or other items are stored in the home during transit. **TRANSIT DAMAGE IS NOT COVERED UNDER YOUR WARRANTY.**

10.1.7 Multisection homes. Re-install temporary structural supports and bracing materials before moving the home. Cover open sides of sections with weather-proof materials such as 6-mil plastic sheeting. After the sections have been separated, secure 2" x 6" shipping braces at the front end and in the axle area. Place ridge beam supports in open areas at a maximum of 4' on center.

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CHAPTER 11 – DISPLAY AND STORAGE OF THE HOME

11.1 Weather protection. If the installation is not started immediately upon delivery of the home, the retailer and/or installed has the responsibility to ensure the exterior weather protection covering of marriage walls and the roof of homes has not been damaged during shipment. Inspect the home immediately upon the delivery and frequently during storage. Promptly repair tears in the home closure materials to prevent damage from the elements. Inspect and repair nail holes in roof shingles with asphalt cement or replace damaged shingles. Inspect and repair siding as needed.

11.2 Supporting a home for display. When a new manufactured home is to be displayed at a retail location, temporarily block and support the home. Set up the home with a single block piers (maximum height per page Figure 4.1), metal piers or jack stands spaced no further apart than 12 feet on center beneath each I-beam. The tire and axle system may be used as one of these required supports and the hitch jack may be used as another. Locate the first pier no further than two feet from the rear end of the home (see figure below). Place additional pier along the perimeter on either side of openings greater than four feet (i.e. sliding glass doors, bay windows, etc.). For 18 wide homes perimeter piers must be spaced no further than 12 feet on center.

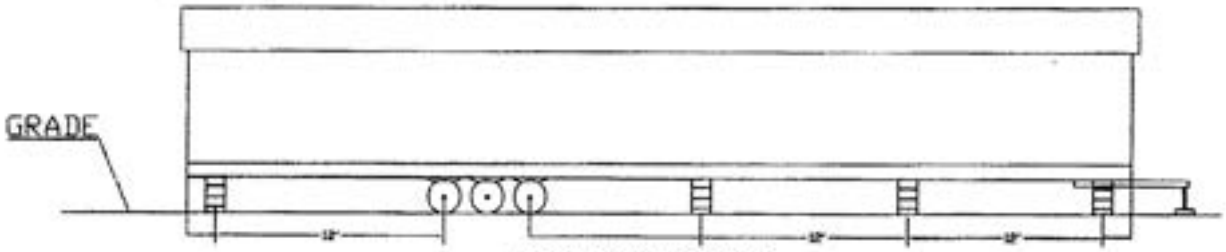

Figure 1. Supporting a home for display.

For mult- section homes, locate additional piers along the marriage line under support columns. These locations will be marked by the manufacturer.

For all homes, place footings below each pier. Footings may be placed directly on the surface grade without excavation and may be ABS pads, 2x10x16 inch long pressure treated lumber or 16"x16"x4" thick concrete pads.

11.3 Supporting a home for storage. To prevent damage to homes being stored at the manufacuter's facility, model home center or home site, but not on display (i.e. people shall not be permitted inside the home) for a period not exceeding thirty days, locate piers below each I-beam no further than two feet from each end of the home and at the approximate center of the home length. For 18' wide homes perimeter supports must also be spaced no further than 12 feet on center.

Whether the home is being supported for display or storage the height of the homes should be no higher than 48 inches as measured from the top of the ground to the bottom of the I-beam. In addition it is extremely important that the roof/ridge vents are installed while the home is on display. Failure to install the roof/ridge bents may lead to significant damage to the roof and home.

NEW VISION MANUFACTURING

Manufactured Home Installation Manual

APPROVED BY
NTA INC. 9/4/2018
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

I-101

FOREWORD

Your New Vision Manufacturing home has been built with great care. It meets or exceeds the Federal Standards for Manufactured Housing as established by the Department of Housing and Urban Development.

The Federal Standard governs body and frame design construction requirements, and installation of plumbing, heating and electrical systems.

Your home was designed and built as a totally integrated structure. Therefore, it is important that these instructions are closely adhered to and followed if you are to enjoy a comfortable, safe and trouble-free home.

Because the proper installation (set-up) of your new home is of such importance, it should be performed by an experienced and qualified set-up crew. If your purchase agreement with your dealer does not include installation or set-up of your home, he can assist you in locating qualified personnel.

If your state of residence has a manufactured home installation law or regulation, they will generally require your dealer or set-up crew to follow these instructions. Additionally, your state or local regulations may require that the installer be licensed. Many states also require that utilities be connected by a licensed technician. The State Administrative Agency can provide you with this information. See the list of State Administrative Agencies in your Homeowner's Manual for the appropriate agency in your state.

If your state does not have an installation law or regulation, you should insist that your dealer or set-up crew follow these instructions.

Before attempting to set up the home, these instructions must be studied so that all work to be performed is clearly understood. Failure to follow these instructions can void your warranty.

If you have any questions or further clarification is desired, please contact your dealer or the factory which produced your home.

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CHAPTER 1 - INTRODUCTION

1.1 How to use this manual. This manual contains detailed installation instructions, including specifications and procedures for erection and hookup of your manufactured home. It has been written in an objective and easy-to-understand manner so it can be understood by people without extensive technical training. It discusses the set-up of the home from preparing the site through final inspection. It includes many tables and figures giving important data for proper set-up. Careful adherence to this manual by the homeowner and installation crew, and consultation with a registered professional or structural engineer in those unusual circumstances it does not cover, will assure you of a quality, safe and affordable home for many years to come.

1.2 Pre-installation consideration. Prior to locating or relocating your home, contact the local authority having jurisdiction for installation to see if permits for such procedures as blocking, anchoring, or utility connections are required. Inspections may be required during installation. On private property, zoning or development covenants may apply and should be taken into consideration. **NOTE: Preparation of the site, when accomplished by other than the home installer, may not be in accordance with these instructions.**

1.3 Safety. Only trained crews should install the home. Installers should follow the safety instructions provided in this manual.

THIS HOME WEIGHS SEVERAL TONS

USE ENOUGH TEMPORARY WOOD BLOCKING TO SUPPORT THE HOME DURING SET-UP. No one should be allowed under the home unless it is securely in place, even if it is not moving.

1.4 Variations to Installation Instructions. Before installing support or anchorage that is different than those methods specified in these instructions or when the site or other conditions prevent the use of these instructions, the installer must first attempt to obtain Dapia approved designs and instructions from New Vision Manufacturing. If these are not available obtain an alternate design prepared and certified by a registered engineer that meets the Manufactured Construction and Safety Standards and has been approved by the manufacturer and the Dapia.

1.5 Temporary Storage. The methods specified in this manual are to be used for the temporary support of the home at the retailers lot or the home site.

1.6 Fire Separation. Fire separation distances must be in accordance with the requirements of Chapter 6 of NFPA 501A, 2003 Edition or the requirements of the local authority having jurisdiction. The installer must take into account these and any local requirements for fire separation areas.

1.7 Consumer information card. Fill out the CONSUMER INFORMATION CARD and return it to New Vision Manufacturing so that you may be notified of revised instructions or new products.

CHAPTER 2 - DEFINITIONS

Anchoring Equipment. Straps, cables, turnbuckles and chains, including tensioning devices, that are used with ties to secure a manufactured home to ground anchors.

Anchoring System. A combination of ties, anchoring equipment, and ground anchors that will, when properly designed and installed, resist the wind's overturning the home or moving it sideways.

Footing. That part of the support system that sits directly on the ground at, below or partly below grade (or below the frost line where applicable) to support the piers.

Piers. That portion of the support system between the footing and the manufactured home, exclusive of caps and shims. Types of piers include, but are not limited to, the following:

1. Manufactured steel stands;
2. Manufactured concrete stands;
3. Concrete blocks.

Site, Manufactured Home. A parcel of land designed and designated for the location of one manufactured home, its accessory buildings or structures, and accessory equipment for exclusive use of the home's occupants.

Stabilizing System. A combination of properly installed anchoring and support systems.

Stand, Manufactured Home. That area of a manufactured home site which has been reserved for placement of a manufactured home.

Support System. A combination of footings, piers, caps and shims that will, when properly installed, support the manufactured home.

CHAPTER 3 - SITE PREPARATION

3.1 Location and Layout

3.1.1 Use of zone maps. Your home is designed for certain weather conditions and roof loads. (See zone maps near home's main electrical panel and in Figures 3.1, 3.2 and 3.3 of this manual.) Do not site or relocate your home in a zone requiring greater wind, roof load, or heating/cooling capabilities than those for which it was designed. However, it is safe to locate your home in an area with lower load or weather requirements. For example, a home designed for a northern roof load of 40 psf may be sited in the southern roof load zone.

3.1.2 Access to site. Before attempting to move your home to the installation site, be sure it can get through. Remove any overhanging branches and raise any overhead wires. Special transportation permits may be required from state, county or city officials.

3.1.3 Encroachments and setback distances. Obey local laws regarding encroachments in streets, yards and courts, and permissible setback distances from property lines and public roads. Consider future additions, such as awnings and screen rooms.

3.1.4 Issuance of permits. Be sure that all necessary local permits have been obtained and fees paid.

3.2 Soil Conditions

3.2.1 Requirements. To help prevent settling of your home, site it on firm, undisturbed soil or fill compacted to at least 90% of its maximum relative density. Installation on loose, uncompacted fill may invalidate the home's limited warranty.

3.2.2 Bearing capacity. Test the bearing capacity of the soil at the depth of the footings after completing any grading and filling (see 3.2.3). If you can't test the soil but can identify its type, use the foundation bearing pressures shown in Figure 3.4 as a guide. If you cannot identify the soil, use the lowest value (1,000 psf) from Figure 3.4. Under unusual conditions, or if the soil appears to be peat or uncompacted fill, consult a local geologist or professional engineer.

3.2.3 Soil bearing testing methods and equipment. A pocket penetrometer (available from engineering supply houses) or other methods acceptable to local jurisdictions may be used.

3.3 Removal of organic material. Remove all decayable material such as grass, roots and wood scraps from beneath the home, especially in areas where footings are to be placed, to minimize settling of footings and insect damage. Remove shrubs and overhanging branches from the immediate vicinity of the homesite to prevent windstorm damage.

3.4 Drainage

3.4.1 Purpose. Drainage prevents water buildup under the home which may cause settling of the foundation, dampness in the home, damage to siding and bottom board, buckling of walls and floors, problems with the operation of doors and windows, **AND COULD VOID YOUR WARRANTY.**

3.4.2 Elimination of depressions. Grade the homesite to permit water to drain from under the home. All drainage at the homesite must be diverted away from the home and must slope a minimum of ½" per foot away from the foundation for the first ten feet.

3.4.3 Drainage structures. Depending on the local landscape, ditches and culverts may be needed to drain surface runoff. If so, consult a registered professional engineer.

3.5 Ground moisture control

3.5.1 Importance. If the crawl space under the home is to be enclosed with skirting or other material you must provide ventilation per Section 5.5 in this manual. Section 5.5 indicates the minimum ventilation required. Additional free area or mechanical ventilation may be required depending on local conditions.

3.5.2 Acceptable types of ground cover. Use polyethylene sheeting or its equivalent, at least six mils thick.

3.5.3 Proper installation. Cover the entire area under the home with the sheeting and overlap it at least 12" at all joints with adhesive at all joints. Where soil and frost conditions permit placement of footings at grade level, place the sheeting directly beneath them. Sheeting shall be sealed or caulked at all penetration for piers, utility connections or other items. Repair any voids or tears in the retarder by patching with like material, maintaining a 12" minimum overlap and sealing joints with mastic.

Design Roof-load Zones:

South	20 psf (pounds per square foot) minimum
Middle	30 psf (snow)
North	40 psf (snow)

Reference -- Manufactured Home Construction and Safety Standards (MHCSS) 24 CFR 3280.506, latest edition

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FIGURE 3.1
ROOF LOAD DESIGN ZONE MAP

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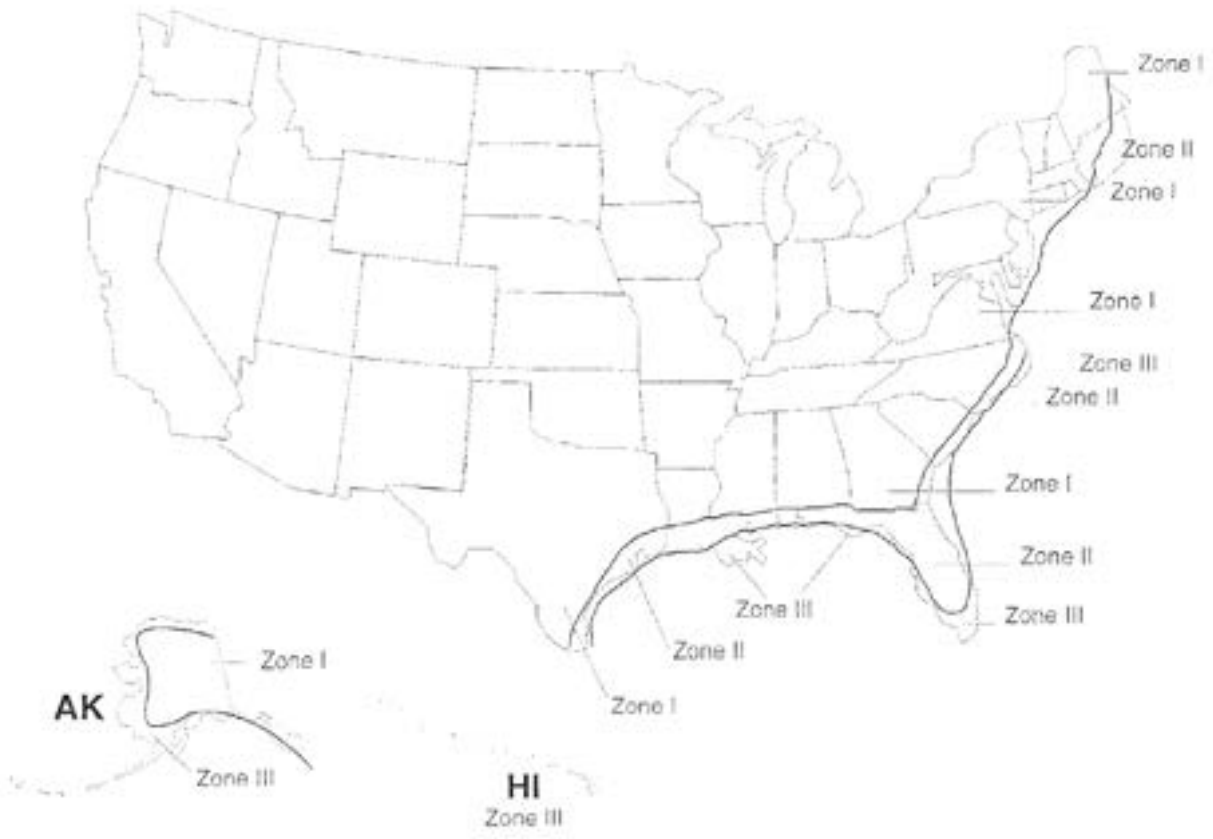

Design Wind-load Zones:

Standard Wind	Zone I	15 psf Horizontal	9 psf uplift*
Hurricane	Zone II	±39 psf Horizontal	27 psf uplift
Hurricane	Zone III	±47 psf Horizontal	32 psf uplift
			* net uplift

Note --
psf: pounds per square foot

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FIGURE 3.2
WIND LOAD DESIGN ZONE MAP

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Zone	1	2	3
U-value	0.116	0.096	0.079

Reference -- Manufactured Home Construction and Safety Standards (MHCSS) 24 CFR 3280.508, latest edition

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FIGURE 3.3
HEATING AND COOLING DESIGN ZONE MAP

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GENERAL DESCRIPTION OF SOILS

Soil Type (Pounds Per Square Foot) Based on the Unified Classification System	No allowances made for overburden pressure, embedment depth, water table height, or settlement problems.
Rock or Hard Pan	4,000 and up
Sandy Gravel and Gravel	2,000
Sand, Silty Sand, Clayey Sand, Silty Gravel, or Clayey Gravel	1,500
Clay, Sandy Clay Silty Clay, or Clayey Silt	1,000
Uncommitted Fill	Special Analysis is Required.
Peat or Organic Clays	Special Analysis is Required.

NOTE:

To be used only when none of the following is available:

a. Soils investigation and analysis of the site.
b. Compliance with the local building code.
c. Competent opinion by a local engineer or building official.

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Figure 3.4
General Description of Soils

4.1 Piers

4.1.1 Importance. Incorrect size, location or spacing of piers may cause serious structural damage to your home. It is important to install piers around the perimeter if required for your home. Failure to do so may lead to sagging floors, walls and roofs.

4.1.2 Acceptable types. Piers may be concrete blocks or pressure-treated wood, capped and shimmed with wedges, or adjustable manufactured metal or concrete devices (see Figure 4.1). Manufactured piers must be listed and labeled for the required load capacity and installed to the pier manufacturer's installation instructions. Metal or other types of premanufactured piers must be provided with corrosion resistance of at least equal to that provided by a coating of zinc on steel of 0.30 oz/sqft of surface.

4.1.3 Design requirements

4.1.3.1 Load-Bearing Capacity. The load that each pier must carry depends on factors such as the dimensions of the home, the roof live load, the spacing of the piers, and the way they are used to support the home. Center beam/marriage wall blocking is required for multisection homes.

See Table 4.1 and Table 4.2 for pier capacities. Manufactured piers must be rated for at least these capacities, and all types of piers must be designed and installed to transmit these loads safely (see 4.1.3.2).

4.1.3.2 Configuration. Figure 4.1 shows the recommended arrangement of concrete block piers constructed on-site. Concrete blocks should have nominal dimensions of at least 8"x8"x16". They must be stacked with their hollow cells aligned vertically. When piers are constructed of blocks stacked side-by-side (double stacked), every layer should be at right angles to the previous one (see Figure 4.1).

Cap hollow block piers as shown in Figure 4.1 to distribute the structural load evenly across them. Caps must be of solid masonry of at least 4" nominal thickness or hard wood or pressure treated lumber at least 2" nominal thickness, or of corrosion-protected minimum ½" steel, and of the same length and width as the piers they rest upon. Avoid plywood, as it may lead to unwanted settling or movement.

When split caps are used on double-stacked blocks, the caps must be installed with the long dimension across the joint in the blocks below.

Use 4"x6"x1" hardwood or pressure treated shims to level the home and fill any gaps between the base of the I-beam and the top of the pier cap. Always use shims in pairs (see Figure 4.1). Drive them in tightly so they do not occupy more than 1" of vertical space.
Select manufactured pier heights so that their adjustable risers do not extend more

than 2" when finally positioned.

All piers must rest on footings (see paragraph 4.2) that either extend below the frost line or are otherwise protected from frost effects, and are placed on either undisturbed soil or compacted fill.

4.1.4 Construction

4.1.4.1 Piers less than 36" high. You may construct piers less than 36" high out of single, open or closed-cell concrete blocks, 8" x 8" x 16". Install them so that the long side is at right angles to the supported I-beam (see Figure 4.1). Horizontal offsets are not to exceed 1/2" top to bottom. Mortar is not required. Manufactured piers should be listed and labeled. Do not extend their adjusting stands beyond the limits specified by the manufacturer. Concrete blocks must be stacked with their hollow cells aligned vertically and must be positioned at right angles to the footings.

4.1.4.2 Piers 36" to 67" high. Construct all piers between 36" and 67" high, out of double, interlocked concrete blocks (see Figure 4.1). Mortar will not be required. Horizontal offsets are not to exceed 1" top to bottom.

4.1.4.3 Piers over 67" high. Piers over 67" high must be designed by a registered professional engineer or registered architect, in accordance with acceptable engineering practice. Mortar is not required for concrete block piers, unless otherwise specified in the manufacturer installation instructions or by the design.

4.1.4.4 Clearance. Piers must be constructed to provide a minimum clearance of 12" between the lowest member of the main frame and the grade under all areas of the home.

4.1.5 Location and spacing. The location and spacing of piers depends upon the dimensions and weight of the home, the roof load zone, the type of construction (single- or multisection), and other factors such as the locations of doors or other openings and heavy pieces of furniture.

4.1.5.1 Multisection homes. Figure 4.3 shows the recommended location and spacing of piers for your multisection home.

4.1.5.2 Under doors and heavy furniture. Place piers on both sides of sidewall exterior doors and other sidewall openings 4' or wider (such as recessed entry's, bay windows and sliding glass doors), under porch posts, and under the expected locations of heavy pieces of furniture such as pianos, organs, waterbeds, etc. and under all fireplace sidewall locations.

4.1.5.3 Multisection Ridgebeam Support Piers. In addition to piers located along main beams and at exterior openings, piers are to be placed at each ridgebeam column location. These piers are necessary to transfer concentrated roof loads safely to the

ground. The location of these piers is shown by either dimensioned drawings provided with your home or by paint marks or decals on the bottom side of the center line floors. See Figure 4.4. The influence spans are the sums of adjacent opening spans. See Figure 4.5 for an illustration of the method for determining these spans. See Table 4.2 for the minimum pier capacity.

4.1.5.5 Piers. Piers used for perimeter support must be installed with the long dimension parallel to the perimeter rail. Piers may be offset up to 6" in either direction along the supported members to allow for plumbing, electrical, etc. When perimeter blocking is required, any mating wall opening span greater than 10 foot must have intermediate piers placed at a maximum spacing of 10'-0" on centers. Location of all piers (main beams, ridgebeam columns, perimeter, etc) are designated by paint marks or labels.

4.2 Footings. Support every pier with a properly designed footing, as follows.

4.2.1 Acceptable types of footings

4.2.1.1 Concrete. Footings may consist of precast or poured-in-place concrete, pads, slabs or ribbons with a 28-day compressive strength of at least 3,000 psi. Unreinforced footings must have a depth in accordance with Table 4.3. Precast footings must meet or exceed ASTM C90-02. Poured footings must be 6" thick minimum or per tables (whichever strictest).

4.2.1.2 Pressure-treated lumber. Two fastened layers of 2" thick pressure-treated wood planks, with the long dimension of the second layer placed perpendicular to that of the first, and treated with a water-borne adhesive in accordance with AWPA Standard UI-04 for use category 4B – ground contact applications. Cut ends of pressure treated lumber must be field-treated in accordance with AWPA Standard M4-02.

4.2.1.3 ABS Footing Pads. ABS Footing Pads are permitted provided they are installed in accordance with the pad manufacturer's installation instructions and certified for use in the soil classification and capacity at the site. They must be listed or labeled for the required load capacity.

4.2.2 Placement in freezing climates

4.2.2.1 Conventional Footings. To preclude the harmful effects of ground frost heave, footings should be placed below the frost line. Consult local authorities to determine frost penetration.

4.2.2.2 Floating Slab Systems. When properly engineered by a registered professional engineer or registered architect, compatible with the anchorage requirements of section 5.4, and acceptable to the local authority having jurisdiction, "floating slab

system" may be used above the frost line and alternate designs prepared and certified by a registered professional engineer or registered architect for the support and anchorage of the manufactured home that is consistent with the manufactured home design, conforms to the requirements of the MHCSS, and has been approved by the manufacturer and the Dapia.

4.2.3 Proper sizing of footings. Proper sizing of footings depends upon the load-carrying capacity of both the piers and the soil. See Table 4.3 for recommended footing sizes for various pier capacities.

4.3 Special Conditions (See also Section 5.3.3). Pier and footer designs in this manual do not consider flood or seismic loads and are not intended for use in flood or seismic hazard areas. In those areas the design must be done by a Registered Professional Engineer.

4.3.1 Flood-prone areas. New Vision Manufacturing does not recommend siting your home in river or coastal flood-prone areas. Special local regulations or flood insurance provisions may apply. Special elevation and anchoring techniques are required when locating in a flood-prone area. Consult a registered professional or structural engineer to make sure that home design and construction conform to applicable federal, state and local codes and regulations. The FEMA publication listed in section 4.5 contains design and construction recommendations.

4.3.2 Special snow load conditions. Homes designed for and located in heavy snowfall areas or subject to other extreme loading conditions will require special piers or footings. See tables and special manufacturer's instructions provided with your home.

4.4 Basement Foundations. If you desire your home to be placed on a perimeter foundation wall without I-Beam piers numerous special construction techniques must be used in the home's setup. Details, plans and test data must be designed and certified by a Registered Professional Engineer and must not take the home out of compliance with the Manufactured Construction and Safety Standards

Any and all alternate foundation designs must be approved by both New Vision Manufacturing and the Dapia.

4.5 Important reference documents

4.5.1 ANSI/NCSBCS A225.1-1987, "Manufactured Home Installations," NCSBCS, 505 Huntmar Park Drive, Herndon, VA 22070, (703) 437-0100.

4.5.2 FEMA 85, "Manufactured Home Installation in Flood Hazard Areas", FEMA, Washington, DC 20472, (202) 646-2708, September, 1985.

4.5.3 "HUD Handbook 4930.3 (1989), "Permanent Foundations Guide for Manufactured Housing," HUD, 415 7th Street, S.W. Washington, DC 20410.

4.5.4 "All-Weather Wood Foundation System Manual, "National Forest Products Association, 1619 Massachusetts Ave., N.W., Washington, DC 20036, June, 1976.

4.5.5 "Frost-Free Shallow Foundation Design Guidelines," Energy Design Update, March, 1988.

4.5.6 "Building Foundation Design Guidebook," Document No. DE 88013350, National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161

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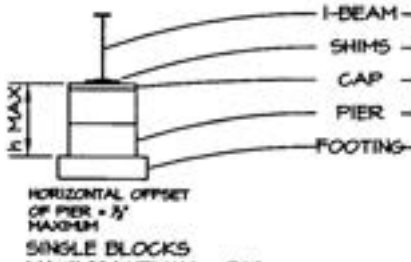
PIER 1

I-BEAM PIER SINGLE STACKED BLOCKS

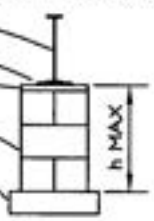


SINGLE BLOCKS MAXIMUM HEIGHT = 36" (SEE NOTE #2)

SPECIAL NOTE: MINIMUM SET HEIGHT OF HOME IS 12" AS MEASURED UNDER HOME TO GROUND, INCLUDING AREA BETWEEN THE LOWEST POINT OF THE FRAME OR CROSSMEMBERS.

PIER 2

I-BEAM PIER DOUBLE STACKED BLOCKS PIERS OVER 36" HEIGHT TO MAXIMUM HEIGHT, HORIZONTAL OFFSET = 1" MAXIMUM



DOUBLE INTERLOCKED BLOCKS MAXIMUM HEIGHT = 67" OR AS ILLUSTRATED ON MAXIMUM PIER HEIGHTS OF FRAME TIEDOWN SPACING CHARTS

PIER 3

I-BEAM PIER

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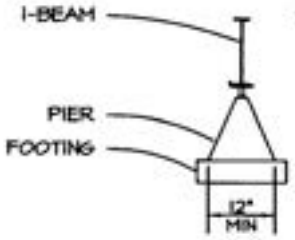
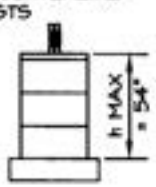


STEEL OR CONCRETE MANUFACTURED PIER (SEE NOTE #5)

JOHN C. DOEDEN REGISTERED No. 870357 STATE OF INDIANA PROFESSIONAL ENGINEER

PIER 4

SINGLE STACKED PIER SUPPORTING CENTERLINE COLUMNS OR CENTERLINE JOISTS

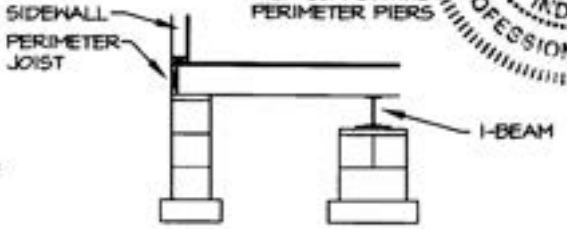


SINGLE STACKED BLOCKS PERPENDICULAR TO CENTERLINE JOISTS OR PARALLEL TO PERIMETER RAIL MAX. HEIGHT = 54"

CAPACITY AT DOUBLE CENTERLINE JOIST = 8000# CAPACITY AT SINGLE PERIMETER JOIST = 8000#

PIER 5

SINGLE STACKED PIER SUPPORTING PERIMETER PIERS



NOTES:

1. CONCRETE BLOCKS FOR PIERS ARE 8x8x16 NOMINAL SIZE, HOLLOW CELL LOAD BEARING CMU'S MANUFACTURED IN CONFORMANCE WITH ASTM C90-70, GRADE 'N'. OPEN CELLS ARE VERTICAL.
2. SINGLE STACKED CONCRETE BLOCKS ARE ORIENTED SO THAT LONG DIRECTION IS PERPENDICULAR TO THE LONG DIRECTION OF THE MAIN BEAM.
3. FOOTERS MAY BE PRECAST OR POURED, BUT, IN EITHER CASE, MUST BE LEVEL IN ALL DIRECTIONS. PRECAST MUST MEET OR EXCEED ASTM C90-02a. POURED FOOTERS MUST BE 6" THICK MINIMUM (OR PER TABLES, WHICHEVER IS STRICTEST) AND MUST BE MINIMUM 3000 psi COMPRESSIVE STRENGTH AT 28 DAYS.
4. PIERS ARE TO BE PLACED ON THE FOOTER APPROXIMATELY CENTERED SO THAT THE FOOTER PROJECTION FROM THE PIER IS EQUAL FROM SIDE-TO-SIDE AND FRONT-TO-BACK. PIERS MUST BE LEVEL VERTICALLY ON ALL SIDES AND SQUARE WITH THE FOOTER.
5. PREFABRICATED PIERS (TYPE #3) MUST BE CERTIFIED FOR A RATED CAPACITY AT LEAST EQUAL TO THE LOAD DETERMINED FROM THE TABLES. MANUFACTURED PIERS CANNOT HAVE THE ADJUSTABLE RISERS EXTENDED MORE THAN 2" WHEN FINALLY POSITIONED.
6. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 PSI AFTER 28 DAYS.
7. GAP BETWEEN TOP OF PIER AND MAIN FRAME MAY BE A WOOD PLATE (NOT EXCEEDING 2" IN THICKNESS) AND SHIMS (NOT EXCEEDING 1" IN THICKNESS). SHIMS SHALL BE AT LEAST 4" WIDE AND 6" LONG, FITTED AND DRIVEN TIGHT BETWEEN WOOD PLATE OR PIER AND MAIN FRAME (SHIMS TO BE PERPENDICULAR TO I-BEAM). TWO INCH OR FOUR INCH SOLID CONCRETE BLOCK MAY FILL REMAINDER OF GAP.
8. PIER HEIGHT IS MEASURED FROM TOP OF FOOTER TO THE TOP OF THE PIER. THESE DRAWINGS TYPIFY THE CONSTRUCTION ONLY OF DIMENSIONED BLOCK HEIGHTS.
9. PIER AND FOOTER DESIGNS SHOWN DO NOT CONSIDER FLOOD OR SEISMIC LOADS AND ARE NOT INTENDED FOR USE IN FLOOD OR SEISMIC HAZARD AREAS. IN THOSE AREAS, THE DESIGN MUST BE DONE BY A PROFESSIONAL ENGINEER.
10. HORIZONTAL OFFSET FROM THE TOP TO THE BOTTOM OF THE PIER MUST NOT EXCEED 1/2" FOR SINGLE STACKED PIERS AND 1" FOR DOUBLE STACKED PIERS
11. PIERS MAY BE OFFSET UP TO 6" IN EITHER DIRECTION ALONG THE SUPPORTED MEMBERS TO ALLOW FOR PLUMBING, ELECTRICAL, ETC.

FIGURE 4.1
TYPICAL PIER CONSTRUCTION I-116

SINGLE STACKED CONCRETE BLOCKS

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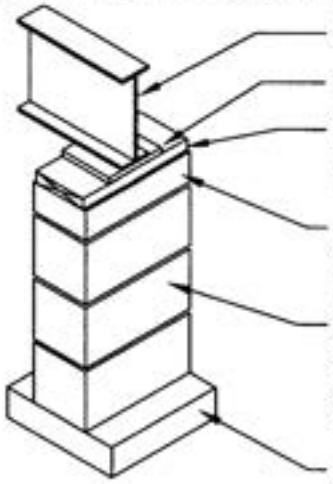
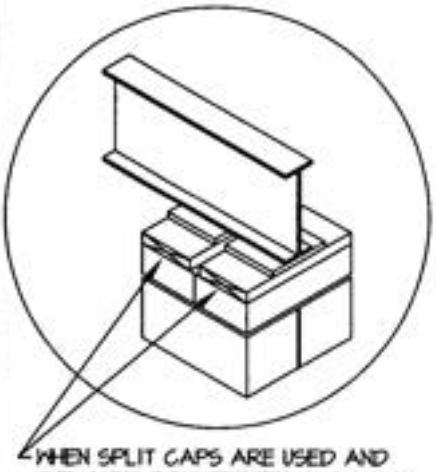


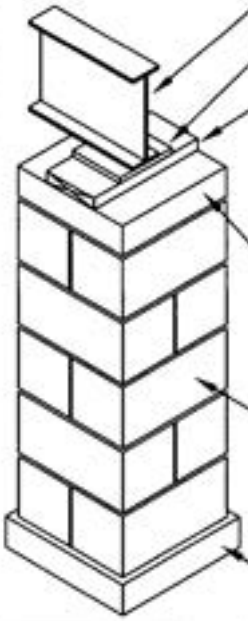
- MAIN I-BEAM
- SHIMS, NOT EXCEEDING 1" IN THICKNESS
- HARDWOOD PLATES OR OTHER LISTED MATERIALS NOT EXCEEDING 2" IN THICKNESS
- CAPS, SOLID CONCRETE (MINIMUM 4"X8"x16"), HARDWOOD (NOMINAL MINIMUM 2"x8"x16") OR 1/2"x8"x16" STEEL OR OTHER LISTED MATERIALS
- SINGLE OPEN OR CLOSED CONCRETE BLOCKS 8"x8"x16" INSTALLED WITH 16" DIMENSION PERPENDICULAR TO THE MAIN I-BEAM. OPEN CELLS ARE PLACED VERTICALLY ON FOOTING. MORTAR IS NOT REQUIRED UNLESS SPECIFIED
- TYPICAL FOOTING INSTALLED BELOW FROST LINE

CAPACITY = 8000 LBS.

DOUBLE STACKED CONCRETE BLOCKS



WHEN SPLIT CAPS ARE USED AND THE JOINT RUNS PERPENDICULAR TO THE MAIN I-BEAMS, SHIMS AND BLOCKS MUST BE INSTALLED OVER EACH INDIVIDUAL CAP.



- MAIN I-BEAM
- SHIMS, NOT EXCEEDING 1" IN THICKNESS
- HARDWOOD PLATES OR OTHER LISTED MATERIALS NOT EXCEEDING 2" IN THICKNESS. 7 1/4" MINIMUM WIDTH UP TO 9000# LOAD DETERMINED FROM TABLES. USE 14 1/2" WIDE OR SPLIT CAP PER DETAIL FOR HIGHER LOADS (16,000# MAXIMUM)
- CAPS, SOLID CONCRETE OR HARDWOOD (MINIMUM 4"x8"x16") OR 1/2"x8"x16" STEEL OR OTHER LISTED MATERIALS
- DOUBLE STACKED CONCRETE BLOCKS, SOLID OR CELLED. EACH LAYER IS INTERLOCKED WITH LAYER BELOW AS SHOWN. MORTAR IS NOT REQUIRED UNLESS SPECIFIED
- TYPICAL FOOTING INSTALLED BELOW FROST LINE

NOTES:
1. SHIMS, WHEN REQUIRED, ARE TO BE USED IN PAIRS, INSTALLED IN OPPOSITE DIRECTIONS AND BE FITTED AND DRIVEN TIGHT BETWEEN MAIN I-BEAM FRAME AND SHIMS OR CAPS BELOW. SHIMS MUST BE INSTALLED SO THAT ALL GAPS BETWEEN THE HOME'S BEARING MEMBER (I-BEAM OR RIM OR CENTERLINE JOISTS) ARE FILLED FOR THE LENGTH OF THE PIER OR REQUIRED PLATES. MINIMUM COMPRESSIVE STRESS CAPACITY FOR SHIMS IS 425 psi.
2. STEEL CAPS MUST BE PROTECTED BY A MINIMUM OF A 10 MIL COATING OF AN EXTERIOR PAINT OR AN EQUIVALENT CORROSION RESISTANT PROTECTION.

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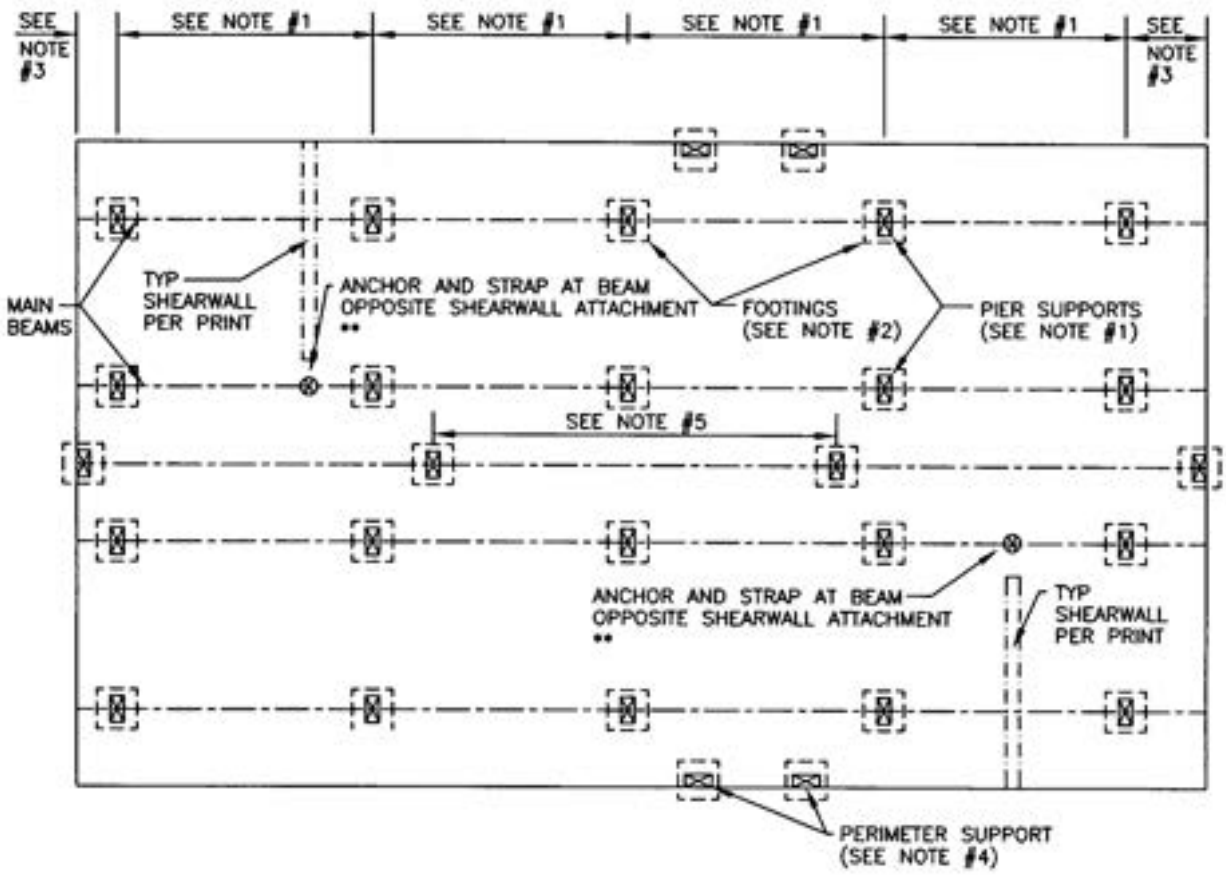
FIGURE 4.1A
TYPICAL PIER CONFIGURATIONS



NOTES:
1. SEE SETUP MANUAL FOR REQUIRED PIER CAPACITY AND SPACING.
2. SEE SETUP MANUAL FOR FOOTING REQUIREMENTS.
3. PIERS SHALL BE LOCATED AT A MAXIMUM OF 2 FEET FROM BOTH ENDS.
4. PERIMETER PIERS OR OTHER SUPPORTS MUST BE LOCATED AS FOLLOWS: ON BOTH SIDES OF SIDEWALL EXTERIOR DOORS (SUCH AS ENTRY, PATIO AND SLIDING GLASS DOORS) AND ANY OTHER SIDEWALL OPENINGS 48" OR GREATER IN WIDTH, AND UNDER LOAD-BEARING PORCH POSTS, FACTORY INSTALLED FIREPLACES AND FIREPLACE STOVES, ETC.
5. SEE TABLE 4.2 FOR PIER CAPACITIES AT MARRIAGE LINE OPENINGS.

** REFER TO MANUFACTURER'S FLOOR PLAN (PROVIDED) FOR SHEARWALL LOCATIONS (INCLUDING ENDWALL). THESE ANCHORS MUST BE INSTALLED IN ACCORDANCE WITH THEIR LISTING.

FIGURE 4.3
TYPICAL BLOCKING LAYOUT FOR MULTI-SECTION HOMES

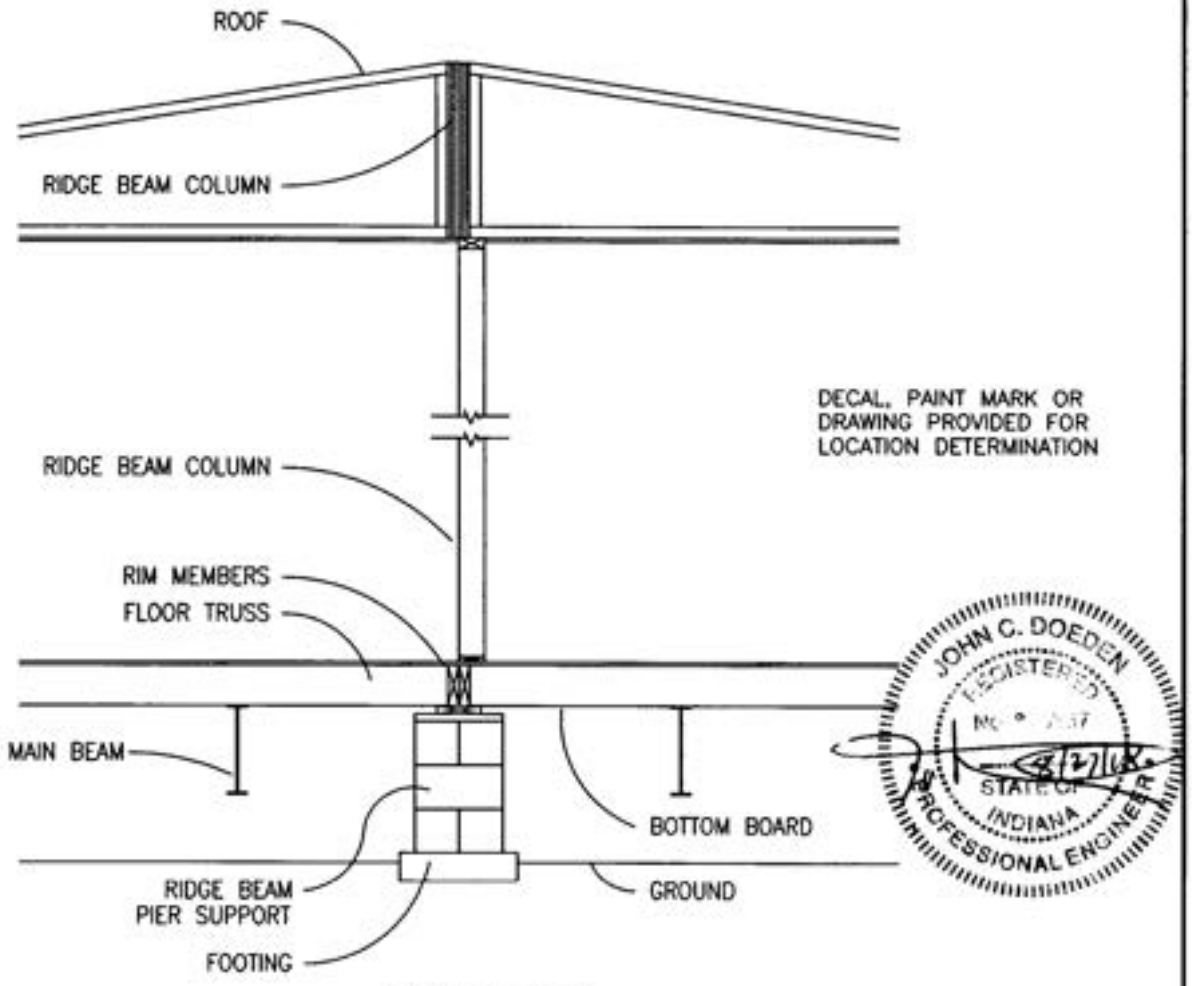


FIGURE 4.4
TYPICAL RIDGE BEAM SUPPORT COLUMN PIER

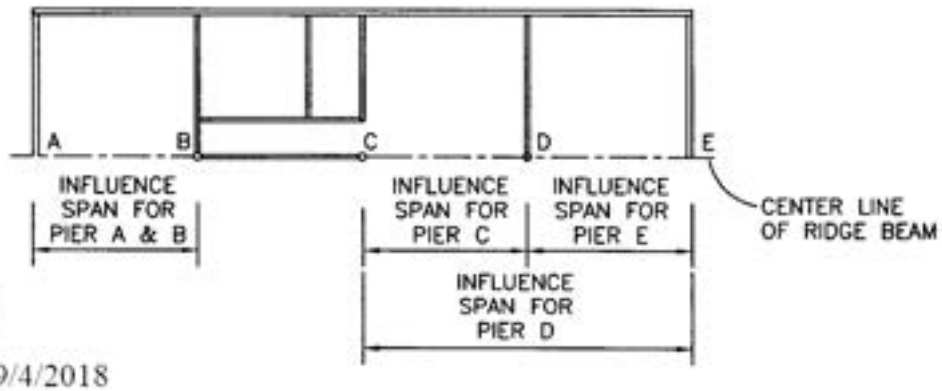


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FIGURE 4.5
TYPICAL INFLUENCE SPANS

SECTION WIDTH	EAVE OVERHANG	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS) MAXIMUM PIER SPACING (FEET)				
			4	6	8	10	
164" FLOOR WIDTH	6" MAX	20	2710#	3910#	5115#	6320#	
180" FLOOR WIDTH	6" MAX	20	2920#	4230#	5540#	6850#	

NOTES:

1. PIER LOADS BASED ON 10 PSF ROOF DEAD LOAD AND 10 PSF FLOOR DEAD LOAD. ALSO INCLUDED IN THE LOAD VALUE IS THE WEIGHTOF THE PIER AND THE WEIGHT OF THE MINIMUM FLOOTER REQUIRED.
2. PERIMETER BLOCKING IS NOT REQUIRED EXCEPT AS NOTED FOR LARGE OPENINGS.
3. REFERENCE DETAILS IN FIGURE 4.3 FOR PIER LOCATIONS.
4. MAXIMUM PIER SPACING IS ALSO LIMITED BY I-BEAM SIZE: 8'-0" MAXIMUM SPACING FOR 8" I-BEAM, 10'-0" MAXIMUM SPACING FOR 10" AND 12" I-BEAM STARTING NO MORE THAN 2'-0" FROM EACH END.
5. REFERENCE TABLE 4.3 FOR THE REQUIRED FOOTING SIZE CORRESPONDING TO THE LOAD DETERMINED ABOVE (INCLUDES WEIGHT OF BLOCK PIER AND CONCRETE FOOTER).

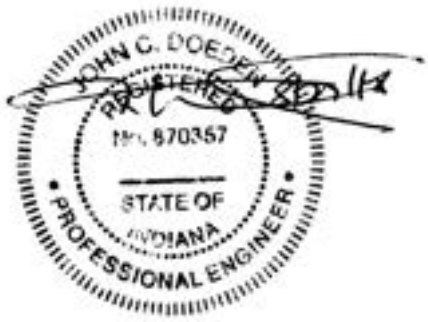

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TABLE 4.1
MINIMUM PIER CAPACITY TABLE
(FRAME BLOCKING ONLY)

TOTAL FLOOR WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS) MAXIMUM SPAN TO NEXT SUPPPORT (FEET) •									
		4	8	12	16	20	24	28	32	36	40
27'-4"	20	1405	2335	3264	4200	5130	6060	6990	7920	8855	9785
30'-0"	20	1515	2530	3550	4565	5580	6595	7610	8625	9645	10660

• SEE FIGURE 4.5 FOR INFLUENCE SPANS

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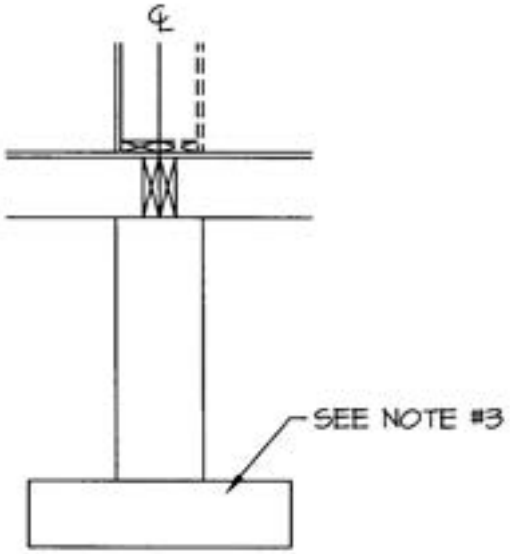

NOTES:
1. PIER LOADS BASED ON 10 PSF ROOF DEAD LOAD.
   ALSO INCLUDED IN THE LOAD VALUE IS THE WEIGHT OF THE PIER AND THE WEIGHT OF THE MINIMUM FOOTER REQUIRED.
2. LOADS TABULATED ARE TOTAL FOR BOTH HALVES AT COLUMN SUPPORT.
3. REFER TO TABLE 4.3 FOR FOOTER DESIGN.

TABLE 4.2
MINIMUM PIER CAPACITY
MULTI-SECTION RIDGEBEAM COLUMN SUPPORT

PIER CAPACITY (POUNDS)	MINIMUM FOOTING SIZE (OR EQUAL AREA) (INCHES) SOIL BEARING CAPACITY (PSF)				
	1000	1500	2000	4000	
600	12x12	12x12	12x12	12x12	
800	12x12	12x12	12x12	12x12	
1000	12x12	12x12	12x12	12x12	
1500	15x15	12x12	12x12	12x12	
2000	17x17	14x14	12x12	12x12	
2500	19x19	15x15	13x13	12x12	
3000	21x21	17x17	15x15	12x12	
3500	22x22	18x18	16x16	12x12	
4000	24x24	20x20	17x17	12x12	
4500	25x25	21x21	18x18	13x13	
5000	27x27	22x22	19x19	13x13	
5500	28x28	23x23	20x20	14x14	
6000	29x29	24x24	21x21	15x15	
6500	31x31	25x25	22x22	15x15	
7000	32x32	26x26	22x22	16x16	
7500	33x33	27x27	23x23	16x16	SINGLE STACK CMU
8000	34x34	28x28	24x24	17x17	
8500	35x35	29x29	25x25	17x17	
9000	36x36	29x29	25x25	18x18	
9500	37x37	30x30	26x26	19x19	
10000	38x38	31x31	27x27	19x19	DOUBLE STACKED CMU
11000	40x40	32x32	28x28	20x20	
12000	42x42	34x34	29x29	21x21	
13000	43x43	35x35	31x31	22x22	
14000	45x45	37x37	32x32	22x22	
15000	46x46	38x38	33x33	23x23	
16000	48x48	39x39	34x34	24x24	
17000	49x49	40x40	35x35	25x25	SPECIAL DESIGN
18000	51x51	42x42	36x36	25x25	
19000	52x52	43x43	37x37	26x26	
20000	54x54	44x44	38x38	27x27	
21000	55x55	45x45	39x39	28x28	
22000	57x57	46x46	40x40	28x28	
23000	58x58	47x47	41x41	29x29	
24000	59x59	48x48	42x42	30x30	
25000	60x60	49x49	43x43	30x30	

NOTES:
1. FOOTING SIZES SHOWN ARE FOR SQUARE PADS AND ARE BASED ON THE AREA (SQUARE INCHES) REQUIRED FOR THE LOAD. OTHER FOOTING CONFIGURATIONS (RECTANGULAR) MAY BE USED PROVIDED THE AREA (SQUARE INCHES) IS EQUAL TO OR GREATER THAN THE AREA OF THE SQUARE FOOTING SHOWN IN THE TABLE AND THE PROJECTION TO THE EDGE OF THE FOOTER IS NOT GREATER THAN IT WOULD HAVE BEEN PLACED ON A SQUARE FOOTER. FOR EXAMPLE, A 12"x22" (288 SQ. IN.) FOOTING MAY BE USED IN PLACE OF A 16"x16" (256 SQ. IN.) FOOTING.
2. THE FOLLOWING TABLE SPECIFIES THE MAXIMUM FOOTING SIZE FOR VARIOUS FOOTING THICKNESSES. THIS TABLE IS BASED ON UNREINFORCED FOOTINGS. REINFORCED FOOTINGS MAY REQUIRED A SMALLER THICKNESS THAN THAT LISTED BUT MUST BE DESIGNED BY A LICENSED ENGINEER. ALSO SEE SECTION 4.2.1 FOR ALTERNATIVES.
3. THE FOOTING CAPACITIES TABULATED ARE FOR TOTAL LOAD. THE GRAVITY LOADS PRESENTED IN THE TABLES IN THIS MANUAL INCLUDE THE WEIGHT OF THE PIER AND FOOTER AND NO FURTHER ADJUSTMENT IS REQUIRED. HOWEVER, WHEN ADDITIONAL LOAD CALCULATIONS ARE REQUIRED THE LOAD MUST INCLUDE THESE WEIGHTS. PIER CMU BLOCKS TYPICALLY WEIGHS APPROXIMATELY 30 POUNDS APIECE AND CONCRETE FOOTERS WEIGH APPROXIMATELY 150 PCF (EXAMPLE: 24x24x6 FOOTER WEIGHS 300#)

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TABLE 4.3
FOOTER SIZES

Ref: CA-1.3, CA-1.8

PIER FOOTING SIZE	MINIMUM THICKNESS OF FOOTERS FOR SINGLE AND DOUBLE STACKED PIERS (INCHES)													
	SOIL BEARING CAPACITY (PSF)													
	1000		1500		2000		2500		3000		3500		4000	
	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE
16 x 16	4	4	4	4	4	4	4	4	4	4	4	4	4	4
17 x 17	4	4	4	4	4	4	4	4	4	4	4	4	4 3/8	4
18 x 18	4	4	4	4	4	4	4	4	4 1/8	4	4 1/2	4	4 7/8	4
19 x 19	4	4	4	4	4	4	4 1/8	4	4 1/2	4	4 7/8	4	5 1/4	4
20 x 20	4	4	4	4	4	4	4 1/2	4	4 7/8	4	5 3/8	4	5 3/4	4
21 x 21	4	4	4	4	4 3/8	4	4 7/8	4	5 3/8	4	5 3/4	4	6 1/8	4
22 x 22	4	4	4	4	4 3/4	4	5 1/4	4	5 3/4	4	6 1/4	4	6 5/8	4
23 x 23	4	4	4 3/8	4	5	4	5 5/8	4	6 1/8	4	6 5/8	4	7 1/8	4
24 x 24	4	4	4 5/8	4	5 3/8	4	5 7/8	4	6 1/2	4	7	4	7 1/2	4
25 x 25	4	4	4 7/8	4	5 5/8	4	6 3/8	4	6 7/8	4	7 1/2	4	8	4 3/8
26 x 26	4 1/4	4	5 1/4	4	6	4	6 3/4	4	7 3/8	4 1/8	7 7/8	4 1/2	8 3/8	4 7/8
27 x 27	4 3/8	4	5 3/8	4	6 3/8	4	7	4 1/8	7 3/4	4 1/2	8 3/8	4 7/8	8 7/8	5 1/4
28 x 28	4 3/4	4	5 3/4	4	6 5/8	4	7 3/8	4 1/2	8 1/8	4 7/8	8 3/4	5 3/8	9 3/8	5 3/4
29 x 29	4 7/8	4	6	4	6 7/8	4 3/8	7 7/8	4 7/8	8 1/2	5 3/8	9 1/4	5 3/4	9 7/8	6 1/8
30 x 30	5 1/8	4	6 3/8	4	7 3/8	4 3/4	8 1/8	5 1/4	8 7/8	5 3/4	9 5/8	6 1/4	10 3/8	6 5/8
31 x 31	5 3/8	4	6 5/8	4 3/8	7 5/8	5	8 1/2	5 5/8	9 3/8	6 1/8	10	6 5/8	–	–
32 x 32	5 5/8	4	6 7/8	4 5/8	7 7/8	5 3/8	8 3/4	5 7/8	9 3/4	6 1/2	10 1/2	7	–	–
33 x 33	5 7/8	4	7 1/8	4 7/8	8 1/4	5 5/8	9 1/4	6 3/8	10 1/8	6 7/8	10 7/8	7 1/2	–	–
34 x 34	6 1/8	4 1/4	7 3/8	5 1/4	8 5/8	6	9 5/8	6 3/4	10 1/2	7 3/8	–	–	–	–
35 x 35	6 3/8	4 3/8	7 3/4	5 3/8	8 7/8	6 3/8	9 7/8	7	10 7/8	7 3/4	–	–	–	–
36 x 36	6 1/2	4 3/4	8	5 3/4	9 1/4	6 5/8	10 3/8	7 3/8	–	–	–	–	–	–
37 x 37	6 3/4	4 7/8	8 3/8	6	9 1/2	6 7/8	10 3/4	7 7/8	–	–	–	–	–	–
38 x 38	7	5 1/8	8 1/2	6 3/8	9 7/8	7 3/8	11	8 1/8	–	–	–	–	–	–
39 x 39	7 1/4	5 3/8	8 3/4	6 5/8	10 1/4	7 5/8	–	–	–	–	–	–	–	–
40 x 40	7 3/8	5 5/8	9 1/8	6 7/8	10 1/2	7 7/8	–	–	–	–	–	–	–	–
41 x 41	7 3/4	5 7/8	9 3/8	7 1/8	10 3/4	8 1/4	–	–	–	–	–	–	–	–
42 x 42	7 7/8	6 1/8	9 3/4	7 3/8	11 1/4	8 5/8	–	–	–	–	–	–	–	–
43 x 43	8 1/8	6 3/8	9 7/8	7 3/4	11 1/2	8 7/8	–	–	–	–	–	–	–	–
44 x 44	8 3/8	6 1/2	10 1/4	8	–	–	–	–	–	–	–	–	–	–
45 x 45	6 5/8	6 3/4	10 1/2	8 3/8	–	–	–	–	–	–	–	–	–	–
46 x 46	8 3/4	7	10 3/4	8 1/2	–	–	–	–	–	–	–	–	–	–
47 x 47	9	7 1/4	11 1/8	8 3/4	–	–	–	–	–	–	–	–	–	–
48 x 48	9 3/8	7 3/8	11 3/8	9 1/8	–	–	–	–	–	–	–	–	–	–
49 x 49	9 1/2	7 3/4	11 5/8	9 3/8	–	–	–	–	–	–	–	–	–	–
51 x 51	10	8 1/8	–	–	–	–	–	–	–	–	–	–	–	–
52 x 52	10 1/4	8 3/8	–	–	–	–	–	–	–	–	–	–	–	–
54 x 54	10 5/8	8 3/4	–	–	–	–	–	–	–	–	–	–	–	–
55 x 55	10 7/8	9	–	–	–	–	–	–	–	–	–	–	–	–
57 x 57	11 3/8	9 1/2	–	–	–	–	–	–	–	–	–	–	–	–
58 x 58	11 5/8	9 3/4	–	–	–	–	–	–	–	–	–	–	–	–
59 x 59	11 3/4	10	–	–	–	–	–	–	–	–	–	–	–	–
60 x 60	12	10 1/4	–	–	–	–	–	–	–	–	–	–	–	–

NOTES:
1. THE THICKNESSES IN THE CHART ABOVE ARE DESIGNED FOR SINGLE AND DOUBLE STACKED CONCRETE BLOCKS (CMU'S) CENTERED ON THE FOOTER.
2. POURED FOOTERS ARE TO HAVE A 3000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
3. THIS TABLE IS BASED ON UNREINFORCED FOOTINGS. REINFORCED FOOTINGS MAY ALLOW FOR A SMALLER THICKNESS THAN THAT LISTED BUT MUST BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER.

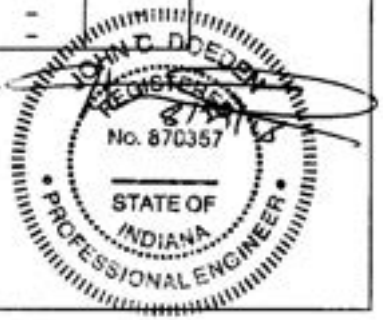

TABLE 4.4
MINIMUM FOOTING THICKNESSES

CHAPTER 5 - SETUP PROCEDURES

5.1 Moving home to location. Make sure the following items are completed before placing the home:

. The site is properly prepared. See Chapter 3.

. All concrete work necessary to setting the home is finished.

. Utilities are installed or available.

. Any trenching, for crossover drain lines or for wheels that will be left in place, is complete.

. Items that could be difficult to install after the home is sited (such as anchors and ground moisture retarders) are in their proper locations.

CAUTION: THE HOME WEIGHS SEVERAL TONS. USE ADEQUATE TEMPORARY SUPPORT BLOCKING TO SAFEGUARD WORKERS. NEW VISION MANUFACTURING RECOMMENDS WOOD BLOCKING.

5.2 Setup Procedure Instructions
Please Read Carefully

5.2.1 It is important that these instructions and precautions are adhered to closely if you are to enjoy the comfortable, safe and trouble free home that has been designed and built for you. The following four items apply to the set-up of all homes (single-section and multi-section homes). Each step should be checked off as it is completed. The set-up crew should consist of a minimum of two experienced set-up members.

In following the procedures below for set-up, it is recommended that your home be installed as close as possible to the ground as local codes permit, yet still providing a crawl space for periodic inspection. This may require that wheels and tires be removed and that the ground in the axle hub and drum area be "dug out" so the drums can be set lower.

1. After selecting the foundation system desired, select the footing area and load capacity from the information contained in Chapter 4, Foundations, by relating the information in Chapter 4 to the structural load zone for which your home was designed and will be set up in.

2. If the support foundation or tiedown types selected cannot be installed when the home is in its final position, these portions of the support foundation system must be installed before the home is positioned in its final desired location. For example, ground anchors required for a tiedown system normally must be installed before the home is placed in its final position.

3. Upon delivery of your new home, and before placing in its final position, you should inspect both interior and exterior for possible shipment damage. Any damage should immediately be reported to your dealer.

4. Prior to set-up of your home, the soil beneath the final home location should be prepared as outlined on Chapter 3.

5.2.2 Single Section Set-up Procedure: Pier Foundation

1. Position your home in its proper final location.

2. Using an adequate jack at the hitch, "rough" level the home. This is only a "rough" level and not the "final" level.

3. Placing the individual support foundations under the home in the correct sequence is very important and should be done as follows: Place the first lifting jack under the chassis' main beam, just forward of the front spring shackle. Locate the lifting jack so that a support foundation can be placed next to the front spring shackle.

4. Position a second lifting jack under the same chassis' main beam just behind the rear spring shackle.

5. Using both jacks uniformly, lift one side of the home and place a support foundation (using appropriate sized piers and footings as referenced in Chapter 4) next to the front spring shackle.

6. Place a second support foundation within 8 feet of the first or, if necessary, immediately behind the rear spring shackle. On three, four or five axle units where these two support foundations could be further than 8 feet apart, place a third support foundation between axles spaced as evenly as possible between the first two support foundations.

7. Place one additional support foundation towards each end of the chassis' main beam within 2 feet of the extreme end of the home.

8. Lift the opposite side main beam as outlined above and "rough" level by placing support foundations directly opposite those placed on the first side.

9. Complete the "rough" leveling from front to rear and side to side by adjusting the support foundations as required.

10. Evenly space intermediate support piers under the main beams so that the home is supported as required. (See Figure 4.3.)

11. Place additional supports at each side of doors or openings 4 feet wide or wider.

12. Additional support foundations are desirable under chassis' main beams or floor joists

where extra heavy furniture or appliances are located.

13. Make a "final" level adjustment of the home using a standard bubble level or a manometer type level. Work from front to rear and side to side to obtain "final" level conditions throughout the home. Each individual support foundation should be snug and in contact with the home. The home is considered adequately leveled if there is no more than ¼" difference between adjacent pier supports (frame or perimeter) and the exterior doors and windows do not bind and can be properly opereated.

14. The tiedown system must be connected as discussed in Section 5.4 of these instructions, and in accordance with the instructions of the tiedown and anchor manufacturer.

15. In the event of a slight settlement any time after the initial installation, releveling can be accomplished by following the procedures detailed above for "final" leveling.

16. Install all light shades and light fixtures as needed.

17. Connect and test utility systems (electrical, water, drain lines and gas lines, as applicable) as detailed in Chapter 8.

18. Check and adjust the entire home for items which may have become misaligned in transit or during set-up, such as the following:
    a. Adjust passage doors to close easily with proper alignment.
    b. Realign cabinet doors.
    c. Adjust drawers to open and close easily.
    d. Adjust closet doors, aligned and square with walls.
    e. Adjust exterior doors to close easily and be square with frame, and to lock and unlock easily.
    f. Adjust all windows to open and shut easily.
    g. Adjust drapes to operate easily and completely close.
    h. Recaulk over the top of all windows and doors and other seams as necessary.
    i. Retack any loose moldings, panel connections, and trim.
    j. Retighten "p" trap fittings.

19. On some models, it may have been necessary to ship loose appliance vent piping to assure the pipe's safe transportation to the final site. Check all appliances to confirm that all venting is installed per the appliance installation instructions.

20. Install and/or connect all other parts and items shipped loose with the home.

21. Conduct final clean-up operation in the home.

5.2.3 Multiwide Set-up Procedure: Pier Foundation

1. Strip plastic and wood braces from both units (weatherproof covering and temporary supports). Be sure all exposed nails and staples are removed.

2. Position one-half (usually the heaviest half) of the home in its proper final location.

3. "Rough" level this half of your home as outlined in Steps 2 through 12 of the Single Section Set-Up Procedures. (See Figure 4.3 for spacing and location of individual support piers.)

4. Place an additional support foundation under the floor rim joist at each ridge beam column location (See Figures 4.4 and 4.5).

5. Once the first half of the home is in place, a strip of sill-seal insulation should be attached per Figure 5.1 to the marriage joint of the first half. The sill-seal insulation will fill any gaps between the two halves of the home and help prevent air infiltration.

6. Position second unit along side the first unit being careful not to jar the first unit. Approximately six inches or less should separate the floors. Bring the two floors together using jacks or similar devices. Draw the floors together tight (at this stage the ceiling will usually be open at the center).

7. Loosely attach the floors together (See appropriate Figure 5.2 or 5.3). Predrill holes in the floor rim joist and insert the lag screws. Do not fully tighten.

8. Starting with the inside main beam, rough level the second floor as detailed in the Single Section Set-Up Procedure, Steps 2 through 11.

9. Close the gap in the center of the ridge beam halves by raising the outside of the second unit. Connect the top of the ridge beam using one of the methods shown in the appropriate Figure 5.2 or 5.3. It may be necessary to adjust the ceiling joint flush before installing the connections. A jack and tee is used to raise whichever ceiling is low. Start in the front and work through the home to the rear.

10. Tighten the lag screws to securely fasten the floors together.

11. Make a "final" level adjustment of the home using a standard bubble level or a manometer type level. Work from front to rear and side to side to obtain "final" level conditions throughout the home. Each individual support foundation should be snug and in contact with the home. The home is considered adequately leveled if there is no more than ¼" difference between adjacent pier supports (frame or perimeter) and the exterior doors and windows do not bind and can be properly opereated.

12. To finish the roof install two layers of 15# felt along the length of the home's ridge line and tack in place. The felt layers are to be overlapped 4" at each seam, with the top layer seams offset a minimum of 48" from the bottom seams. Install the top courses of shingles on each half with 4 shingle nails, positioned 5 5/8" above the butt and not in or above the self-sealing strip. The nails are to be placed as required by the instructions on the shingle bundle wrapper. Cut the tabs off of the shingles to be used for the ridge cap.

Bend the shingle lengthwise so as to have an equal exposure on each half of the ridge. Begin at either end of the ridge and lay the shingle over the top edge and secure it on each side with a nail located 5 1/2 from the exposed end and 1" up from the edge. Lay the succeeding shingles so as to expose 5".

NOTE: In cold weather, warm the shingles before bending them; field installed shingles and ridge caps must be hand tabbed, using an approved tar and sealer.

13. Connect gas line flex connector (crossover) where applicable. (See Figure 8.10.)

14. Connect electrical crossover as required with the material provided. (See Figure 8.15.)

15. Connect duct crossover. Flexible crossover must be supported so that it does not rest on the ground. (See Figure 5.5.)

16. Connect waste line crossover where applicable.

17. Connect hot and cold water line crossover connectors where applicable.

18. The tiedown system must be connected as discussed in Section 5.3 of these instructions, and in accordance with the instructions of the tiedown and anchor manufacturer.

19. In the event of a slight settlement any time after the initial installation, releveling can be accomplished by following the procedures detailed above for "final" leveling.

20. Install all light shades and light fixtures as needed.

21. After connection of utilities is complete test utility systems (electrical, water, drain lines and gas lines, as applicable) as detailed in Chapter 8.

22. Install the ridge beam molding (or finish) over the center joint in the ceiling.

23. Install carpet, carpet padding and molding where applicable.

24. Check and adjust the entire home for items which may have become misaligned in transit or during set-up, such as the following:
    a. Adjust passage doors to close easily with proper alignment.
    b. Realign cabinet doors.
    c. Adjust drawers to open and close easily.
    d. Adjust closet doors, aligned and square with walls.
    e. Adjust exterior doors to close easily and be square with frame, and to lock and unlock easily.
    f. Adjust all windows to open and shut easily.
    g. Adjust drapes to operate easily and completely close.
    h. Recaulk over the top of all windows and doors and other seams as necessary.
    i. Retack any loose moldings, panel connections, and trim.

j. Retighten "p" trap fittings.

25. On some models, it may have been necessary to ship loose appliance vent piping to assure the pipe's safe transportation to the final site. Check all appliances to confirm that all venting is installed per the appliance installation instructions.

26. Install and/or connect all other parts and items shipped loose with the home.

27. Conduct final clean-up operation in the home.

5.3 Anchorage Against Wind

5.3.1 Anchoring Instructions. After blocking and leveling, the installer must secure the home against the wind. In order for the manufactured home to be secure against high winds, it must be anchored to the ground. The homeowner is cautioned that if the manufactured home is not properly anchored, it is highly susceptible to wind damage when high wind conditions occur. A Wind Zone 2 or 3 home will come equipped with factory installed vertical ties spaced to allow a typical pier height. See appropriate Figure 5.6 or 5.7 (for specific wind zone, roof slope, wall height, etc.) for corresponding pier height. If a higher pier is anticipated, inform the retailer and factory to adjust the spacing accordingly.

5.3.1.1 Number of location of anchors. Select the number and location of straps and anchors from the appropriate chart and diagram of appropriate Figure 5.6 or 5.7. Use only listed and approved ground anchors capable of resisting a minimum ultimate load of 4725 pounds and a working load of 3150 pounds as installed unless reduced capacities are specified by the anchor manufacturer. A reduced capacity of the ground anchor or strap will require a reduced tiedown strap and anchor spacing proportional to that given in the charts. However, ground anchors must not be spaced closer than the minimum spacing permitted by the listing or certification.

5.3.1.2 Installation of anchors. Install the anchors at the locations selected from the appropriate Figure 5.6 or 5.7, following the anchor manufacturer's instructions. Install double-head anchors at all over-the-roof-tie or vertical tie locations. Line up the shaft of each anchor with its strap (see Figure 5.9) or resultant angle between vertical tie and diagonal tie (Figure 5.9.1) or install an approved stabilizer plate. Vertical ties shall be located at all diagonal ties in Wind Zones 2 and 3. Vertical ties shall be located at provided brackets. You may want to consult a registered professional or structural engineer to determine the correct angles for the anchors. See notes in figures regarding stabilizer plate installation when this angle cannot be achieved.

5.3.1.3 Strap Tensioning. If your home is releveled at some date after the initial tensioning of the anchoring straps, the straps should be retensioned as specified in the anchor manufacturer's installation instructions. Straps must be inspected periodically to assure that proper tension is provided in each strap. If straps are found to be loose,

then retensioning of the straps must be performed.

5.3.1.4 Protection At Sharp Corners: Tiedowns and anchors must provide a method to protect sharp corners. See Figure 5.15.1 and 5.15.2.

5.3.2 Optional Over-the-Roof Straps. Optional over-the-roof straps may be used to provide additional stability for single-section homes, above and beyond that from the mandatory frame tie-downs. Straps and anchors should be installed per Figure 5.6.

5.3.3 Severe conditions

5.3.3.1 Freezing Climates. Be sure anchor augers are installed below the frost line. During periods of frost heave, be prepared to adjust tension on the straps to take up slack.

5.3.3.2 Severe wind zones. New Vision Manufacturing does not recommend installing your home in an area known to experience severe winds, or in any zone that requires greater wind-resisting capabilities than those for which it was designed (see data plate).

5.3.3.3 Flood-prone areas. New Vision Manufacturing does not recommend siting manufactured homes in flood-prone areas. Foundation considerations are discussed in section 4.3.1 and the FEMA document referenced in paragraph 4.5.2. Unconventional anchorage and tie-down often are needed in designing and constructing the special elevated foundations that may be required in flood-prone areas. Consult a registered professional or structural engineer.

5.3.3.4 The anchor tables and design does not consider floor or seismic loads and is not intended for use in flood or seismic hazard areas. In those areas the anchorage system is to be designed by a Registered Professional Engineer.

5.4 Installation of on-site attached structures. Design all attached buildings and structures to support all of their own live and dead loads, and to have fire separation as required by state or local ordinances.

5.4.1 Attached garages. Attached garages must be installed according to the manufacturer's instructions and to all applicable local codes. They must be supported independently of the factory-built portion of the home. Electrical circuits in garages should be provided with ground fault interruption. See specific instructions and illustrations included with your home.

5.4.2 Porches. Site-constructed porches must be constructed and inspected according to applicable local building codes.

5.4.3 Steps, stairways and landings. Steps, stairways and landings must be constructed and inspected according to applicable local building codes.

5.5 Skirting. Skirting installed around the home should have nonclosing vents located at or near each corner and as high as possible to cross-ventilate the entire space under the home. Vent free area should be equal to at least one square foot for every 150 square feet of the home's floor area, and this area should be further increased when insect screens, slats, etc. are used over the open vent area. The total area of ventilation may be reduced to 1 square foot for every 1500 square feet of home floor area when a uniform 6-mil polyethylene sheet material or other acceptable vapor retarder is installed. In freezing climates, install skirting so as to accommodate 1-2 inches of frost heave uplift to prevent buckling of floors. Skirting must not be attached in a manner that can cause water to be trapped between the siding and trim or forced up into the wall cavities trim to which it is attached. Skirting also must not be attached in a manner that impedes the contraction and expansion characteristics of the home's exterior covering.

5.5.1 Skirting Access Opening. An access opening in the skirting, not less than 18" in width and 24" in height and not less than 3 square feet in area must be provided and must be located so that any utility connections located below the home are accessible.

5.6 Releveling. Due to varying soil conditions which may exist on your homesite, some initial settling may occur. It is recommended that your home be releveled after 90 days of initial set up and checked periodically.

5.7 Attic Ventilation. The plastic installed on the marriage line walls of your home must be removed to permit cross ventilation of the roof cavity.

5.8 Chassis Alterations. The chassis of your home has been designed to be an integral part of the structure of your home. Therefore, alterations to any chassis component or part is not permitted. Alteration of the chassis in any way will void your warranty and bring the home out of compliance with the HUD Standards.

5.9 Gutters And Downspouts. Homes containing a vertical fascia board of at least 1x4 and a drip edge are suitable for the installation of a standard 4" gutter and downspout system. Verify suitability with the gutter contractor. Be sure to have the contractor locate downspouts so that runoff is directed and drained away from the home.

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NOTE:
AFTER THE FIRST SECTION OF HOME IS IN PLACE, A MARRIAGE WALL GASKET IS BE INSTALLED PER THE DETAIL BELOW. THIS MARRIAGE WALL GASKET WILL FILL ANY GAPS BETWEEN THE TWO SECTIONS OF THE HOME AND ASSIST IN PREVENTING AIR INFILTRATION AND HEAT LOSS OR GAIN. SUPPLIED BY MANUFACTURER.

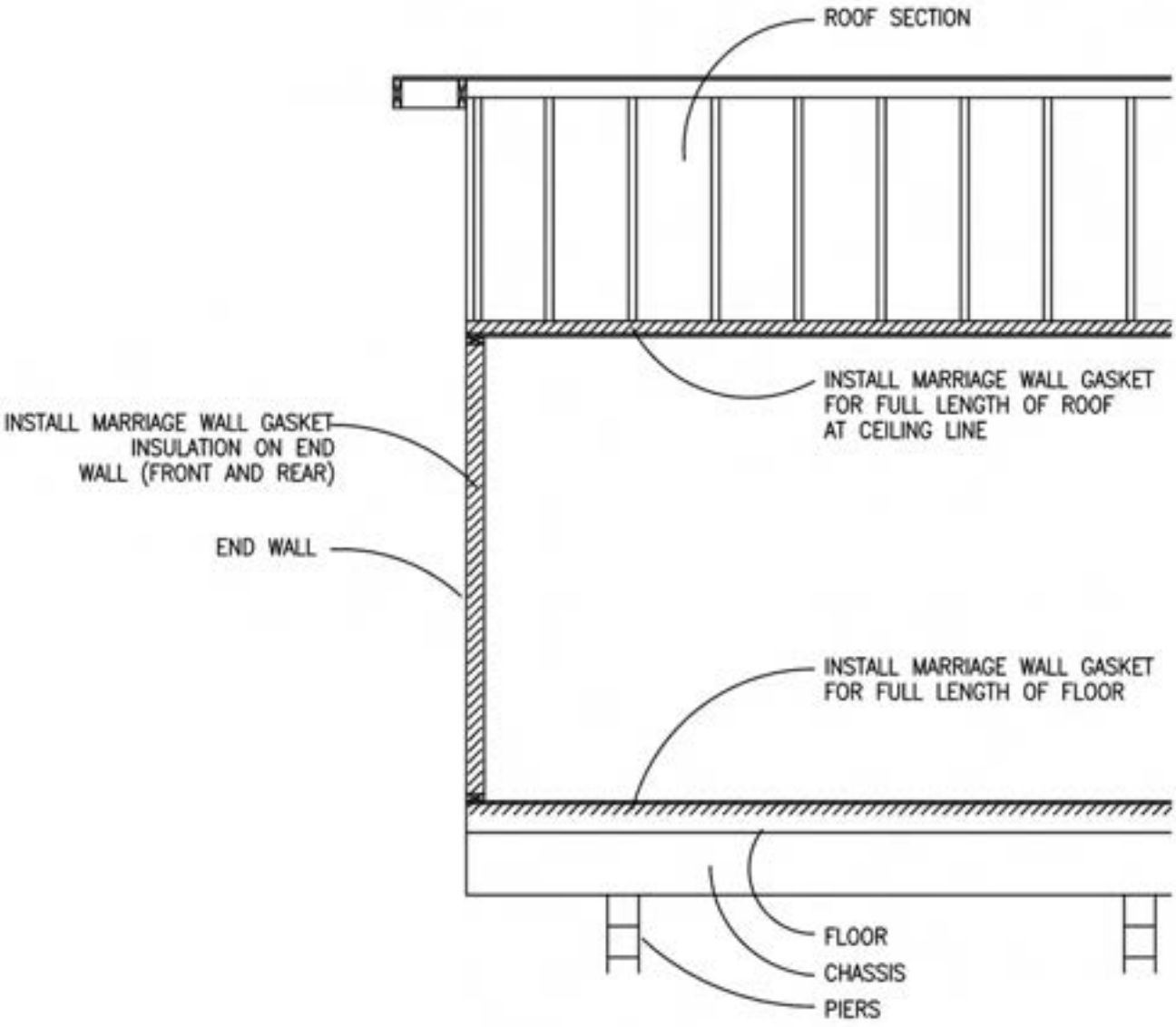

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FIGURE 5.1
MARRIAGE LINE INFILTRATION BARRIER

FIGURE 5.2
ON-SITE CONNECTION DETAILS
WIND ZONE I

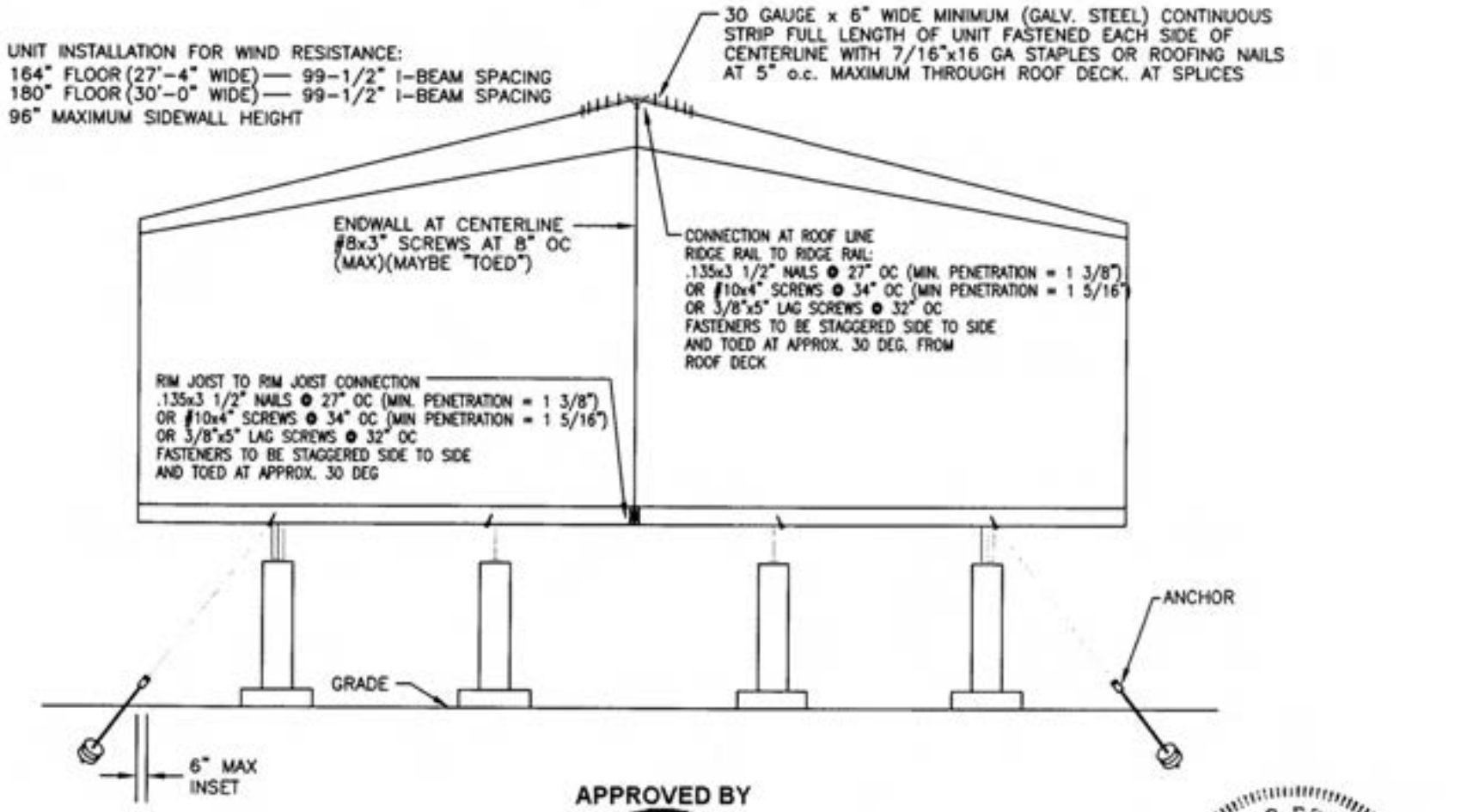

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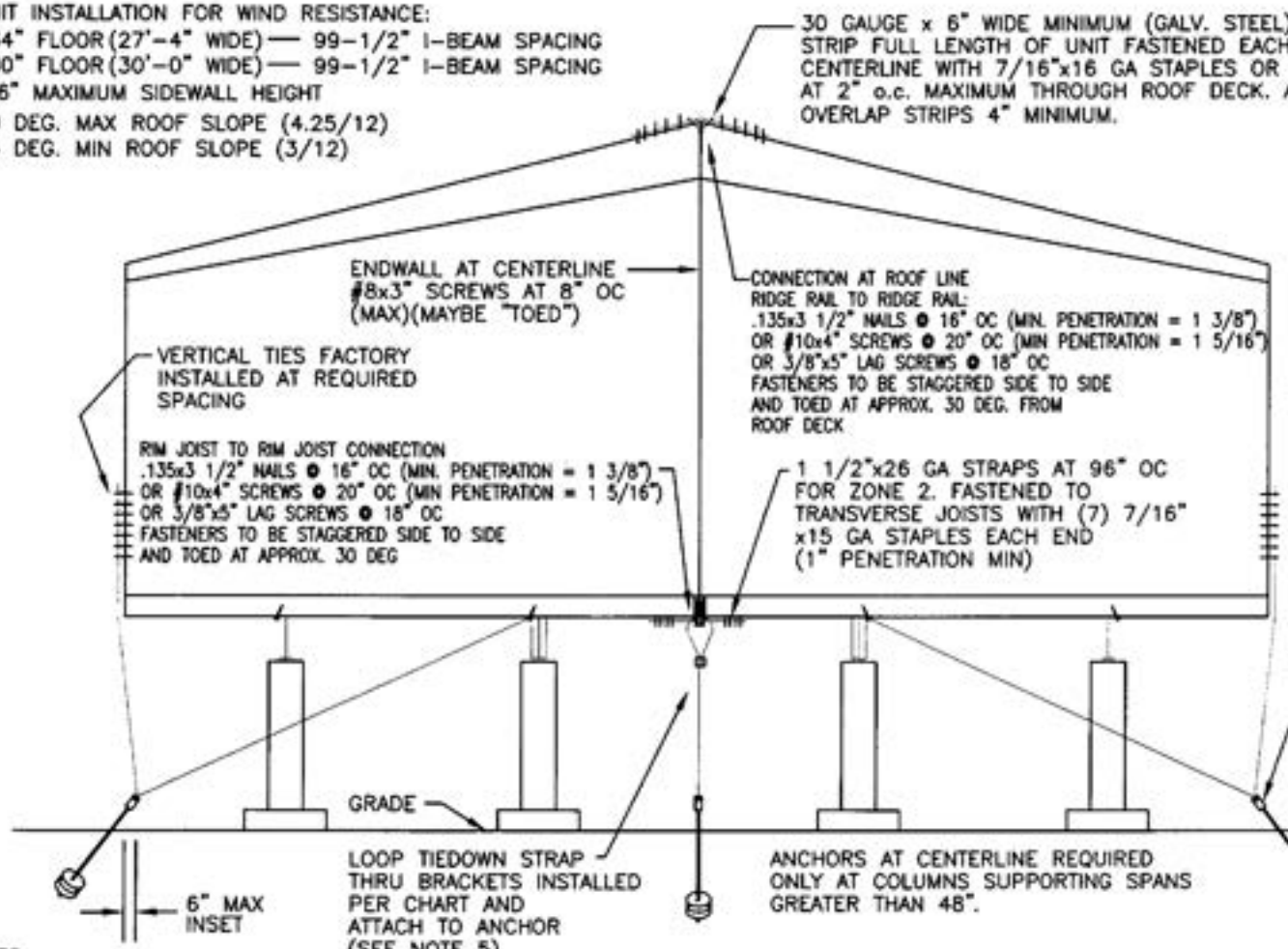
FIGURE 5.3
ON-SITE CONNECTION DETAILS - WIND ZONE II

UNIT INSTALLATION FOR WIND RESISTANCE:
164" FLOOR (27'-4" WIDE) — 99-1/2" I-BEAM SPACING
180" FLOOR (30'-0" WIDE) — 99-1/2" I-BEAM SPACING
96" MAXIMUM SIDEWALL HEIGHT
20 DEG. MAX ROOF SLOPE (4.25/12)
14 DEG. MIN ROOF SLOPE (3/12)



GENERAL NOTES (CONTINUED)

7. * REFER TO TABLES: TIEDOWN SYSTEMS
8. FOR 28 WIDE HOMES: FOR WIND ZONE II, MAX. SPAN FOR (1) BRACKET = 24'-3" AND FOR (2) BRACKETS = 48'-6" FOR 30 WIDE HOMES: FOR WIND ZONE II, MAX. SPAN FOR (1) BRACKET = 22'-0" AND FOR (2) BRACKETS = 44'-2"

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NOTES:
1. ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 3150# (4725# ULTIMATE).
2. DOUBLE HEADED ANCHORS TO BE RATED AT * FOR THE COMBINED LOAD AND MUST BE INSTALLED WITH STABLILIZER PLATES. (ULTIMATE LOAD = 1.5 TIMES THE VALUE SPECIFIED IN TABLE)*
3. DIAGONAL TIES TO BE INSTALLED FROM INSIDE I-BEAM AT SAME LOCATIONS AS VERTICAL TIES. * REFER TO TABLES (FIGURE 1.0) STARTING AT 24" FROM EACH END (MAX OPEN END SPACING).
4. MARRIAGE WALL ANCHORS MAYBE SINGLE HEAD WITH A 3150# MIN CAPACITY (4725# ULTIMATE).
5. BRACKETS ARE 1 1/2"x1 1/2"x11 GA (MIN) STEEL ANGLE WITH TWO (2) 7/16" DIAMETER HOLES 3/4" MINIMUM FROM EACH END AND 2" TO 3" IN BETWEEN HOLE CENTERS (BRACKET MUST BE SHIPPED WITH HOME). BRACKET IS LAGGED TO THE CENTERLINE JOIST W/ (2) 5/16"x3" MIN LAGS. SEE NOTE #8 FOR ALLOWABLE SPANS.
6. THE EXTERIOR WALL SURROUNDING ALL DOORS AND WINDOWS HAS BEEN DESIGNED TO ALLOW INSTALLATION OF PROTECTIVE COVERS, WHICH ARE TO BE INSTALLED IN ACCORDANCE WITH THE AMERICAN PLYWOOD ASSOCIATION'S "HURRICANE SHUTTER DESIGN" PUBLICATION ENTITLED "SHUTTERS FOR WOOD FRAME BUILDINGS". THIS PUBLICATION IS AVAILABLE THROUGH THE A.P.A., P.O. BOX 11700, TACOMA, WA 98411-0700 OR FROM THE MANUFACTURER OF YOUR HOME. UPON REMOVAL OF THE SHUTTERS, THE HOLES IN THE EXTERIOR SIDING MUST BE IMMEDIATELY SEALED IN ACCORDANCE WITH THE SIDING MANUFACTURER'S INSTRUCTIONS.

I-133.1

Ref:CA-1.20

NOTE:
IF A REMOTE AIR CONDITIONER IS INSTALLED, DAMPERS MUST BE PROVIDED PER SECTION 3280.709(e)(7) OF THE FEDERAL STANDARDS FOR MANUFACTURED HOUSING

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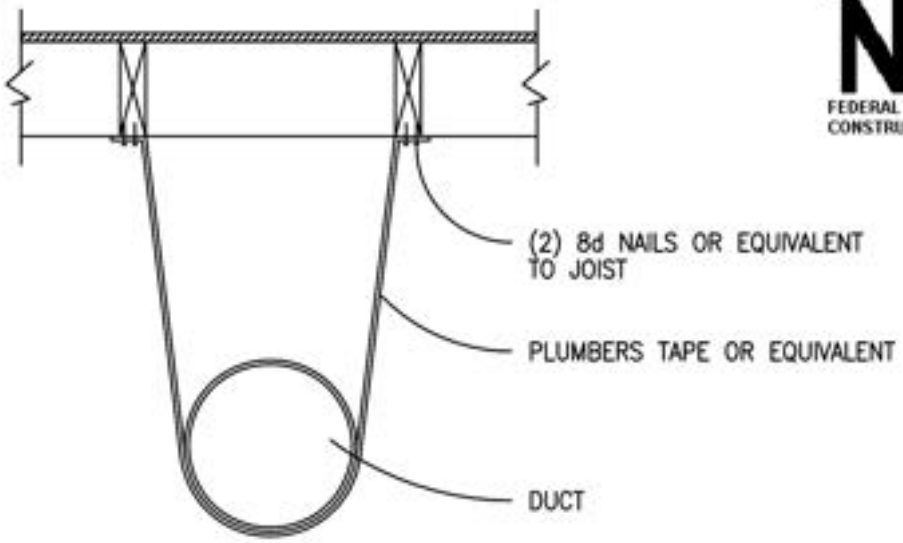
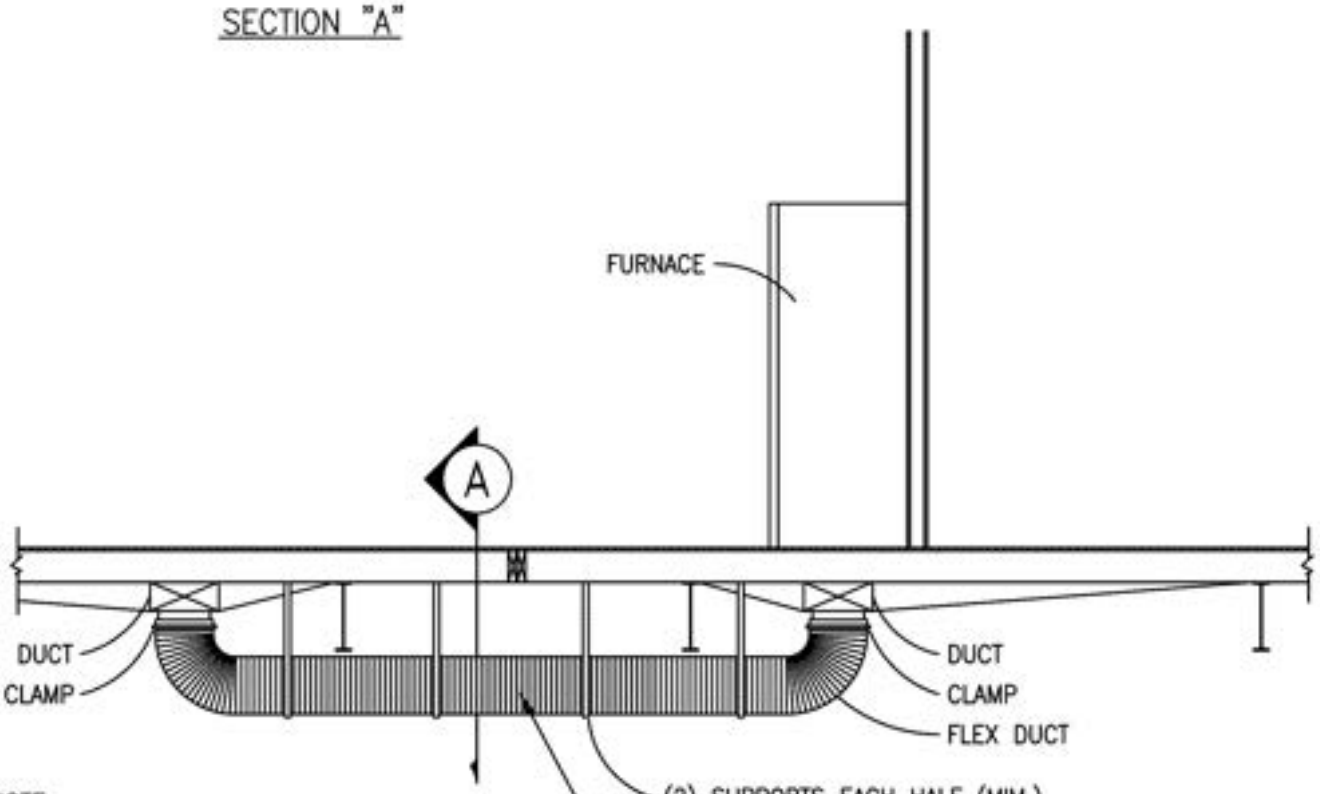


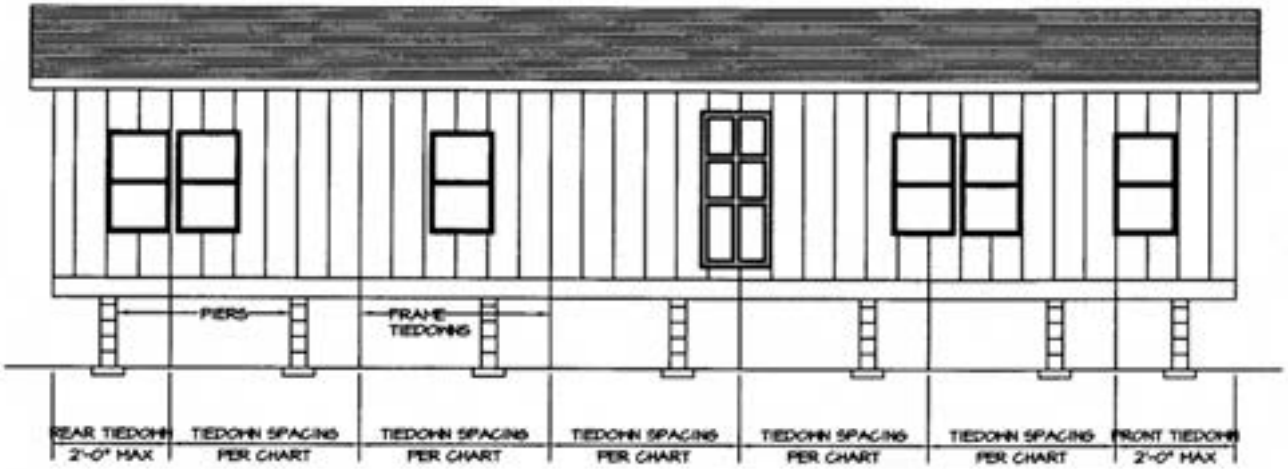
SECTION "A"



NOTE:
1. DUCT WORK, INCLUDING DUCT COLLARS, SHALL BE SEALED TO PREVENT AIR LEAKAGE.
2. TAPES AND MASTIC CLOSURE SYSTEMS SHALL BE LISTED IN ACCORDANCE WITH UL STANDARD 181A FOR RIGID FIBERGLAS AIR DUCTS AND AIR CONNECTORS AND UL STANDARD 181B FOR FLEXIBLE AIR DUCTS AND AIR CONNECTORS.
3. DUCTS MUST BE DIRECTLY UNDER THE FURNACE.
4. DUCT MUST BE OFF OF THE GROUND.

FIGURE 5.5
CROSSOVER DUCT INSTALLATION

FIGURE 5.6
RECOMMENDED TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS. HOWEVER, IF OVER-THE-ROOF TIEDOWNS ARE REQUIRED BY THE LOCAL JURISDICTION, THEY MAY BE INSTALLED.
3. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING
5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY NEW VISION MANUFACTURING. 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 PER SIDE.
8. RESERVED.
9. DESIGN BASED ON 99 1/2" BEAM SPACING 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.
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 D3953-97, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
14. STRAPPING TO BY TYPE I, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

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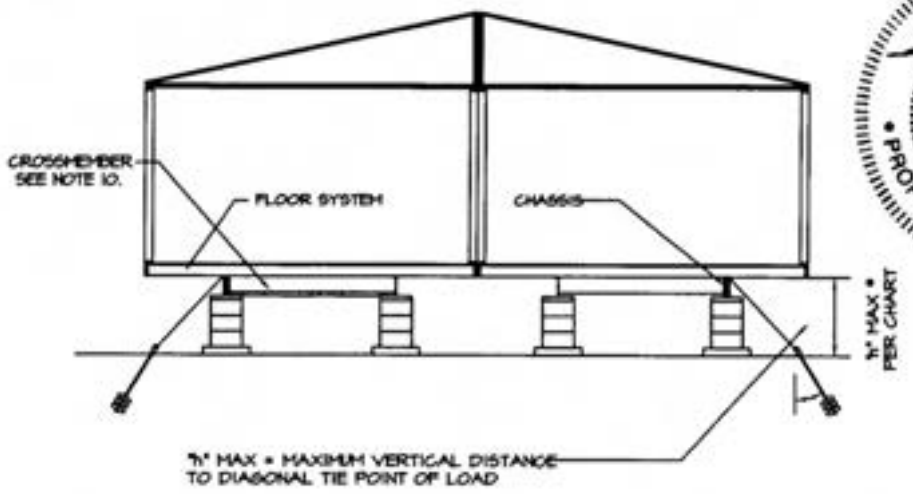


TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

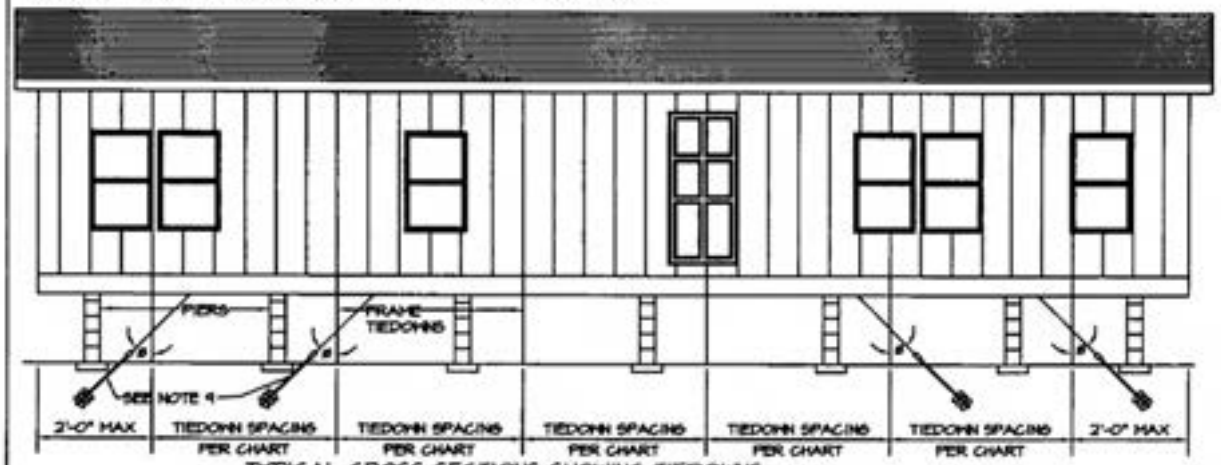
ROOF SLOPES OF A MAXIMUM OF 20 DEGREES

FRAME TIEDOWN SPACING CHART			
FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX * PIER HEIGHT
21'-4" DOUBLE	6" MAX	10'-0"	33"
		8'-0"	46"
30'-0" DOUBLE	6" MAX	10'-0"	43"
		8'-0"	60"

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

FIGURE 5.7
TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. VERTICAL TIES ARE REQUIRED IN ADDITION TO FRAME TIEDOWNS.
3. VERTICAL TIES MAYBE SECURED TO THE SAME GROUND ANCHOR AS THE FRAME TIEDOWNS WHEN DOUBLE HEADED ANCHOR IS CAPABLE OF RESISTING COMBINED LOADING. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
5. VERTICAL TIE STRAPS ARE SUPPLIED BY NEW VISION MANUF. ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725# & 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 PER SIDE.
8. DESIGN BASED ON 99-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 8'-0".
9. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, AND 7.
10. FRAME TIEDOWNS ARE POSITIONED AT CROSSMEMBER LOCATIONS (WITHIN 3") WHEN STRAP COMES OFF BOTTOM FLANGE OF BEAM WITH APPROVED BUCKLE OR LOOP.
11. 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.
12. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND
13. GROUND ANCHORS SHALL BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
14. 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 D3953-97, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
15. GROUND ANCHORS TO BE RATED FOR LOAD TABULATED IN CHARTS TIMES 1.5 SAFETY FACTOR OR ULTIMATE LOAD OF 4725# WHICHEVER IS GREATER.
16. STRAPPING TO BE TYPE I, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

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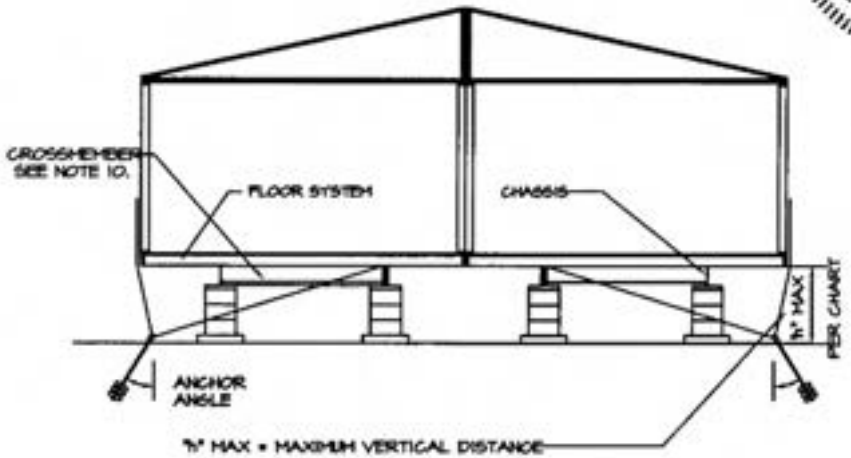
TYPICAL CROSS SECTION SHOWING TIEDOWNS



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20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)

FLOOR WIDTH	EAVE OVERHANG	WIND ZONE 2		
		SPACING	"h" MAX	ANCHOR ANGLE
164" MAX DOUBLE	6" MAX	8'-0"	28"	45-55
		6'-8"	84"	40-45
160" MAX DOUBLE	6" MAX	8'-0"	28"	45-55
		6'-8"	84"	40-45

LONGITUDINAL TIEDOWN QUANTITY CHART

FLOOR WIDTH	QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE Ø
164" MAX DOUBLE	3	54-60
160" MAX DOUBLE	3	56-60

I-135.1

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

Ref:CA-1.19

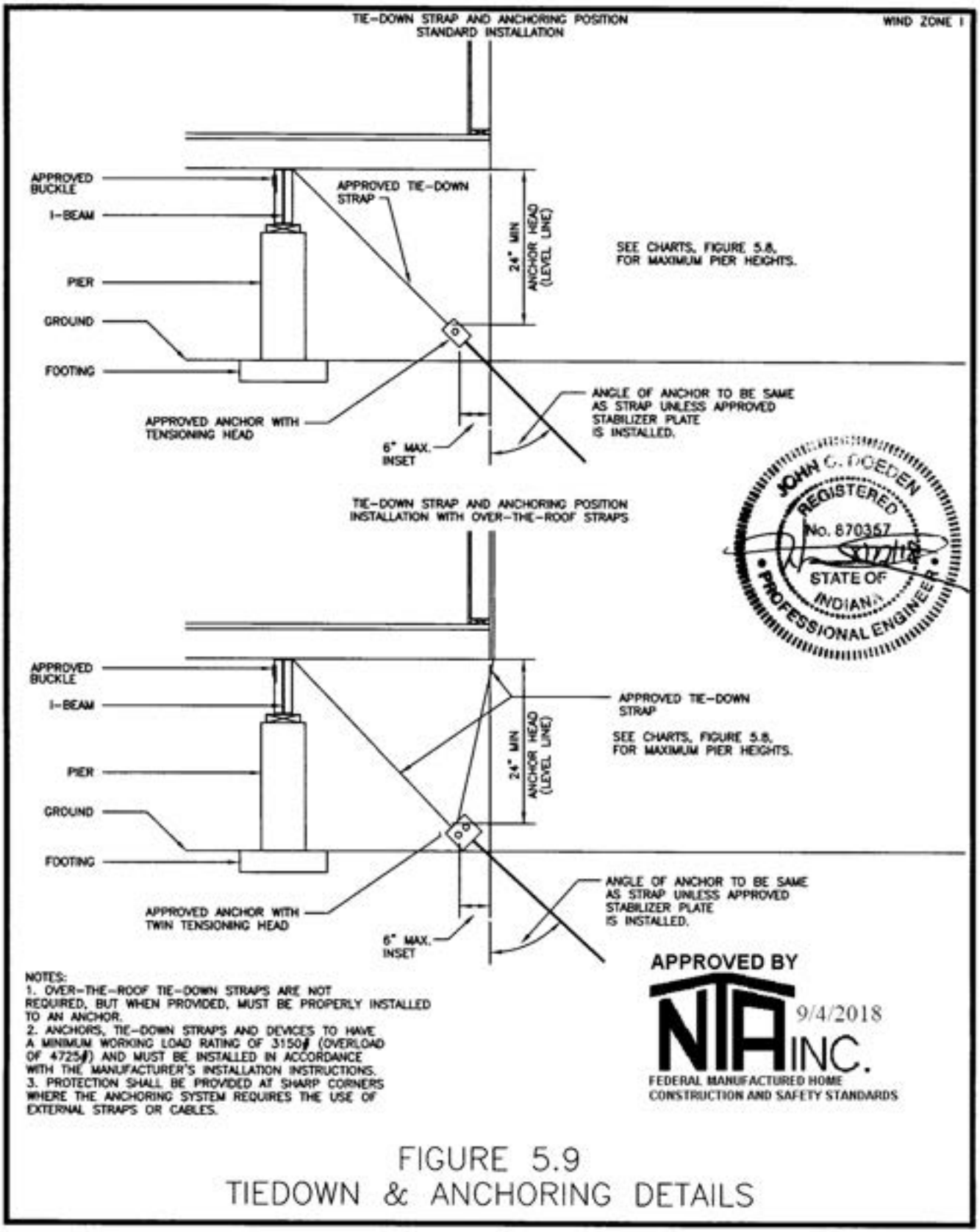
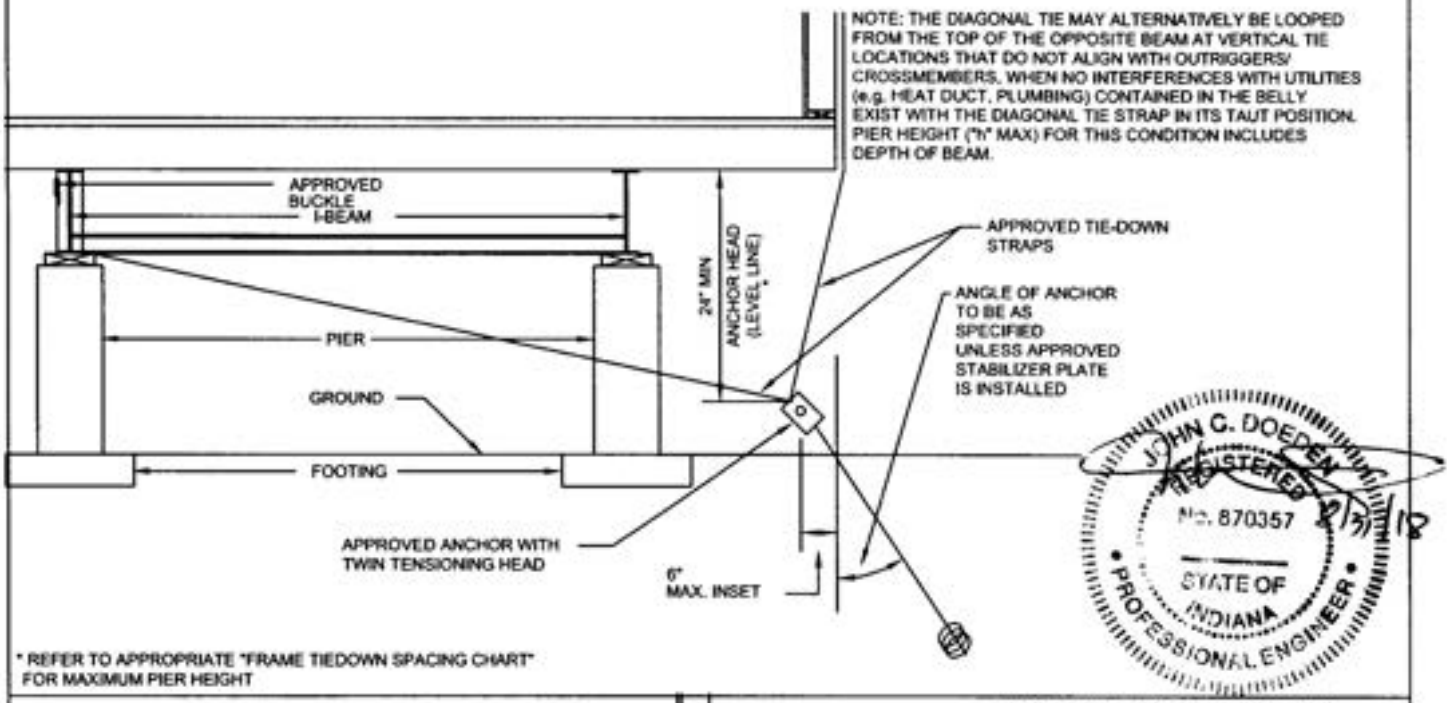


FIGURE 5.9
TIEDOWN & ANCHORING DETAILS

TIE-DOWN STRAP AND ANCHORING POSITION
INSTALLATION WITH VERTICAL TIES
(DIAGONAL POSITION AT INSIDE I-BEAM)

WIND ZONE II (100 MPH)



* REFER TO APPROPRIATE "FRAME TIEDOWN SPACING CHART" FOR MAXIMUM PIER HEIGHT

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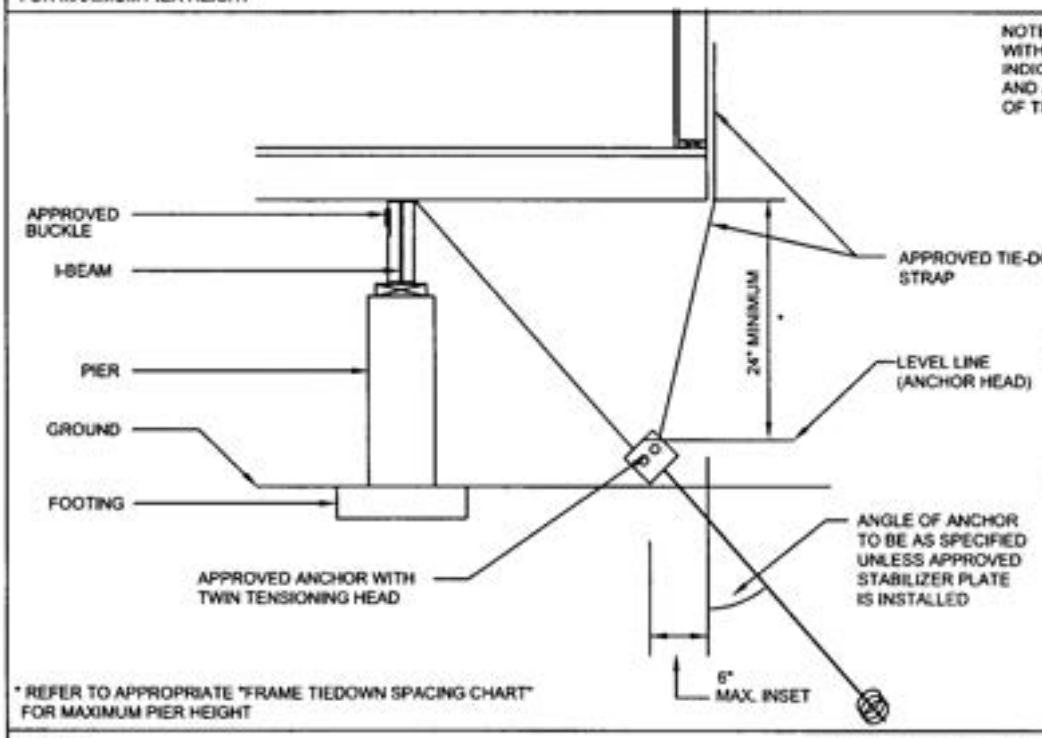

* REFER TO APPROPRIATE "FRAME TIEDOWN SPACING CHART" FOR MAXIMUM PIER HEIGHT

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NOTES:
1. VERTICAL TIEDOWN STRAPS ARE REQUIRED AND ARE INSTALLED BY THE HOME MANUFACTURER
2. TIE-DOWN STRAPS AND DEVICES TO HAVE A MINIMUM WORKING LOAD RATING OF 3150# (OVERLOAD OF 4725#) AND MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. PROTECTION SHALL BE PROVIDED AT SHARP CORNERS WHERE THE ANCHORING SYSTEM REQUIRES THE USE OF EXTERNAL STRAPS OR CABLES.
4. ANCHORS MUST ALSO MEET TABULATED VALUES IN IN THE "RECOMMENDED TIEDOWN SYSTEM" DRAWINGS

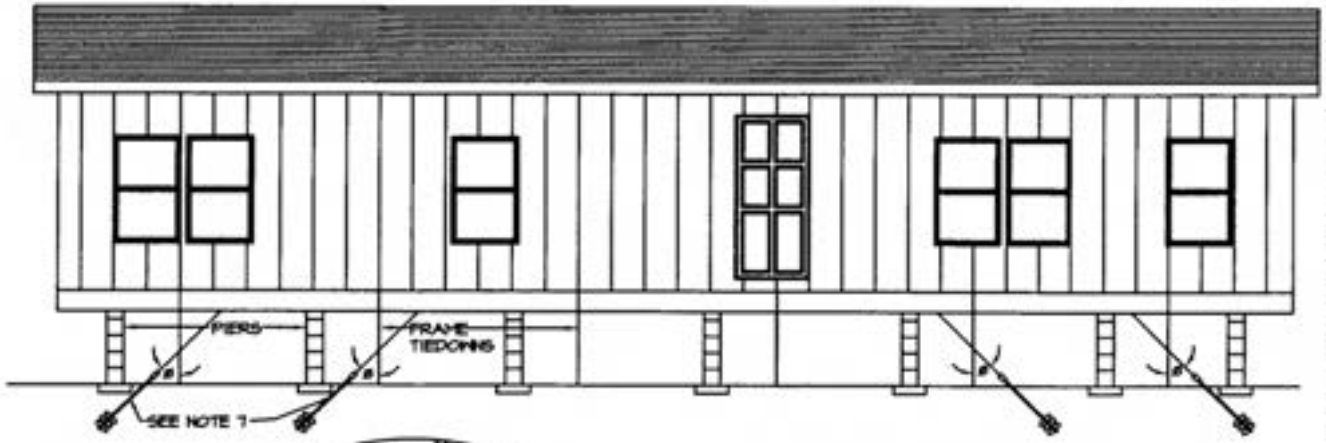
NOTE: WHEN INTERFERENCES, SUCH AS DOOR OPENINGS, PREVENT INSTALLATION OF DIAGONAL TIES AT THE MAXIMUM SPACING TABULATED IN THE APPROPRIATE CHART, THE VERTICAL TIE MAY BE LOOPED THROUGH A 1-1/2"x11 GA STEEL ANGLE BRACKET INSTALLED ON THE BOTTOM OF THE RIM JOIST (AT THE INTERFERENCE AND CROSSMEMBER LOCATION, WHERE APPLICABLE) WITH TWO 5/16"x3" MINIMUM LAG SCREWS. A CRIMP SEAL OR OTHER APPROVED METHOD HAVING THE APPROPRIATE LOAD RATING MUST BE USED.

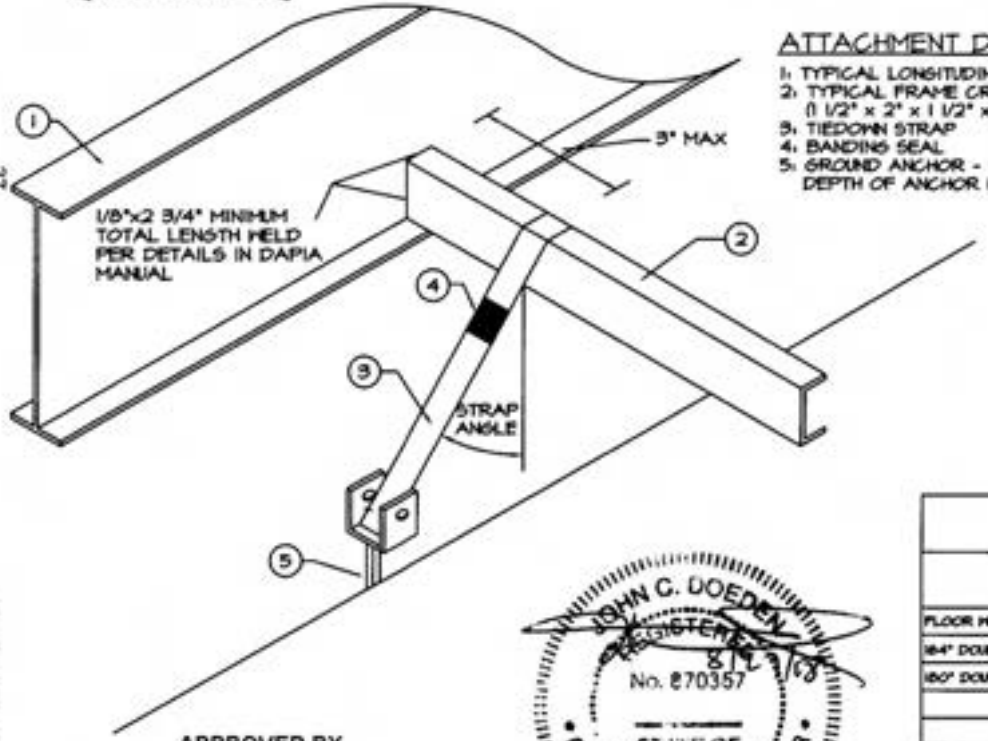
FIGURE 5.9.1
TIEDOWN & ANCHORING DETAILS

I-136.1

FIGURE 5.10
WIND ZONE I (15 PSF LATERAL)
RECOMMENDED TIEDOWN SYSTEM
LONGITUDINAL TIEDOWN REQUIREMENTS

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS





ATTACHMENT DETAIL

1. TYPICAL LONGITUDINAL I-BEAM
2. TYPICAL FRAME CROSSMEMBER (1 1/2" x 2" x 1 1/2" x 13 GA MINIMUM)
3. TIEDOWN STRAP
4. BANDING SEAL
5. GROUND ANCHOR - INSTALLED TO FULL DEPTH OF ANCHOR HEAD

NOTES:

1. SEE OTHER DRAWINGS FOR FRAME TIEDOWN REQUIREMENTS. THIS DETAIL IS FOR LONGITUDINAL TIEDOWN DESIGN ONLY.
2. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
3. LONGITUDINAL TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
4. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725# & ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
5. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
6. DESIGN BASED ON A MAXIMUM SIDEWALL HEIGHT OF 8'-0".
7. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 3, 4, 5, 13 AND 14.
8. 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.
9. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND
10. GROUND ANCHORS SHALL BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
11. ANCHORING EQUIPMENT SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM D3953-97, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
12. STRAPPING TO BE TYPE I, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
13. SELECT A CROSSMEMBER WHERE PIERS DO NOT INTERFERE WITH THE REQUIRED ANGLE OF THE STRAP. INSTALL THE STRAP JUST INSIDE THE MAIN BEAMS LOOPED AROUND THE CROSSMEMBER AND TIE TO AN ANCHOR LOCATED DIRECTLY UNDER THE MAIN BEAM AT THE ANGLE SPECIFIED IN THE CHART BELOW (SEE DETAIL).
14. WHEN THIS ANCHOR ANGLE IS NOT ATTAINABLE INSTALL ANCHOR PER MANUFACTURER'S INSTRUCTIONS WITH AN APPROVED STABILIZING PLATE.
15. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAM AT CROSSMEMBERS AT EACH END AND CANNOT BE DOUBLED.

ROOF SLOPE NOT EXCEEDING 20 DEGREES DOUBLE WIDE UNITS (ALTERNATE WITH BLOCK PIERS*)				ROOF SLOPE NOT EXCEEDING 20 DEGREES NO RESTRICTION AS TO PIER TYPE OR HEIGHT (EXCEPT AS LIMITED BY OTHER DETAILS)		
	MINIMUM UNIT LENGTH		NUMBER OF LONGITUDINAL TIES (TOTAL EACH END) FOR BOTH SECTIONS			
FLOOR WIDTH	SINGLE STACK	DOUBLE STACK		FLOOR WIDTH	MINIMUM QUANTITY EACH END OF EACH SECTION	STRAP ANGLE (DEGREES)
164" DOUBLE WIDE	46'-0"	46'-0"	2	164" DOUBLE WIDE*	2	30-60
180" DOUBLE WIDE	56'-0"	56'-0"	2	180" DOUBLE WIDE	2	30-60

* FOR USE IN ABOVE TABLE:
SINGLE STACK BLOCK PIERS = 36" MAXIMUM HEIGHT
DOUBLE STACK BLOCK PIERS = 60" MAXIMUM HEIGHT
MINIMUM ANGLE OF STRAP = 40 DEGREES.

*MAY REDUCE LONGITUDINAL TIE PER HALF WITH PIER RESTRICTIONS PER CHART TO LEFT

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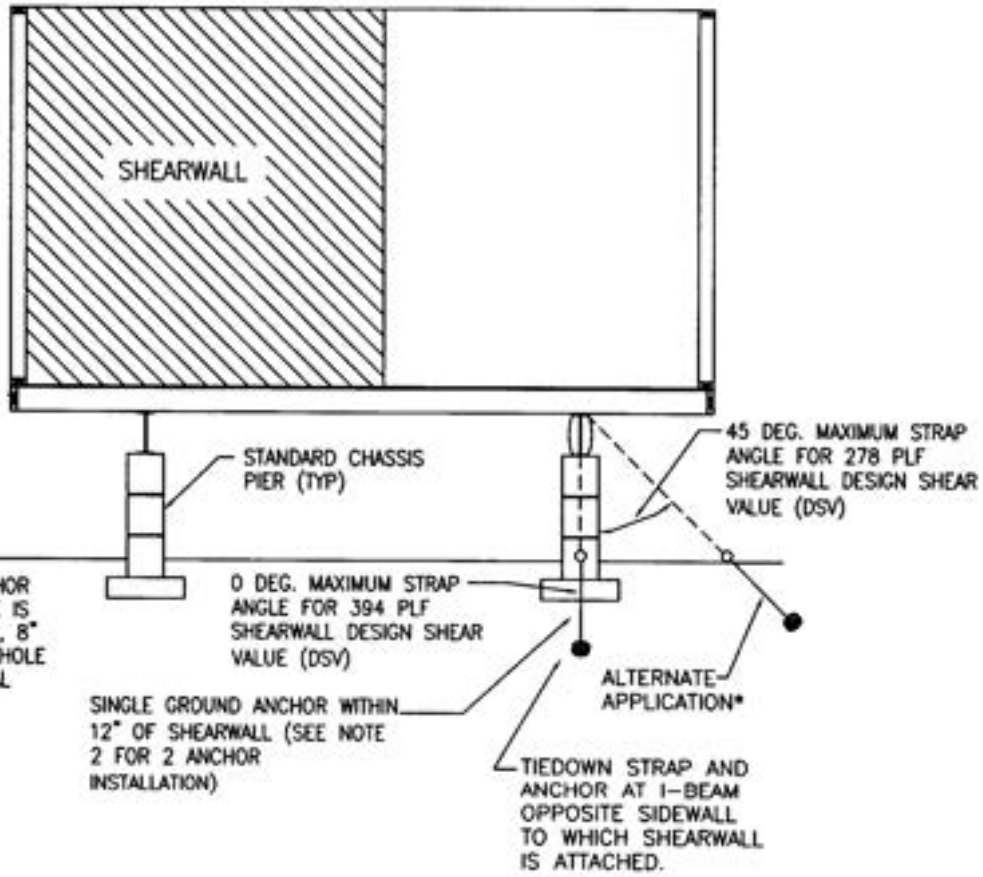
Ref: CA-1.18



NOTES:
1. SHEARWALL LOCATIONS ARE IDENTIFIED BY FACTORY INSTALLED TAGS OR PAINT AND SHIP LOOSE FLOOR PLANS. REFER TO FLOOR PLAN FOR THE DSV OF THE SHEARWALL AT SHEARWALL ANCHOR LOCATIONS TO DETERMINE MAXIMUM STRAP ANGLE.
2. THE MAX. PLF VALUES MAY BE MULTIPLIED BY 2 WHEN TWO ANCHORS ARE INSTALLED. WHEN TWO ANCHORS AND STRAPS ARE REQUIRED INSTALL ONE EACH SIDE OF SHEARWALL LOCATION 2'-0" MINIMUM AND 3'-0" MAXIMUM FROM SHEARWALL CENTERLINE3.
3. FOR SINGLE WIDE ZONE 1, 2 AND 3 UNITS THE END SHEARWALL TIEDOWN STRAP SHOWN ON THIS DETAIL AT THE I-BEAM MAY BE OMITTED AT A FULL DEPTH CROSSMEMBER LOCATION.

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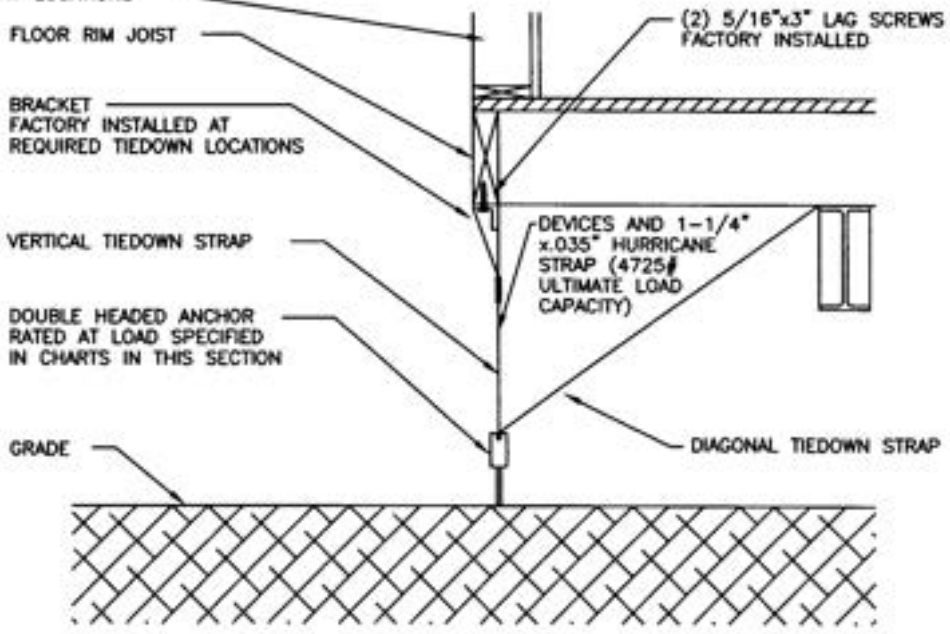
FIGURE 5.12
TYPICAL SHEARWALL TIEDOWN INSTALLATION
ALL WIND ZONES

SIDEWALL AT TYPICAL DOOR
OR RECESSED ENTRY LOCATIONS



END VIEW

SEE OTHER DRAWNGS FOR INFORMATION
REGARDING ANCHOR AND STRAP
SPECIFICATIONS AND INSTALLATION

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FIGURE 5.13
VERTICAL TIEDOWN BRACKET
ALTERNATE INSTALLATION
(AT LOCATIONS WHERE STUD IS NOT AVAILABLE FOR VERTICAL TIE)

I-138.1

Ref:CA-1.20

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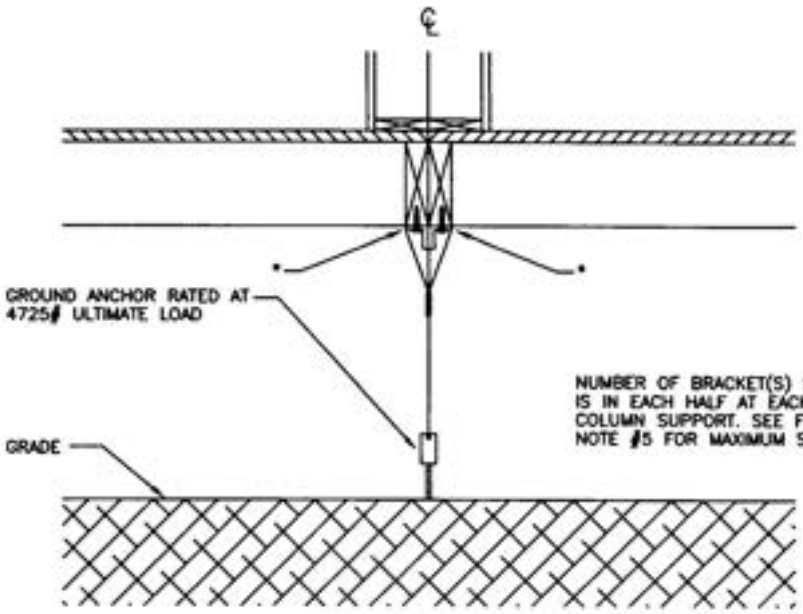
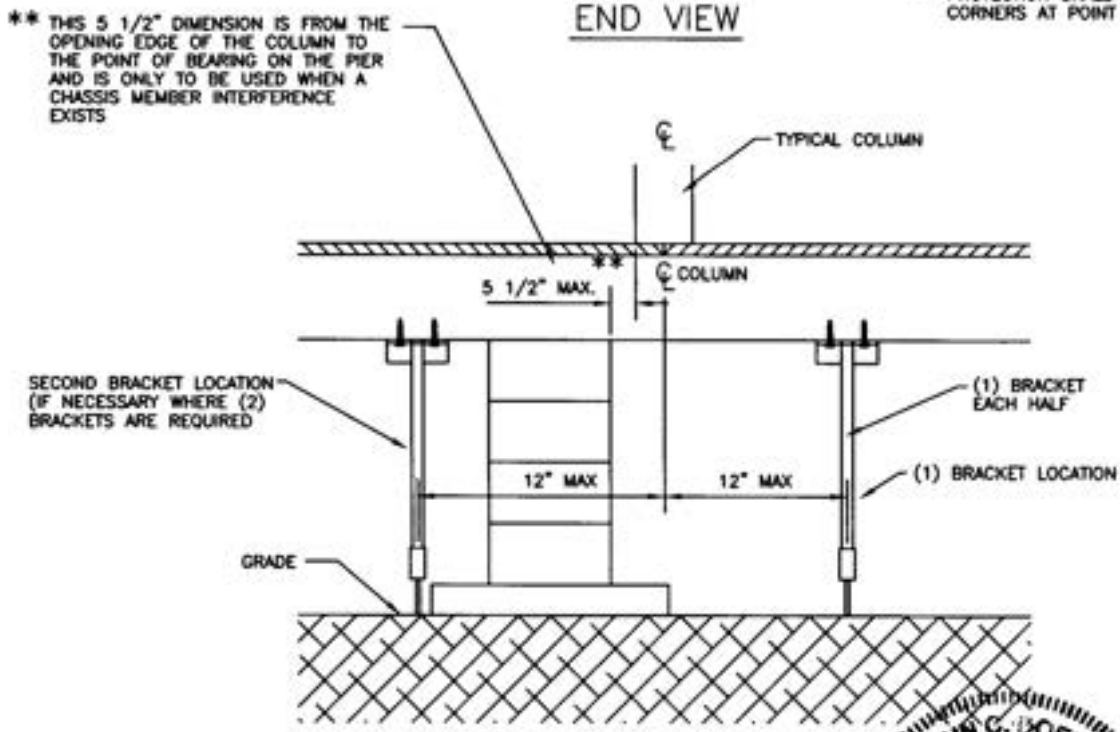


END VIEW

* PROTECTION SHALL BE PROVIDED AT SHARP CORNERS AT POINT OF LOAD ON STRAP



SIDE VIEW

NOTE:
POSITIONING OF ANCHORS FROM EACH OTHER TO BE PER ANCHOR INSTALLATION INSTRUCTIONS.

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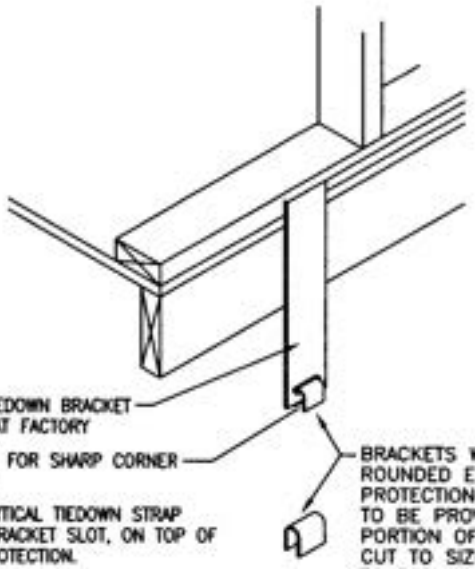
FIGURE 5.14
BRACKETS AT RIDGEBEAM COLUMN

SUPPLEMENTAL DETAIL TO FIGURE 5.3
ON-SITE CONNECTION DETAILS

I-138.2

Ref:CA-1.20

STRAPPING TO BY TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".



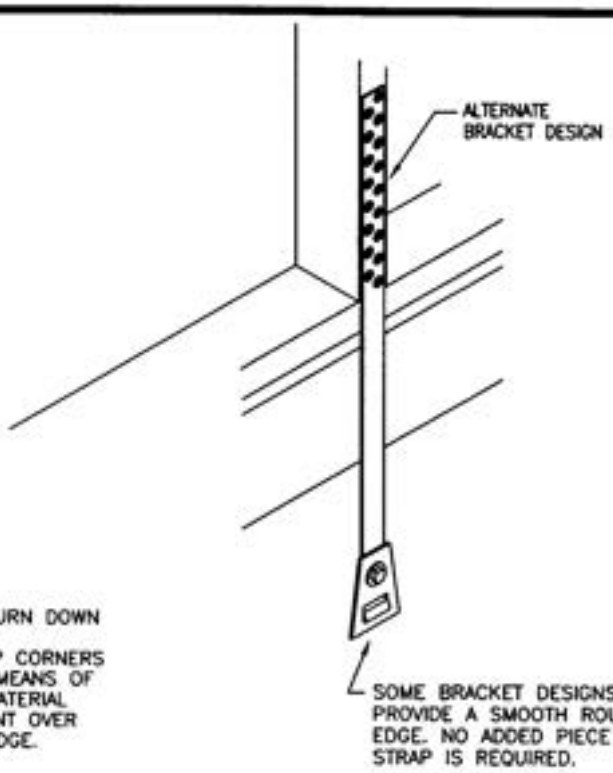


FIGURE 5.15.1
INSTALLATION INSTRUCTIONS
ANCHOR STRAP PROTECTION

PROTECTION OF ANCHORING STRAPS MUST BE PROVIDED AT SHARP CORNERS, SUCH AS WHERE STRAP IS BENT AROUND STEEL BEAMS. PROTECTION IS TO BE PROVIDED BY MEANS OF A PIECE OF ANCHOR STRAP MATERIAL PLACED BETWEEN BEAM AND STRAP AT THE SHARP CORNER.

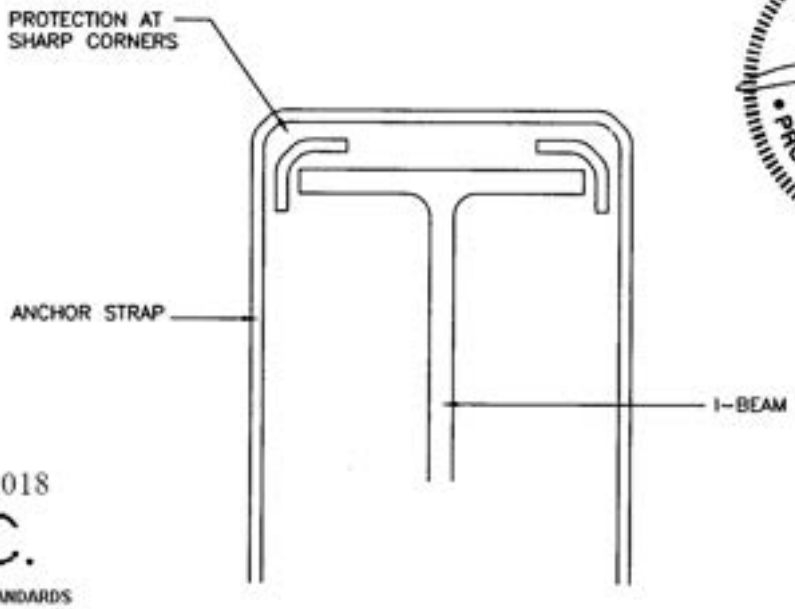


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FIGURE 5.15.2
INSTALLATION INSTRUCTIONS
ANCHOR STRAP PROTECTION

FIGURE 5.16
HIGH WIND PROTECTION FOR WINDOWS AND DOORS

The protective covers described below are intended for installation immediately prior to a severe wind storm or hurricane and are not to be permanently installed.
The parts necessary for the assembly have not been provided.

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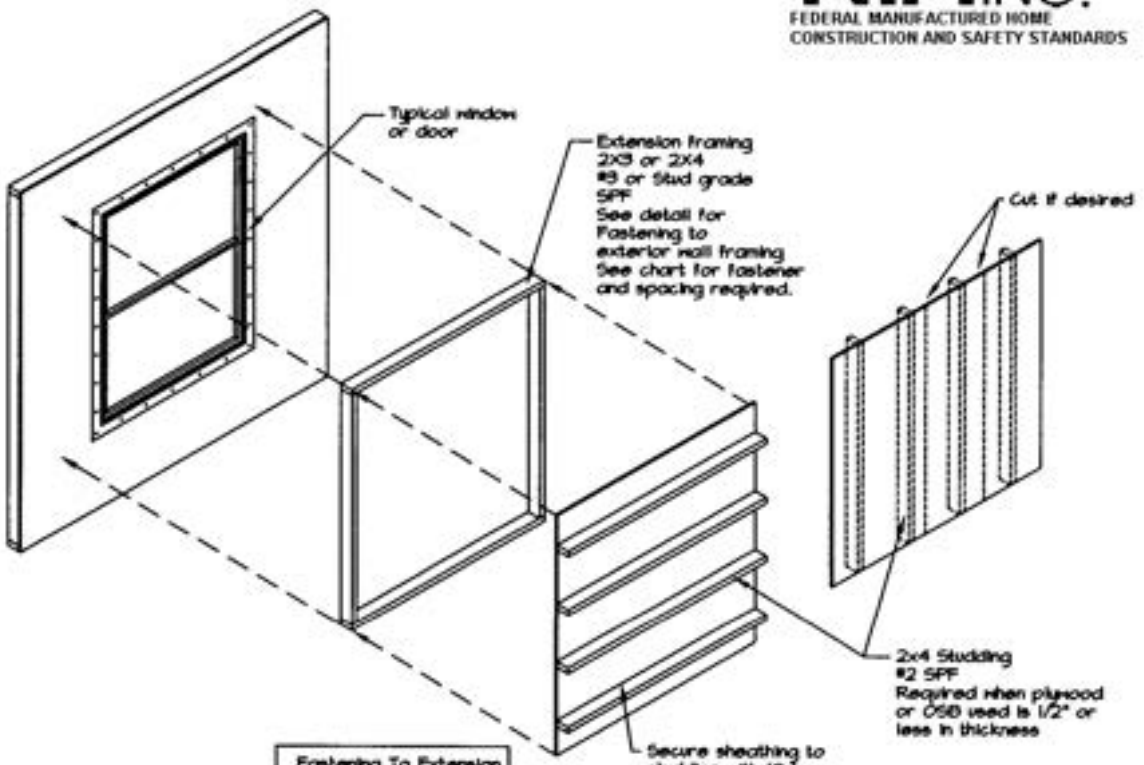
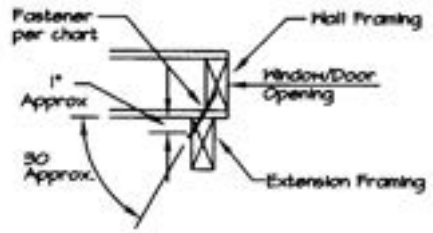


Window Width	Extension Framing	Sheathing Thickness	Fastening To Extension: Wind Zones II and III — Nails	Fastening To Extension: Wind Zones II and III — Spacing
Up To 48"	2x3*	7/16", 1/2"	12d	6" o.c.
	2x3	23/32", 3/4"	12d	6" o.c.
Up To 72"	2x3*	7/16", 1/2"	12d	4" o.c.

Window Width	Fastening To Wall Framing: Wind Zone II — 16d Nails: Interior Zone	16d Nails: End Zone	#8X3" Screws: Interior Zone	#8X3" Screws: End Zone	Wind Zone III — 16d Nails: Interior Zone	16d Nails: End Zone	#8X3" Screws: Interior Zone	#8X3" Screws: End Zone
14 1/2"	24" oc	20" oc	24" oc	24" oc	20" oc	16" oc	24" oc	24" oc
24 1/2"	15" oc	12" oc	24" oc	24" oc	12" oc	10" oc	24" oc	24" oc
30 1/2"	12" oc	9" oc	24" oc	24" oc	10" oc	8" oc	24" oc	24" oc
36 1/2"	10" oc	8" oc	24" oc	24" oc	8" oc	6" oc	24" oc	21" oc
46 1/2"	8" oc	6" oc	24" oc	20" oc	7" oc	5" oc	20" oc	16" oc
72 1/2"	5" o.c.	4" oc	16" oc	13" oc	4" o.c.	3" oc	13" oc	10" oc

* 2X3 Perimeter extension with 2X4 studding at 16" o.c. (See note #6)



Extension Framing To Wall Framing Detail

8/13/18
John C. Doeden, PE

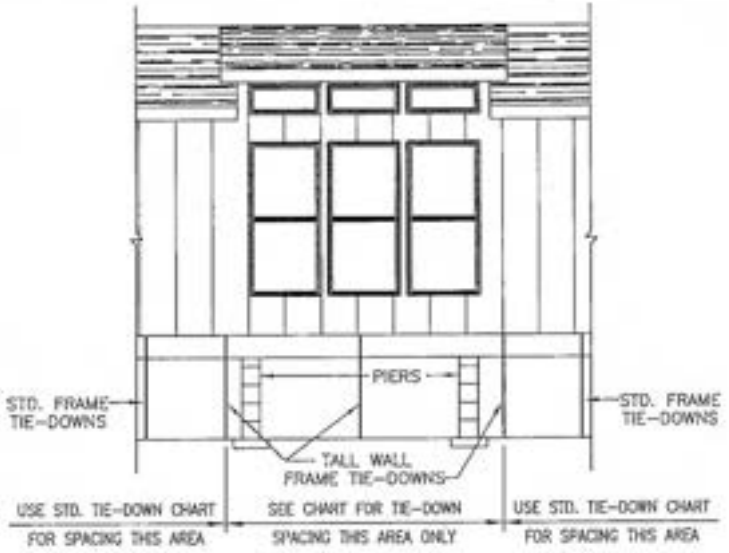
Notes:
1. The fasteners used to fasten extension framing to wall must hit the framing to be effective.
2. Fasten extension framing to wall with 16d double headed nails or #8x3" screws toe nailed/screwed, per the chart above.
3. Fasten assembled panel(s) to extension frmaing with 12d nails per chart above.
4. Fasten extension framing together with (2) 16d nails at each connection.
5. Use on "common" nails.
6. Design is based on American Plywood Association design considerations. Should you need additional information, you may obtain the APA publication:
Hurrican Shutter Design - Shutters For Wood Frame Buildings"
American Plywood Association
P.O. Box 11700
Tacoma, WA 98411-0700
7. After the storm, remove shutters and patch or caulk nail holes with a suitable caulk.

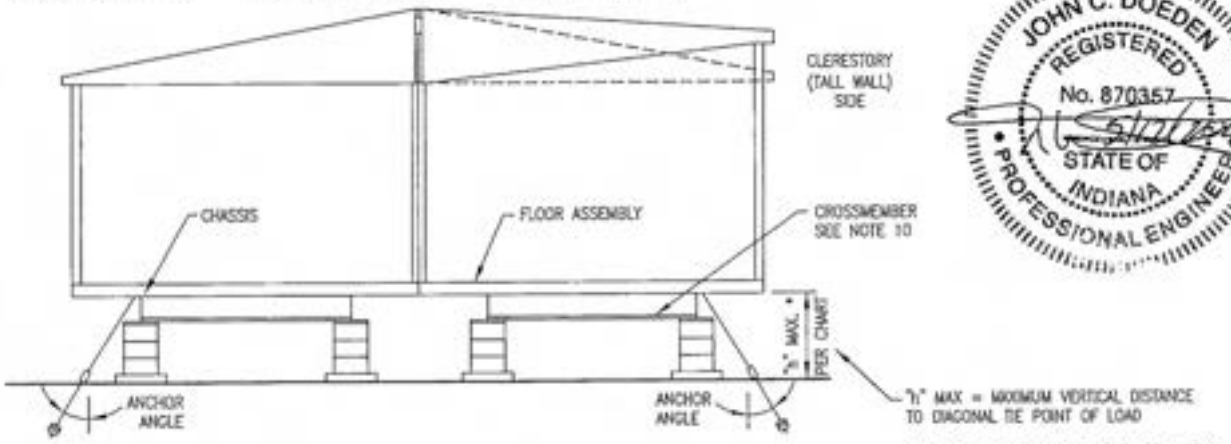
I-139.1

Ref:CA-1.12

FIGURE 5.17
WIND ZONE 1 (15 PSF LATERAL) TALL WALL (114" MAX.) TIE-DOWN FOR CLERESTORY DORMER

TYPICAL SIDE ELEVATION SHOWING TIE-DOWN SPACINGS





TYPICAL CROSS SECTION SHOWING TIE-DOWNS

NOTE:
FOR LONGITUDINAL TIE-DOWNS SEE STANDARD CHARTS.

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NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIE-DOWNS. HOWEVER, IF OVER-THE-ROOF TIE-DOWNS ARE REQUIRED BY THE LOCAL JURISDICTION THEY MAY BE INSTALLED.
3. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIE-DOWNS.
4. FRAME TIE-DOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY NEW VISION MANUFACTURING. ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725# 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 PER SIDE.
8. RESERVED.
9. DESIGN BASED ON 99-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 114" (9'-6").
10. FRAME TIE-DOWNS ARE POSITIONED AT CROSSMEMBER LOCATIONS (WITHIN 3") WHEN STRAP COMES OFF BOTTOM FLANGE OF BEAM WITH APPROVED BUCKLE OR LOOP.
11. 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.
12. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE, AND BE AT LEAST 12" ABOVE THE WATER TABLE. 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 D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
14. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AN 0.035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D-3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

ROOF SLOPES UP TO A MAXIMUM OF 20 DEGREES

FRAME TIE-DOWN SPACING CHART

FLOOR WIDTH	EAVE OVERHANG	TIE-DOWN SPACING	MAX * PIER HEIGHT
27'-4" DOUBLE	6" MAX	10'-0"	24"
		8'-0"	36"
30'-0" DOUBLE	6" MAX	10'-0"	31"
		8'-0"	46"

I-139.2

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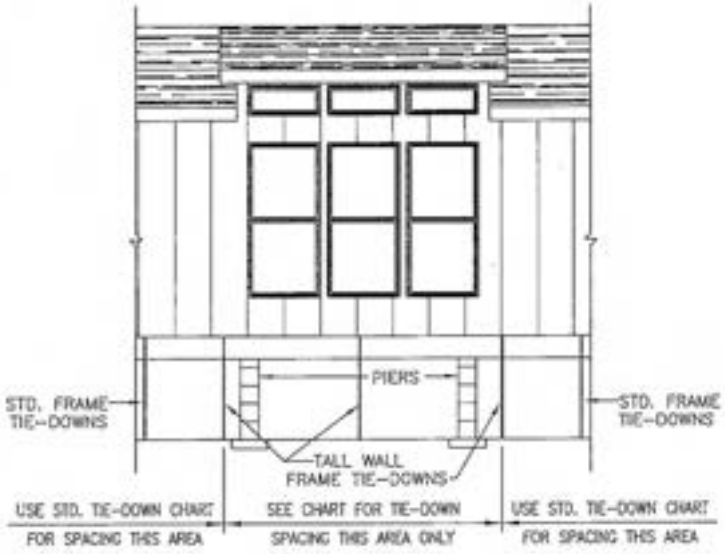
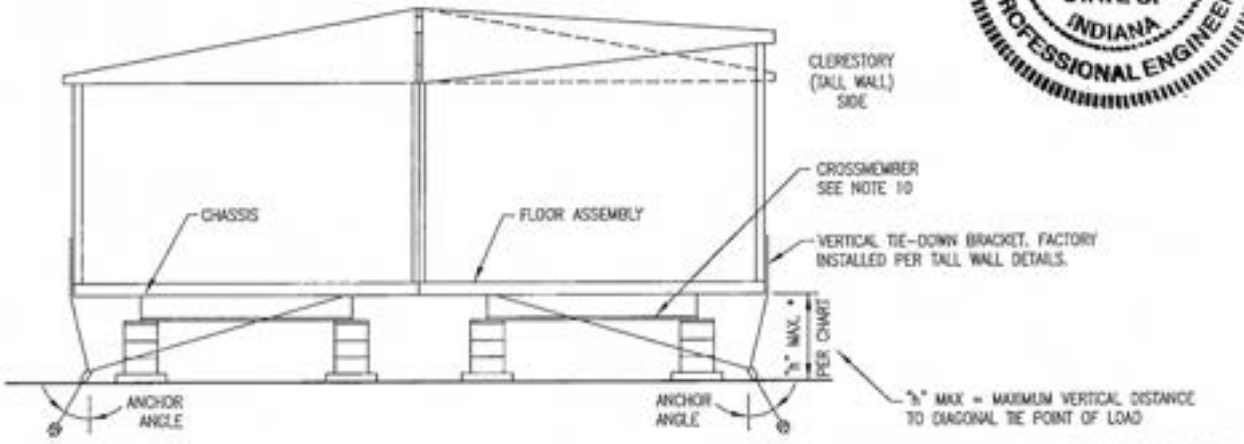
FIGURE 5.17.1
WIND ZONE 2 (100 MPH)
TALL WALL (114" MAX.) TIE-DOWN
FOR CLERESTORY DORMER

TYPICAL SIDE ELEVATION SHOWING TIE-DOWN SPACINGS



NOTE:
FOR LONGITUDINAL TIE-DOWNS SEE STANDARD CHARTS.



"h" MAX = MAXIMUM VERTICAL DISTANCE TO DIAGONAL TIE POINT OF LOAD

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

TYPICAL CROSS SECTION SHOWING TIE-DOWNS

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NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. VERTICAL TIES ARE REQUIRED IN ADDITION TO FRAME TIE-DOWNS.
3. VERTICAL TIES MAY BE SECURED TO THE SAME GROUND ANCHOR AS THE FRAME TIE-DOWNS WHEN DOUBLE-HEADED ANCHOR IS CAPABLE OF RESISTING COMBINED LOADING. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE, A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
4. FRAME TIE-DOWNS AND ANCHORS ARE NOT SUPPLIED BY NEW VISION MANUFACTURING.
5. VERTICAL TIE STRAPS ARE SUPPLIED BY NEW VISION MANUFACTURING. ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725# 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 PER SIDE.
8. DESIGN BASED ON 99-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 114" (9'-6").
9. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, & 7.
10. FRAME TIE-DOWNS ARE POSITIONED AT CROSSMEMBER LOCATIONS (WITHIN 3") WHEN STRAP COMES OFF BOTTOM FLANGE OF BEAM WITH APPROVED BUCKLE OR LOOP.
11. 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.
12. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE, AND BE AT LEAST 12" ABOVE THE WATER TABLE. 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 D3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
14. GROUND ANCHORS TO BE RATED FOR LOAD TABULATED IN CHARTS TIME 1.5 SAFETY FACTOR OR ULTIMATE LOAD OF 4725#, WHICHEVER IS GREATER.
15. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AN 0.035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D-3953-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

ROOF SLOPES UP TO A MAXIMUM OF 20 DEGREES

FRAME TIE-DOWN SPACING CHART

FLOOR WIDTH	EAVE OVERHANG	TIE-DOWN SPACING	MAX * PIER HEIGHT	ANCHOR ANGLE
27'-4" DOUBLE	6" MAX	6'-8"	46"	45° - 50°
30'-0" DOUBLE	6" MAX	6'-8"	49"	45° - 50°

CHAPTER 6 - INSTALLATION OF OPTIONAL FEATURES

6.1 Hinged roofs and eaves. If your home has an optional hinged roof, see specific installation instructions and illustrations provided separately with your home.

6.2 Awnings and carports. Choose free-standing products with columns to support their weight.

6.3 Miscellaneous Lights and Fixtures. Some exterior lights, ceiling fans and chain-hung fixtures may not yet be installed when the home is delivered. All of these fixtures must be grounded by a fixture-grounding screw or wire. For chain-hung fixtures, use both methods. When fixtures are mounted on combustible surfaces such as hardboard, install a noncombustible ring to completely cover the combustible surface exposed between the fixture canopy and the wiring outlet box. If siding has not been installed at a fixture location, remove the outlet box and install the siding with a hole for the outlet box. Then reinstall the outlet box and proceed as for other fixtures.

6.3.1 Exterior lights. Remove the junction box covers and make wire-to-wire connections using wire nuts. Connect wires black to black, white to white, and ground to ground. Caulk around the base of the light fixture to ensure a water-tight seal to the sidewall. Push the wires into the box and secure the light fixture to the junction box. Install the light bulb and attach the globe. Refer to Figure 6.1(a).

6.3.2 Ceiling fans. To reduce the risk of injury, install ceiling fans with the trailing edges of the blades at least 6'4" above the floor. Follow the manufacturer's instructions. If no instructions are available, connect the wiring as shown in Figure 6.1(b).

6.4 Telephone and cable TV. CARELESS INSTALLATION OF TELEPHONE AND CABLE TELEVISION LINES MAY BE HAZARDOUS. The walls and floors of your manufactured home contain electrical circuits, plumbing and duct work. Avoid contact with these home systems when drilling through and placing cables within these cavities. Only trained professionals should handle such work. **FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.** Figure 6.2 shows one procedure for telephone crossover connections in multisection homes. Telephone and cable TV wiring should be installed in accordance with requirements of the local authority having jurisdiction and the National Electric Code.

6.5 Special Setup Manual Addendums/and Supplements. Your home may require special Dapia Approved instructions in addition to those included in this manual to properly setup the home. These are provided by New Vision Manufacturing separately.

6.6 Manufacturer Installation Instructions. Provided separately are Dapia Approved Installation Instructions provided by the anchoring devices manufacturer which must be followed. The instructions provided may not be the same as the anchoring devices you are using. If this is the case, use the instructions which are provided with your anchors.

6.7 Technical Information Requests. To obtain diagrams for your structural, electrical, plumbing, heating, cooling, and transportation systems contact New Vision Manufacturing.

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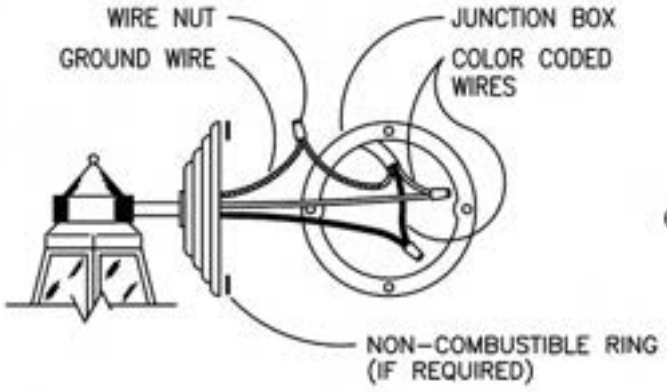
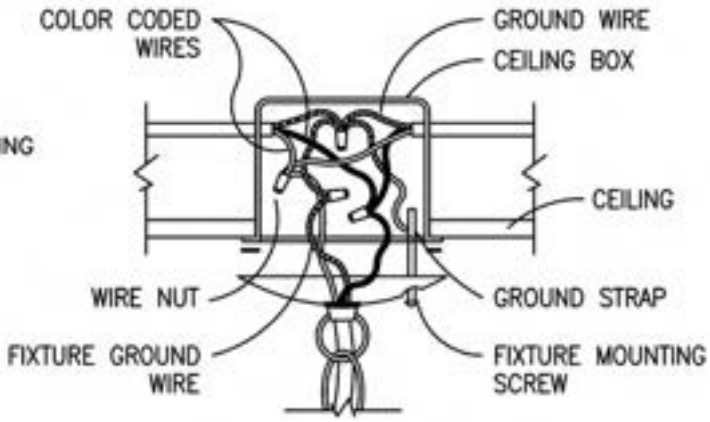
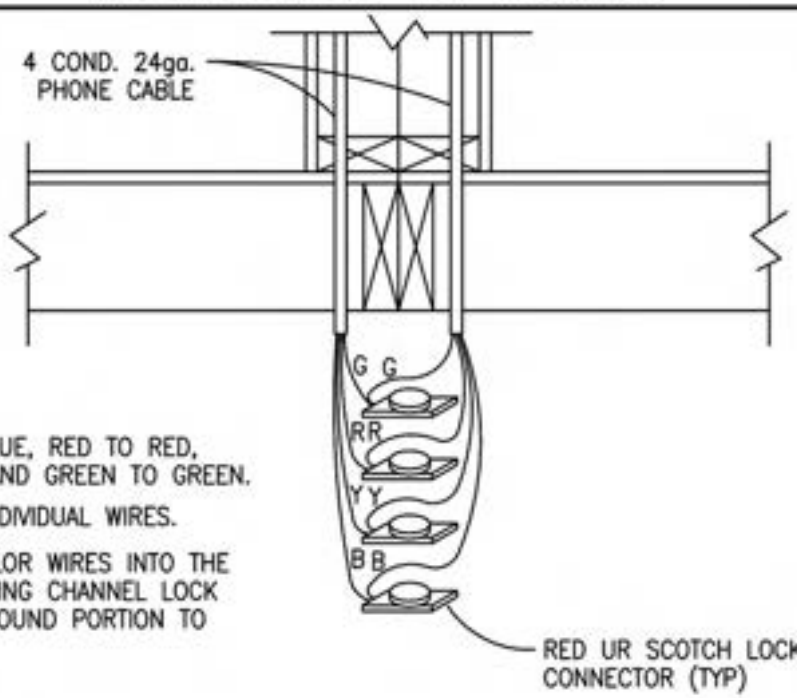


(A) EXTERIOR LIGHT FIXTURE



(B) CHAIN HUNG FIXTURE OR CEILING FAN

FIGURE 6.1
INSTALLATION OF LIGHTS



NOTES:

1. CONNECT BLUE TO BLUE, RED TO RED, YELLOW TO YELLOW, AND GREEN TO GREEN.
2. DO NOT STRIP THE INDIVIDUAL WIRES.
3. INSERT THE SAME COLOR WIRES INTO THE CONNECTOR, THEN USING CHANNEL LOCK PLIERS, PRESS THE ROUND PORTION TO MAKE CONNECTION.

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FIGURE 6.2
TELEPHONE WIRING

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CHAPTER 7 - PREPARATION OF APPLIANCES

7.1 Clothes dryer vent. Your clothes dryer must exhaust to the exterior of the home, or of any perimeter skirting installed around it, through a moisture-lint exhaust system, as shown in Figure 7.1. **IMPORTANT: Do NOT let the exhaust system end under the home where excess moisture or flammable material can accumulate.** Vent openings are located in either the wall or the floor. After the duct is installed, seal the openings, both inside and outside. Follow the dryer manufacturer's instructions for installing the exhaust system.

If your home did not come equipped with a gas dryer, remember that installing one requires substantial alteration to the home. You must provide gas supply piping and adequate venting as specified by the gas dryer manufacturer. Only a trained and experienced person should install a gas dryer. Cutting major structural elements (such as rafters or floor joists) to allow for gas dryer installation is not permissible. New Vision Manufacturing is not responsible for any weakening of the home's structural soundness resulting from dryer installation.

7.2 Comfort Cooling systems. Only qualified personnel may install any comfort cooling system not provided with the home. Follow the manufacturer's installation instructions and conform to all local codes.

7.2.1 Air conditioners. The air distribution system of this home has been designed for a central air conditioning system. Equipment you install must not exceed the BTUh rating shown on the home's compliance certificate for duct system capacity.

The home's electrical distribution panel may contain optional factory-installed circuits for air conditioning. The maximum full load ampere draw for the desired air conditioning unit must not exceed the circuit rating shown.

On the other hand, electrical circuits within the home may **not** have been sized for the additional load of non-factory-installed air conditioning, and a separate, outside electrical supply may have to be provided.

Any field-installed wiring beyond the junction box must include a fused disconnect located within sight of the condensing unit. The maximum fuse size is marked on the condenser data plate. Local codes will determine the acceptability of the air conditioning equipment, rating,location of disconnect means, fuse type branch circuit protection, and connections to the equipment.

"A" coil air conditioning units must be compatible and listed for use with the furnace in the home. Follow the air conditioner manufacturer's instructions.

If a remote (self-contained, packaged) air conditioner (cooling coil and blower located outside the home, Figure 7.2) is to be connected to the heating supply duct, install an automatic damper between the furnace and the home's air duct system, and another between the remote unit and the home's air duct system. Secure the duct system leading from the remote unit to the home and do

not allow it to touch the ground. Insulate ducts with material of thermal resistance (R) not less than 8, and a perm rating of not more than 1 perm. Connect the duct carrying air to the home to the main duct at a point where there are approximately as many registers forward of the connection as there are to the rear. Locate the return air duct in the center of the home.

Do not cut or damage floor joists. Replace insulation removed during the installation, and seal the bottom board around the duct connections.

Direct all condensation runoff away from the home by connecting a hose to the equipment runoff outlet or by other means specified by the equipment manufacturer.

Do not restrict the flex duct opening. Do not allow the duct insulation to contact the A-coil and do not allow the duct to become kinked, restricted or configured to form a trap

7.2.2 Heat Pumps. Install heat pumps according to the heat pump manufacturer's instructions.

7.3 Fireplace and wood stove chimneys and air inlets. Fireplaces and wood stoves require on-site installation of additional section(s) of approved, listed chimney pipe, a spark arrestor and a rain cap assembly. See Figure 7.4.

7.3.1 Minimum extensions above roof. To assure sufficient draft for proper operation, extend the finished chimney at least 3' above the highest point where it penetrates the roof and at least 2' higher than any building or other obstruction located within a horizontal distance of 10'. If the site has obstructions extending higher than the home's roof peak within 10' of the chimney, the installer may have to provide an additional section of chimney pipe if required by local codes.

7.3.2 Required components. The required components of a correctly-installed chimney are as shown in Figure 7.4.

7.3.3 Assembly and sealing sequence. Assemble and seal your fireplace or wood stove chimney per fireplace manufacturer's instruction.

7.3.4 Combustion air duct inlets. Combustion air intake ducts end just below the bottom covering of the floor. You must extend them to the outside when your home has a basement or crawl space. These added ducts are supplied, or may be purchased at your local hardware store. The fireplace manufacturer's instructions for installing combustion air ducts are in the fireplace/stove or with the chimney parts. Do not allow the combustion air inlet to drop material from the hearth beneath the home. Locate its inlet damper above expected snow level, as shown in Figure 7.4.

7.4 Range, cooktop and oven venting. If your home is equipped with a combination range (cook-top)/grill or oven that contains its own exhaust system, route the exhaust so that it does not exit under the home. Connect flexible metallic duct between the elbow protruding from the floor and the termination fitting, and support it according to the manufacturer's installation instructions.

7.5 Window Air Conditioner Installation. Do not plug a window air conditioner unit into one of your homes lighting or appliance circuit receptacles. The majority of window air conditioners require that a separate circuit be installed for the connection of the unit. See the air conditioner manufacturer's installation instructions for the electrical requirements for your specific model. The circuits installed in the home are for standard lighting and small appliance fixtures only.

CAUTION: Use of these receptacles for other purposes may cause an overload and the possibility of a potential fire hazard arises.

The only exception to the above is if there is a separate circuit installed and labeled in the main panel box as being for the use of an air conditioner unit. All wiring which is to be installed for an air conditioner unit must be performed by an authorized electrician and in conformance with all applicable codes.

7.6 Furnace Deration. If your home is located at 4500 feet or more above sea level, or as indicated in the manufacturer's instructions, your gas furnace must be derated for the altitude. This must be done by a qualified serviceman. A licensed technician may be required. Check with your local authorities.

CAUTION: Failure to derate the furnace can cause the furnace to over-heat, operate poorly and cause excessive sooting. Dangerous levels of carbon monoxide could accumulate in the home.

7.7 Gas Burning Applicance Vents: Gas burning appliance vents must be inspected to ensure connection points and penetrations through the roof.

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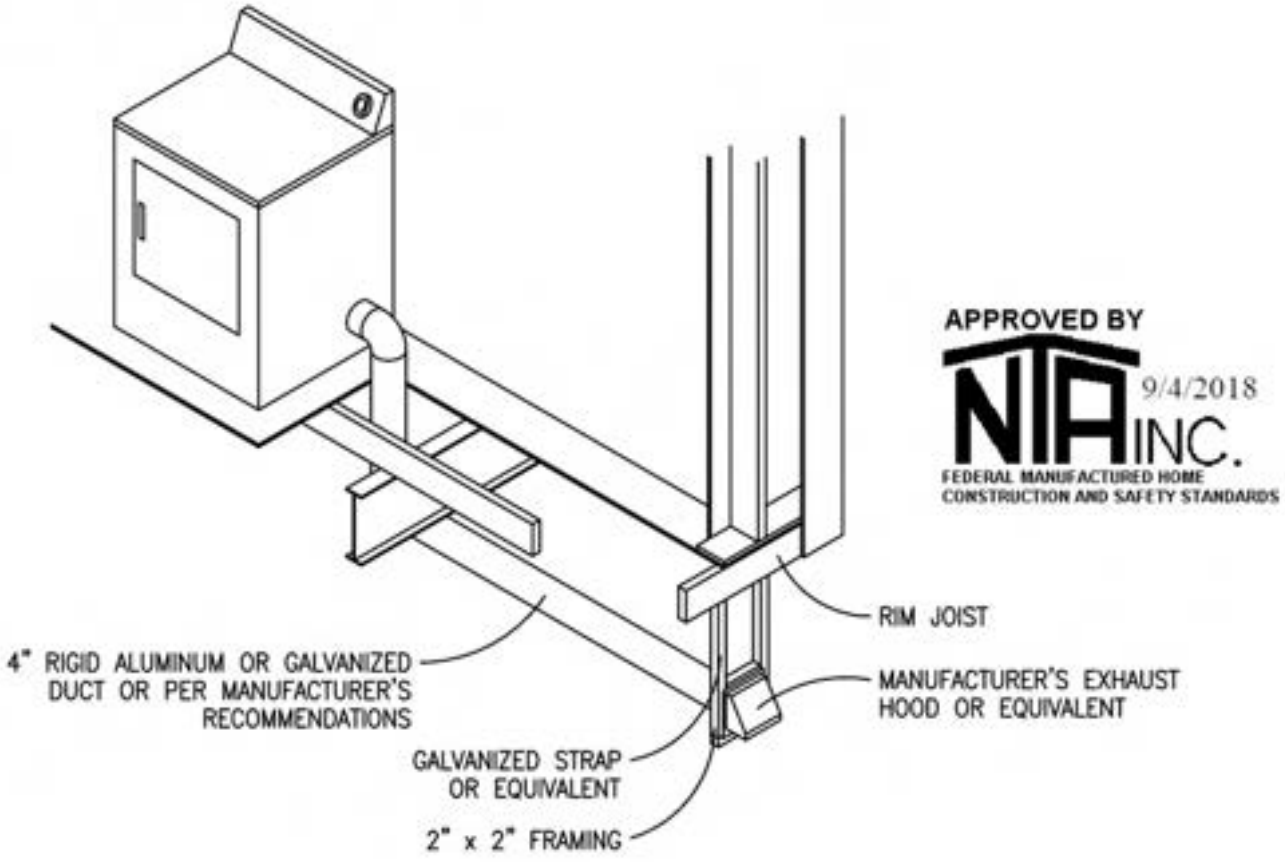

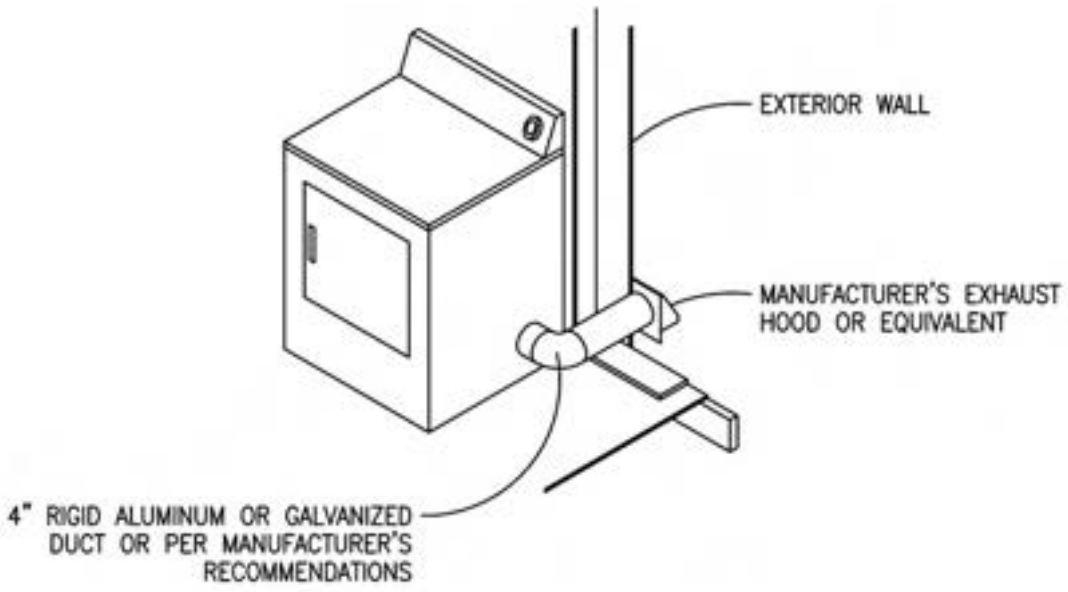

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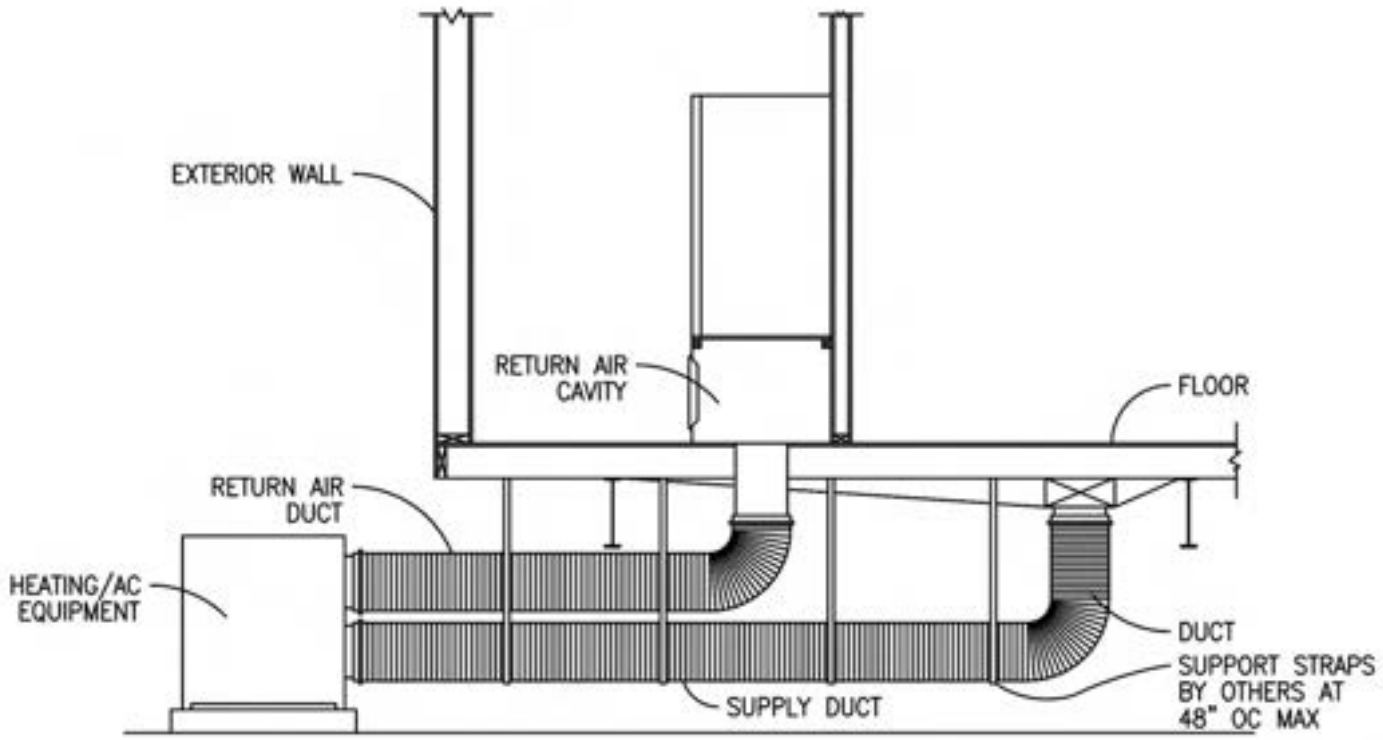
FIGURE 7.1
RECOMMENDED DRYER VENTING METHOD



NOTES:
1. RETURN AIR DUCT AND SUPPLY DUCT TO BE SUPPORTED AT 4'-0" OC SPACING MAXIMUM.

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FIGURE 7.2
TYPICAL INSTALLATION WHEN HEATING AND/OR AIR CONDITIONING EQUIPMENT IS FURNISHED AND INSTALLED BY OTHERS

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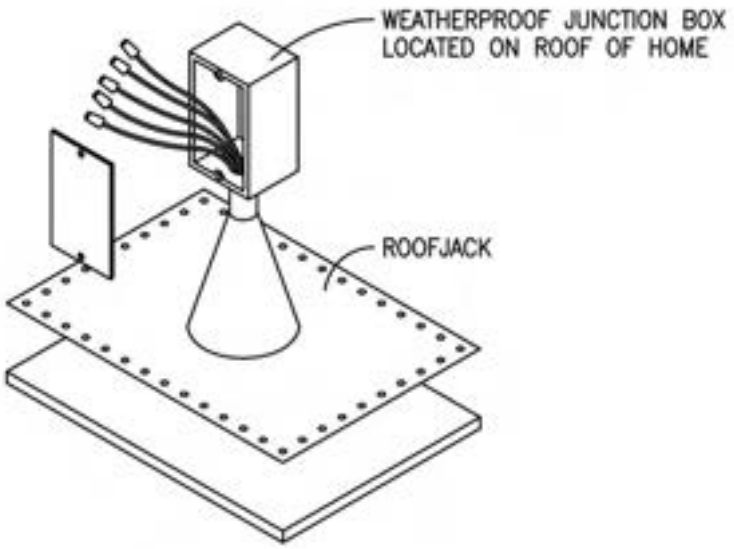
CAUTION:

1. COOLERS RATED AT 16 AMPS TO BE INSTALLED ON A 20 AMP CIRCUIT.
2. COOLERS RATED AT 12 AMPS TO BE INSTALLED ON A 15 AMP CIRCUIT.
3. ONE JUCTION BOX REQUIRED FOR EACH COOLER.



COLOR CODE:

WHITE	NEUTRAL
YELLOW	PUMP
BLACK	LOW FAN
RED	HIGH FAN
GREEN	GROUND

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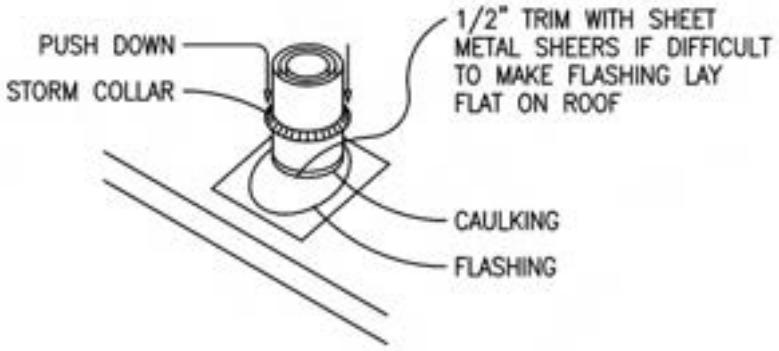
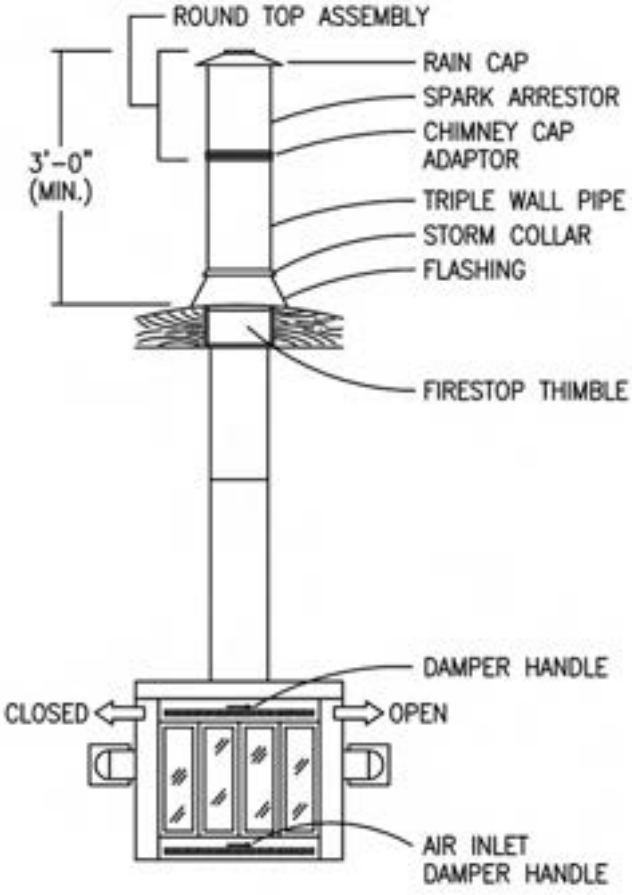
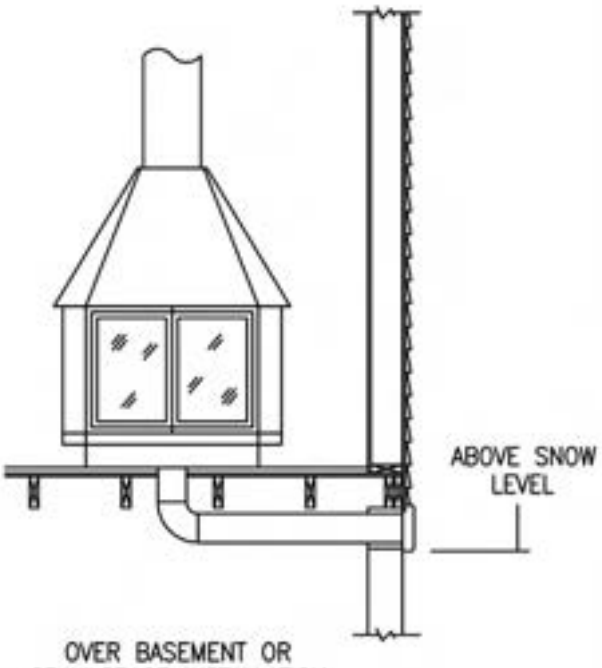
FIGURE 7.3
ELECTRICAL CONNECTIONS FOR EVAPORATIVE COOLER







OVER BASEMENT OR CRAWLSPACE INSTALLATION

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FIGURE 7.4
FIREPLACE OR WOOD STOVE CHIMNEY AND AIR INTAKE INSTALLATION

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CHAPTER 8 - UTILITY SYSTEM CONNECTION AND TESTING

8.1 Proper Procedures. Consult local, county or state authorities before connecting any utilities. Only qualified service personnel, familiar with local codes and licensed where required, should make utility connections and conduct tests.

8.2 Water supply

8.2.1 Maximum supply pressure and reduction. The water systems of your home were designed for a maximum inlet pressure of 80 psi. **If you are located in a water district where the local water supply pressure exceeds 80 psi, install a pressure-reducing valve.**

8.2.2 Connection procedures

8.2.2.1 To supply main. Connect the home's water system to the water source through the inlet located under the home, usually below the water heater compartment. A tag on the side of the home marks its location.

8.2.2.2 Mandatory Shutoff Valve. You must install an accessible shutoff valve between the water supply and the inlet, as shown in Figure 8.1. It must be a full flow gate or ball valve.

8.2.2.3 Crossovers. Multisection homes with plumbing in both sections require water line cross-connections, as shown in Figure 8.3. Remove the shipping caps from the water lines and install the crossover connectors provided with the home.

8.2.3 Freezing protection

8.2.3.1 Necessity. In areas subject to subfreezing temperatures, protect exposed sections of water supply piping, shut-off valves and pressure reducers, and pipes in water heater compartments with uninsulated doors, from freezing. Otherwise, burst pipes and costly damage may result.

8.2.3.2 Use of Heat tapes. Heat tapes (either automatic or non-automatic) can protect exposed plumbing from freezing. **USE ONLY HEAT TAPES LISTED BY A NATIONALLY-RECOGNIZED TESTING LABORATORY FOR USE WITH MANUFACTURED HOMES, AND INSTALL THEM ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.** Plug the 3-wire, grounded cordset of the heat tape into the outlet located under the home near the water supply inlet (Figure 8.1).

8.2.3.2.1 Automatic Heat Tape. This tape (with a thermostat) is approved for installation on **all** types of water pipe, including plastic. Secure it to the pipe, insulate it, and weatherproof it, according to the manufacturer's instructions.

8.2.3.2.2 Non-Automatic Heat Tape. This tape (without a thermostat), may not be approved for plastic pipe unless it is left exposed, with no outer wrap of insulation. Installation is otherwise the same as with automatic heat tape.

8.2.3.3 Freezing Protection for Unoccupied Homes. If the home is to be left unheated in cold weather, drain the water lines and blow them clear with compressed air to prevent damage from freezing.

8.2.4 Testing procedures. Even though the water system was tested at the factory, it must be rechecked for leaks at the installation site. Close all water faucets, spigots and stool tank float valves, and use one of the following procedures:

8.2.4.1 Hydrostatic. Be sure the water heater tank is full of water. Pressurize the system with water at 100 psi, and then isolate it from the pressure source. The system must hold this pressure for at least 15 minutes without any loss. If the pressure falls off, repressurize the system and locate and correct leaks.

8.2.4.2 Pneumatic. CAUTION: IF THIS PROCEDURE IS USED, YOU MUST BYPASS THE HOT WATER TANK BY HOOKING ITS COLD INLET AND HOT OUTLET LINES TOGETHER. THIS PROCEDURE WILL PROTECT THE APPLIANCE FROM DAMAGE AND PROTECT THOSE INVOLVED IN THE TEST FROM POSSIBLE INJURY. Connect air pump and pressure gauge to the water inlet and pressurize the system to 100 psi. Isolate the pressure source from the system. The gauge must stand for at least 15 minutes with no drop in pressure. Correct any leaks indicated by bubbles from soapy water, repeating the procedure until all have been eliminated. Reconnect the water heater and the water supply.

8.3 Drainage system

8.3.1 Assembly and support. If portions of the drainage system were not installed at the factory, all materials and diagrams required to complete it have been shipped as loose items in the home. Assemble the drainage system following the specific instructions and diagrams provided with the home. Start at the most remote end and work toward the outlet, supporting the piping with temporary blocking to achieve the proper slope (see paragraph 8.3.2). When the entire system has been completed, install permanent drain line supports at 4' on center, as shown in Figure 8.4.

8.3.2 Proper slopes and connector sizes. Drain lines must slope at least 1/4" fall per foot of run unless otherwise noted on the schematic diagram (see Figure 8.5). **Exception:** 1/8" fall per foot is allowed when a cleanout is installed at the upper end of the run. Connect the main drain line to the site sewer hookup using an approved elastomer coupler (Figures 8.2 and 8.6).

8.3.3 Crossovers. Connect multisection home drainage line crossovers as shown in Figure 8.7.

8.3.4 Solvent welding procedures. The solvent cement used to connect drain lines must be compatible with the pipe installed in the home. Follow the manufacturer's instructions on the container. (See Figure 8.9.)

8.3.5 Protection from freezing. New Vision Manufacturing has insulated fittings in the drainage system subject to freezing, such as P-traps in the floor. Replace this insulation if removed during assembly or testing. Insulate drain lines installed below the bottom board in areas subject to freezing as shown in Figure 8.8. If the home is to be left unheated in cold weather, pour an approved antifreeze into P-traps at all fixtures and stools. Antifreeze used must not be corrosive to plastic or fixture material.

8.3.6 Flood level test procedure. You must conduct a flood level test on the completed drainage system before connecting it to the site sewer. With the home in a level position, all fixtures connected, and all tub and shower drains plugged, connect the drainage piping system to the site water inlet and fill the system with water to the rim of the toilet bowl. Release all trapped air. Allow the system to stand for at least 15 minutes. Check for leaks. Drain the system. Plug all fixtures, sinks, showers and tubs, and fill with water. Release the water in each fixture simultaneously to obtain the maximum possible flow in the drain piping. Check all P-traps and the drain system for possible leaks. Repair any leaks and retest.

8.4 Gas supply

8.4.1 Type of gas system furnished with home. All gas appliances in this home, including the heating system, are equipped for natural (or LP) gas. If LP (or natural) gas is to be used as the supply instead, a qualified service person must convert the appliances to LP (or natural) gas following the instructions provided by each appliance manufacturer.

8.4.2 Proper supply pressure. THE GAS PIPING SYSTEM IN YOUR HOME HAS BEEN DESIGNED FOR A PRESSURE NOT TO EXCEED 14" OF WATER COLUMN (8 OZ. OR 1/2 PSI). IF GAS FROM ANY SUPPLY SOURCE EXCEEDS, OR MAY EXCEED, THIS PRESSURE, YOU MUST INSTALL A PRESSURE REDUCING VALVE. To operate gas appliances safely and efficiently, do not exceed the design pressure limitations. For natural gas systems, the incoming gas pressure should remain between 6" and 8" of water column. For LPG systems, the pressure should lie between 12" and 14" of water column.

8.4.3 Orificing for specific gases. SPECIAL ORIFICES AND REGULATORS ARE REQUIRED FOR EACH KIND OF GAS, AND AT ALTITUDES ABOVE 3,000 FEET. SEE THE INSTRUCTIONS ACCOMPANYING EACH GAS-BURNING APPLIANCE FOR MODIFICATION INSTRUCTIONS. BEFORE MAKING ANY CONNECTIONS TO THE SITE SUPPLY, CHECK THE INLET ORIFICES OF ALL GAS APPLIANCES TO ENSURE THEY ARE CORRECTLY SET UP FOR THE TYPE OF GAS TO BE SUPPLIED.

8.4.4 Crossovers. Install the gas line crossover in multisection homes as shown in Fig. 8.10 before

performing any system tests or connecting the system to the gas supply. All crossovers and fittings are factory installed on the supply side and are listed for manufactured housing exterior use. Do not use tools to connect or remove the flexible connector quick disconnect.

8.4.5 Testing prior to connection to mains. Even though the gas system was tested at the factory, it is essential that it be rechecked for leaks at the site. **DO NOT APPLY PRESSURES IN EXCESS OF THOSE SPECIFIED BELOW OR YOU MAY DAMAGE GAS VALVES AND/OR PRESSURE REGULATORS.** Conduct one of the following two tests when the air and piping temperatures are nearly equal and will remain stable.

8.4.5.1 Piping Only Test. Close all appliance shut-off valves. Attach a pressure gauge calibrated in ounces at the home gas inlet. Pressurize the system with air to at least 3 psi (48 oz.). Isolate the pressure source from the system. The gauge must stand for at least 10 minutes with no drop in pressure. If any pressure loss occurs, check all joints in the piping system and at all shut-off valves with soapy water or bubble solution until the leaks are located. **Repair** the leaks and retest until the pressure holds.

8.4.5.2 Test of Entire System. Close all gas equipment controls and pilot light valves according to the individual gas equipment manufacturer's instructions. Assure that gas shut-off valves for all gas equipment are in the OPEN position. Attach a pressure gauge calibrated in ounces at the home gas inlet. Pressurize the system with air to at least 6 oz. Check all gas shut-off valves and flex line connections to valves and appliances for leaks, using soapy water or bubble solution. **DO NOT BUBBLE CHECK BRASS FITTINGS WITH SOLUTIONS CONTAINING AMMONIA.** Repair any leaks found, and retest. Close all equipment shut-off valves upon completion of testing.

8.4.6 Connection procedures. Inspect gas appliance vents to ensure they have been connected to the appliance, and make sure that roof jacks are installed and have not come loose during transit. Have the gas system connected to the gas supply only by an authorized representative of the gas company.

8.4.7 Gas appliance startup procedures. One at a time, open each equipment shut-off valve, light pilots and adjust burners according to each appliance manufacturer's instructions. **MAKE SURE THE WATER HEATER IS FILLED WITH WATER BEFORE LIGHTING ITS PILOT.** Check the operation of the furnace and water heater thermostats and set them to the desired temperatures.

8.5 Heating oil systems. Homes equipped with oil-burning furnaces must have their oil supply tankage and piping installed on site. These items are not supplied by New Vision Manufacturing. Consult the oil furnace manufacturer's instructions for proper pipe sizing and installation procedures. **ALL OIL STORAGE TANK AND PIPING INSTALLATIONS MUST MEET ALL APPLICABLE LOCAL REGULATIONS AND SHOULD BE MADE ONLY BY EXPERIENCED, QUALIFIED PERSONNEL.**

8.5.1 Tank installation requirements. Unless the home is installed in a community with a centralized oil distribution system, you must install an oil storage tank outside the home. Locate the tank where it is accessible for service and supply and safe from fire and other hazards.

8.5.1.1 Vaporizing (gravity-feed) furnaces. Install oil tanks that feed vaporizing-type oil furnaces so that oil flows freely by gravity. To achieve efficient gravity flow, install the tank so that its bottom is at least 8" above the level of the furnace's oil control and its top is within 8' of the oil control level.

8.5.1.2 Gun (pump-fed) furnaces. Since the furnace includes a fuel pump, the tank may be installed above or below ground. For tanks installed below ground, do not exceed the lifting capacity of the pump, and extend the filler neck 1' above grade and provide a 1-1/4" diameter minimum vent pipe extending at least 2' above grade.

8.5.1.3 Sloping and draining requirements. Regardless of the type of oil furnace or the tank location, install the tank to provide a gradual slope toward the fill end or drain plug (if so equipped). This facilitates pumping or draining of water or sludge.

8.5.2 Shutoff valve and fuel line filter. Install an accessible and approved manually-operated shut-off valve at the oil tank outlet. New Vision Manufacturing also recommends installing a suitable filter in the fuel line near the tank to trap dirt and water.

8.5.3 Leak test procedure. Before operating the system, check for leaks in the tank and supply piping. Fill the tank to capacity with fuel and examine all joints in the system for leakage.

8.6 Electricity. A large enough power supply must be available at the site. An inadequate power supply may result in improper operation of, and possible damage to, motors and appliances. It may also increase your electricity costs. The current rating in amperes of your home can be found on the tag located outside next to the feeder or service entrance and also on the electrical distribution panel.

8.6.1 Description and rating of house wiring. Your home is designed for connection to an electrical wiring system rated at 120/240 volt AC. **PROPER AND SAFE CONNECTION DEPENDS ON THE TYPE OF SUPPLY SYSTEM YOUR HOME IS EQUIPPED WITH.** The connection to this home is a feeder requiring wiring at the site, or, the connection to this home is a factory-installed service meter base. The following paragraphs describe the wiring and grounding of electrical feeders; if your home is equipped with a service meter base, skip directly to section 8.6.4.4.

8.6.2 Proper feeder wire and junction box material and size. The main breaker and the label on the electrical distribution panel give the feeder current capacity in amperes. Using this information, determine the required feeder size from the following tables. These sizes are based on an ambient temperature of 86°F. and do not take voltage drop into consideration.

8.6.2.1 Overhead Feeders. Homes equipped with overhead (mast weatherhead) feeder entrances contain all necessary conduit to the electrical distribution panel and feeder conductors. Refer to Figure 8.11.

8.6.2.2 Underside Feeders. Homes with an under-the-floor entrance come with a permanently-attached conduit raceway that runs from the electrical distribution panel to a point under the floor. Install an approved conduit fitting or junction box at the termination point. Refer to Figure 8.12.

8.6.3 Grounding of homes with feeder connections

8.6.3.1 Necessity. The home must be grounded properly to protect the occupants. The only safe and approved method of grounding your feeder-connected home is through the **grounding bar** in the electrical distribution panel. This bar grounds all noncurrent-carrying metal parts of the electrical system at a single point.

8.6.3.2 Procedure. The ground conductor of the power supply feeder cable connects the grounding bar to a good electrical ground. Follow the feeder connection procedures described in 8.6.4.1, -.2, or -.3 to achieve proper grounding. **[Exception:** homes with a factory-installed service meter base must be grounded differently. Refer to the specific instructions in 8.6.4.4 if applicable.]

Insulate the grounded circuit conductor (neutral or white wire) from the grounding conductors (green wires) and from equipment enclosures and other grounded parts. Insulate neutral circuit terminals in the distribution panel board - and in ranges, clothes dryers, and counter-mounted cooking units - from the equipment enclosure. Bonding screws, straps or buses in the distribution panel board or in appliances should have been removed and discarded at the manufacturing facility.

8.6.3.3 Unacceptable methods of grounding homes. Grounding to a rod, a water pipe, or through the home's hitch caster will not satisfy the important grounding requirement. Never use the neutral conductor of the feeder cable as a ground wire. Do not ground the neutral bar in the electrical distribution panel.

8.6.4 Connection procedures. Connections should be made only by a qualified electrician using one of the following methods:

8.6.4.1 50 A feeder cord. Your home may be equipped with a permanently-connected 50 amp. feeder cord stored in a compartment under the floor. If so, it is ready to be plugged into a 50 amp., 3-pole, 4-wire, 120/240 volt grounding service receptacle after electrical tests have been completed (see 8.6.6). **WARNING: MANY HOMES ARE EQUIPPED FOR 100 AMP. OR GREATER SERVICE. UNLESS YOU HOME IS EQUIPPED FOR ONLY 50 AMP. SERVICE, DO NOT ATTEMPT TO USE A FEEDER CORD OR "PIGTAIL" CONNECTION.** Connect homes equipped for 100 amp. or greater service by one

of the three following methods:

8.6.4.2 **Mast weatherhead feeder.** The routing, connection and support of the service drop must meet local codes. Homes equipped this way contain all necessary conduit to the electrical distribution panel including feeder conductors. If the masthead is located above the roof overhang, allow a minimum 8' clearance above all roof points the conductors pass over. There are two exceptions to this rule: (1) The vertical clearance may be reduced to 3' if the roof has a minimum slope of 4 in 12; and (2) The vertical clearance may be reduced to 18" if no more than 4' of service-drop conductors pass above the roof overhang, and if they terminate at a through-the-roof raceway or approved support. A minimum clearance must also be provided from the final grade to the service-drop conductors. This measurement may vary from 10' to 18' depending on the types of traffic anticipated below the service drop (refer to the National Electric Code). Unless impractical, locate service heads above the point of attachment of the service-drop conductors and make them rain-tight. If individual conductors do not extend downward, form drop loops.

8.6.4.3 **Underside junction box feeder.** A raceway from the main panelboard to the underside of the home allows for installing an approved junction box or fitting, which must be used to connect it to the supply raceway. Install properly-sized conductors from the main power supply to the panelboard. Refer to Figure 8.13(a) and (b) for conductor and junction box requirements. The homeowner or installer must provide the supply connection including the feeder conductors, junction box and raceway connectors. Protect conductors emerging from the ground from a minimum of 18" below grade to 8' above grade, or to the point of entrance to the home. The distance measured from the top surface of a buried cable, conduit or raceway to the finished grade must meet minimum burial requirements outlined in the National Electric Code. Use a moisture-proof bushing at the end of the conduit from which the buried cable emerges.

8.6.4.4 **Service equipment meter base.** Either an overhead or underground entrance may be provided. The exterior equipment and enclosure must be weatherproof, and conductors must be suitable for use in wet locations. When a meter is provided on the home, connect the neutral (white) conductor to the system grounding (green) conductor on the supply side of the main disconnect. Refer to Figure 8.14 for typical meter base installations and one method of grounding the service equipment. The homeowner must provide the grounding electrode conductor(s). The grounding electrode should be an 8' length of 1/2" dia. copper rod or 3/4" galvanized steel pipe. Drive it into the ground at least 12" below the surface and 2' from the foundation, or bury it horizontally in a 2 1/2'-deep trench. Connect the grounding conductor wire to the grounding electrode with a grounding clamp. For added protection, homes with metal frames or siding should be connected to earth by means of additional bonding jumper ground fault return paths to underground metallic water pipes, ground rings, additional ground rods, etc. to prevent the buildup of hazardous voltages.

8.6.5 Crossover connections. Refer to Figure 8.15(a), (b), (c), (d), (e), and (f) for typical crossover wiring connections, for multisection homes (located along the centerline between the sections). Crossover locations can be distinguished by metal junction boxes or access cover panels. Remove these panels and connect the enclosed wires as illustrated.

8.6.6 System test procedures and equipment

8.6.6.1 Pre-connection tests. Conduct **both** of the following tests before any electrical power is supplied to the home:

8.6.6.1.1 Circuit conductor continuity. Conduct a continuity test by placing all branch circuit breakers and switches controlling individual outlets in the "on" position. The test should give no evidence of a connection between any of the supply conductors (including the neutral) and the grounding circuit. You may use a flashlight continuity tester.

8.6.6.1.2 Grounding continuity. Using a continuity tester, test **all** noncurrent-carrying metal parts to assure continuity to ground. The parts to be checked include:

- appliance enclosures, including fans;
- fixture enclosures and canopies;
- metal siding and roofs;
- metal water supply and gas lines;
- metal ducts (except foil-covered insulated ducts);
- the home's frame.

On multisection units, perform this test only after completing all electrical and bonding connections between the units.

NOTE: GROUNDING IS NOT REQUIRED ON THE METAL INLET OF A PLASTIC WATER SYSTEM OR ON PLUMBING FIXTURES SUCH AS TUBS, FAUCETS, SHOWER RISERS, AND METAL SINKS WHEN THEY ARE CONNECTED ONLY TO PLASTIC WATER AND DRAIN PIPING.

8.6.6.2 Post-connection tests. Conduct the following three tests after turning on the main circuit breaker and each individual circuit breaker. **CAUTION: ALLOW THE WATER HEATER TO FILL COMPLETELY BEFORE ACTIVATING THE WATER HEATER CIRCUIT. FAILURE TO DO SO WILL CAUSE THE WATER HEATER ELEMENT TO BURN OUT, AN EVENT NOT COVERED BY THE WARRANTY.**

8.6.6.2.1 Polarity and grounding of receptacles. With receptacle and lighting circuits energized, check the polarity and grounding of each 120-volt

receptacle and light socket using a polarity tester capable of determining an incorrect wiring configuration. A conversion device may be required to test various fixture bulb sizes and outlet configurations. Investigate any indication of reversed polarity, open grounds or shorts and correct it.

8.6.6.2.2 Ground Fault Circuit Interruption (GFCI). Make certain that all receptacles requiring GFCI protection are in fact on the correct circuit(s). Check each ground fault circuit interrupter device by pushing the test button to determine if the power route to the receptacle has been interrupted, or follow the manufacturer's instructions. Replace any GFCI that does not operate properly.

8.6.6.2.3 Operational checks. Check all light fixtures by placing a bulb in the socket and turning the switch on and off. Using a pigtail light, check all 240-volt receptacles to determine if both legs of the circuit are powered. Check all 120-volt receptacles to be sure that each is operational. Switched receptacles require the switch to be turned on and off. It is not necessary to check appliances, but their power sources must be assured. Failure of electrical wiring or fixtures requires repair and retesting.

8.7 Smoke Alarms Testing and Inspection Procedures

8.7.1 Step 1: All interconnected smoke alarms must be tested individually, one at a time. Assure that all units are connected and that each sounds an alarm while each is tested.

8.7.2 Step 2: Once connections are made, press and hold the test button on the cover of the smoke alarm until the alarm sounds. Verify all other smoke alarms interconnected will sound the alarm. Note: When installed, make sure visual alarm (strobe light) is operating as well during testing.

8.7.3 Step 3: Step 2 above is to be performed on each smoke alarm installed.

8.7.4 Step 4: If an error is indicated in the fixture(s), it must be repaired as required and retest. If the alarm does not function correctly on the retest, the defective alarm must be replaced with a new alarm and the new alarm retested.

8.8 Mixing Valves and Water Temperature Limiting Valves

8.8.1 This home is equipped with mixing valves and water temperature limiting valves (anti-scald valves) on the tubs and showers. Because the water temperature and pressure varies per site location it is required that you adjust the water temperature to a maximum of 120 degrees.

8.8.2 The shower and tub/shower anti-scald valves are located behind the on/off handle of the faucet. Garden tubs have the anti-scald valves located inside the tub base.

8.8.3 The instructions for adjusting the water temperature on the anti-scald valves are including in this Installation Instructions packet.

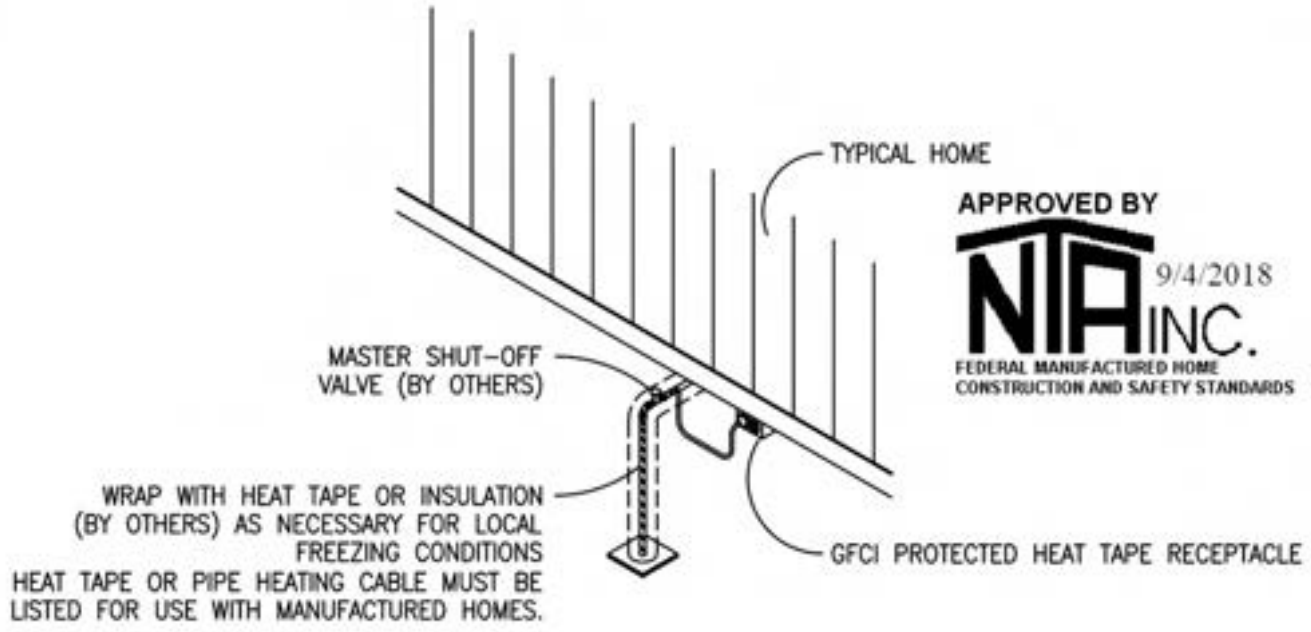


FIGURE 8.1
TYPICAL WATER CONNECTION

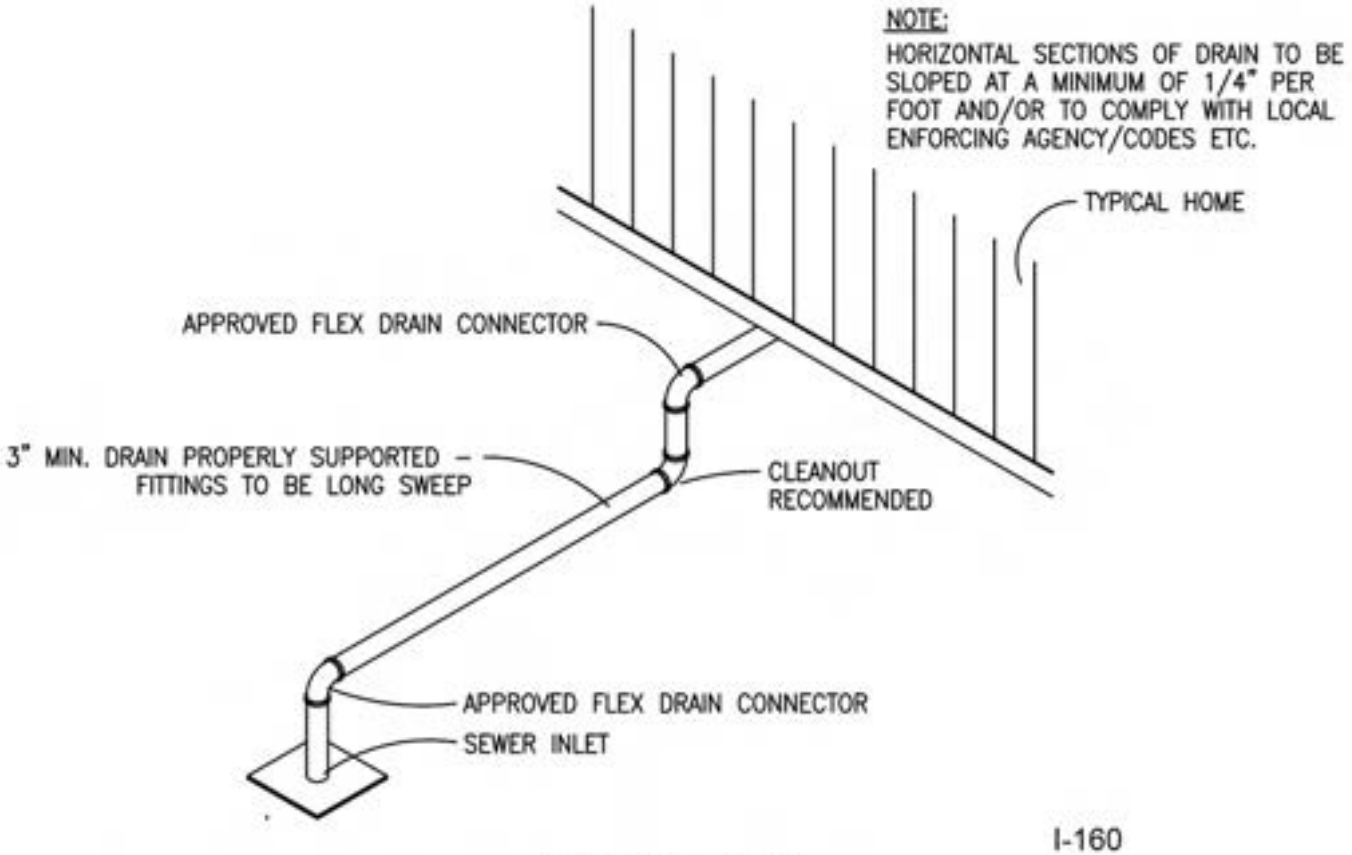
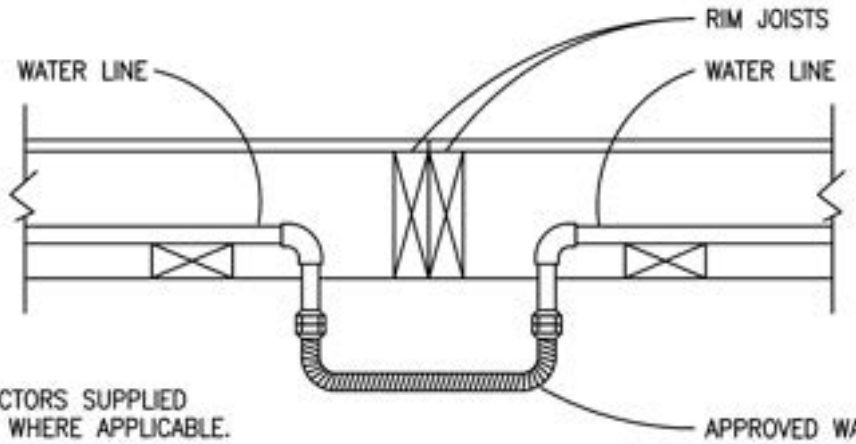


FIGURE 8.2
TYPICAL CONNECTION OF MAIN DRAIN TO SEWER



NOTES:

1. USE WATER CONNECTORS SUPPLIED BY MANUFACTURER WHERE APPLICABLE.
2. IF FREEZING CONDITIONS EXIST, WRAP CONNECTION WITH INSULATION.

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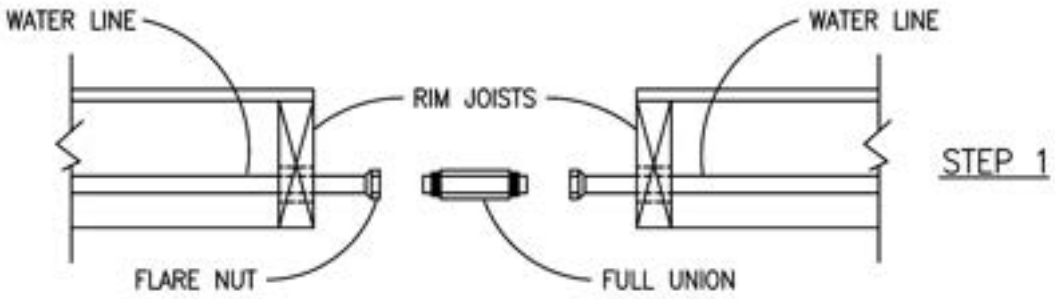
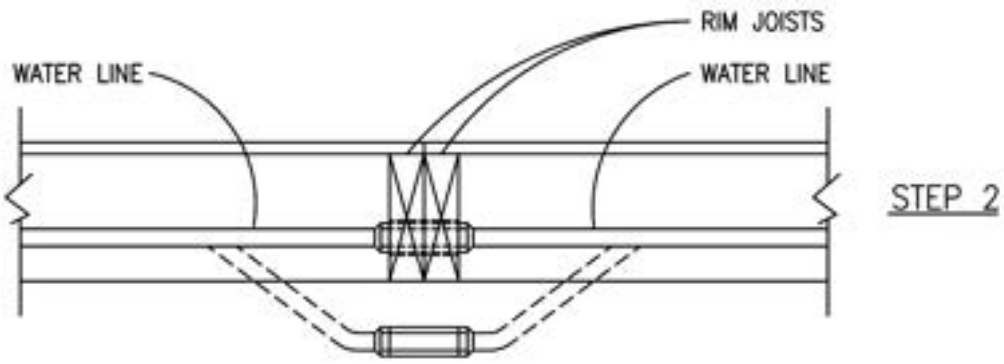
FIGURE 8.3A
WATER LINE CROSSOVER CONNECTION





NOTES:

1. IF FREEZING CONDITIONS EXIST, WRAP CONNECTION WITH INSULATION.

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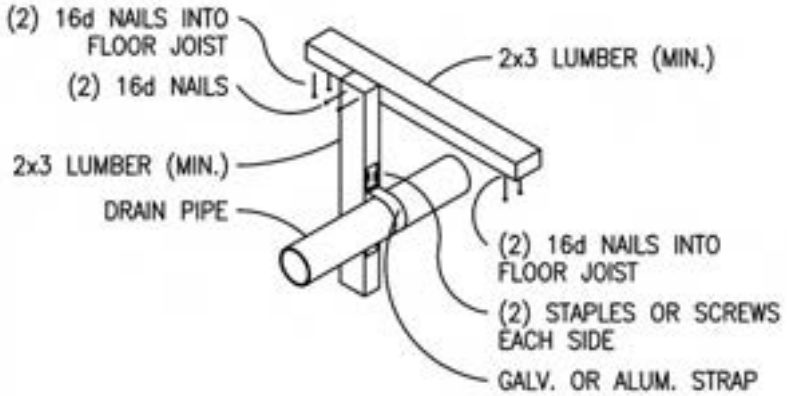
FIGURE 8.3B
WATER LINE CROSSOVER CONNECTION (ALTERNATE)



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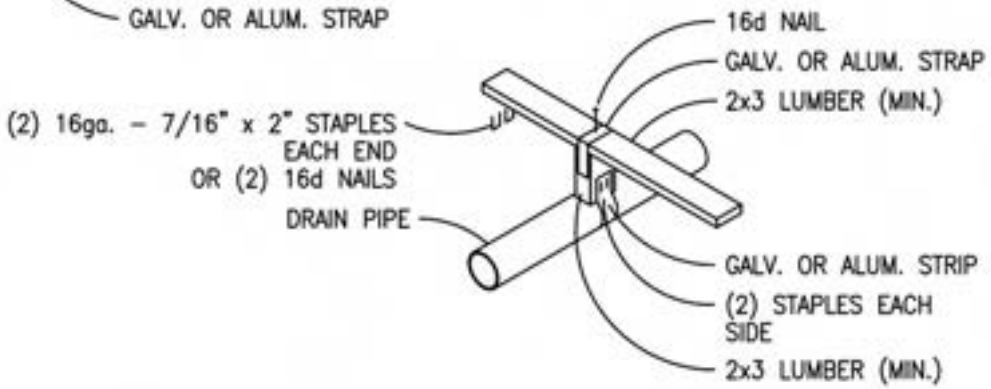


FIGURE 8.4
DRAIN PIPE SUPPORT METHODS

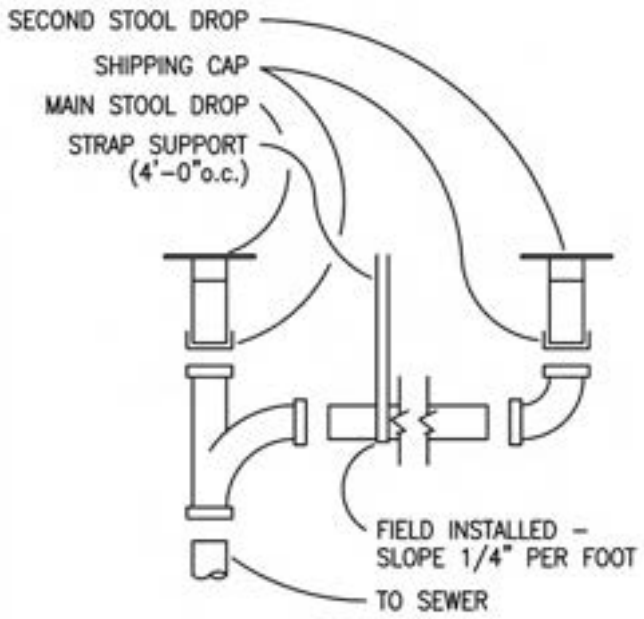
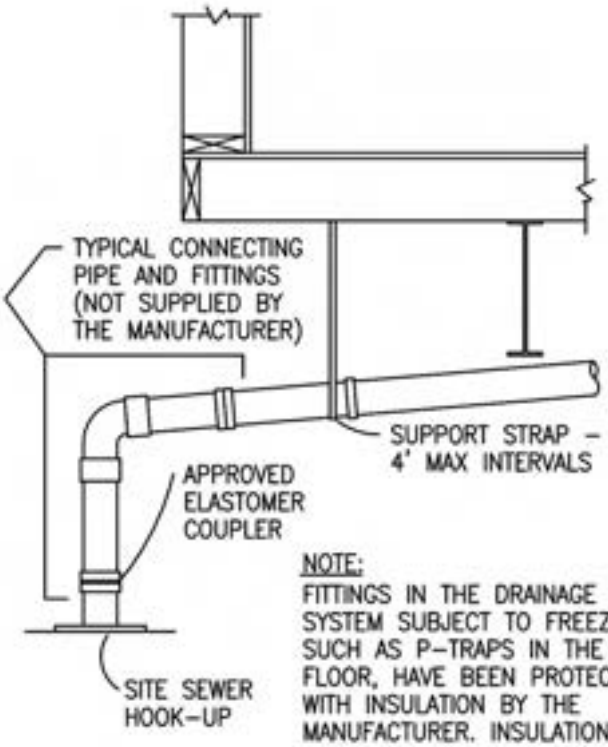


FIGURE 8.5
DRAIN PIPE SLOPES AND CONNECTIONS



NOTE:
FITTINGS IN THE DRAINAGE SYSTEM SUBJECT TO FREEZING SUCH AS P–TRAPS IN THE FLOOR, HAVE BEEN PROTECTED WITH INSULATION BY THE MANUFACTURER. INSULATION MUST BE REPLACED IF REMOVED FOR ACCESS TO THE P–TRAP.

FIGURE 8.6
CONNECTION TO SEWER

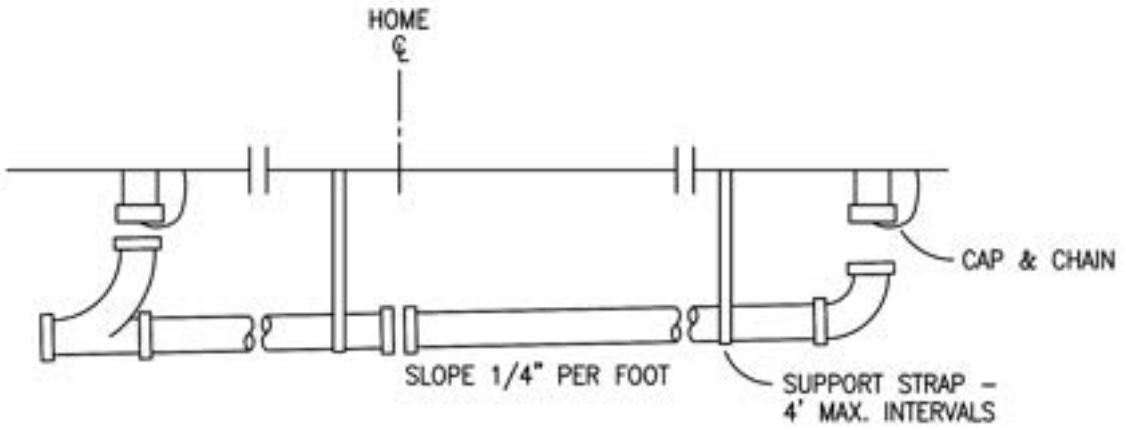


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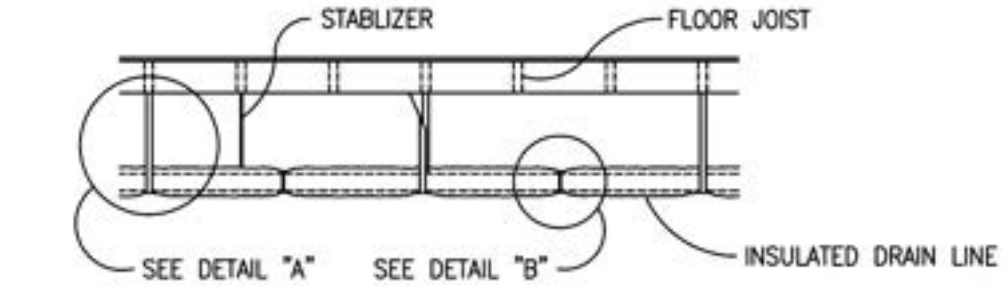
FIGURE 8.7
DRAIN LINE CROSSOVER CONNECTION



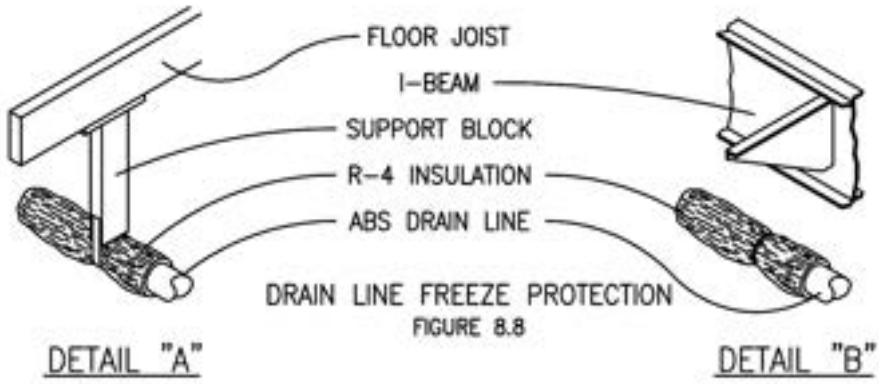


FIGURE 8.8
DRAIN LINE FREEZE PROTECTION

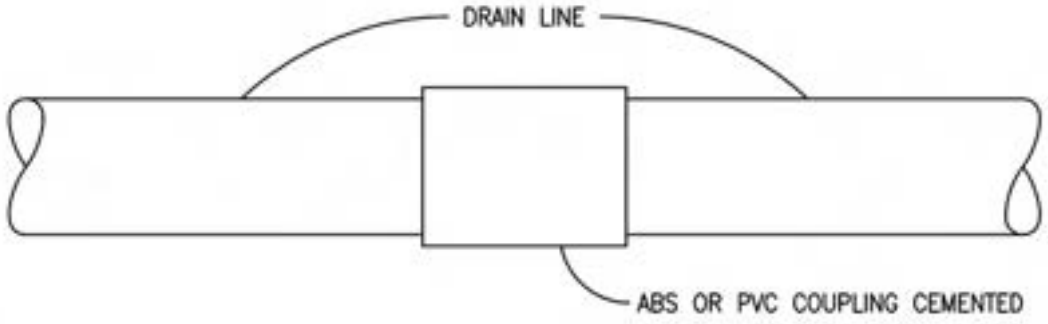
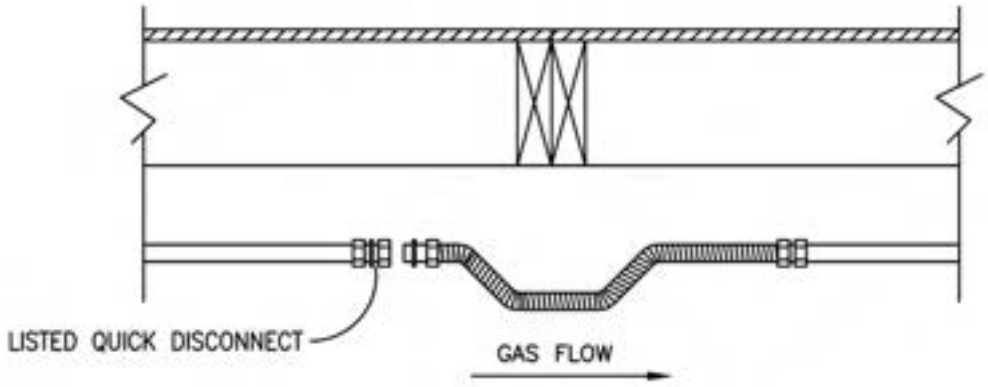


FIGURE 8.9
DRAIN CONNECTION (TYPICAL)



NOTES:

1. REMOVE DUST CAPS BEFORE CONNECTING.
2. CROSSOVER TO BE LISTED FOR EXTERIOR USE.
3. CROSSOVER TO BE SAME SIZE AS GAS PIPING.
4. USE GAS CONNECTORS SUPPLIED BY MANUFACTURER WHERE APPLICABLE.

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FIGURE 8.10
GAS LINE CROSSOVER CONNECTION

NOTES:

1. COLOR CODED WIRES (RED, BLACK, WHITE, AND GREEN) SUPPLIED BY OTHERS.
2. GREEN WIRE GROUNDED TO EARTH.

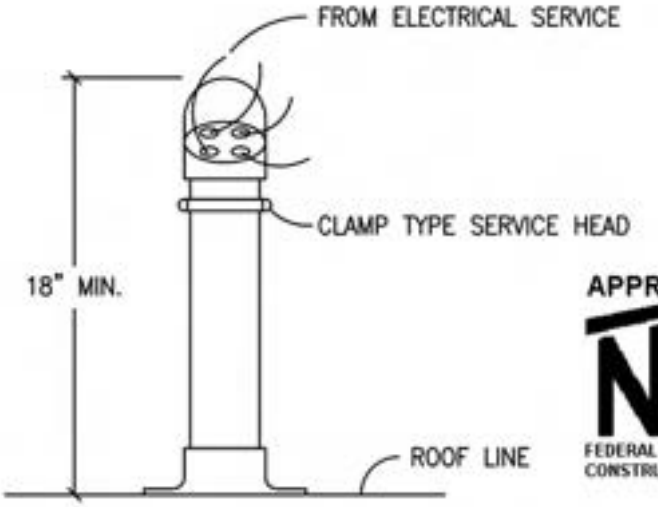

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FIGURE 8.11
TYPICAL OVERHEAD FEEDER ASSEMBLY

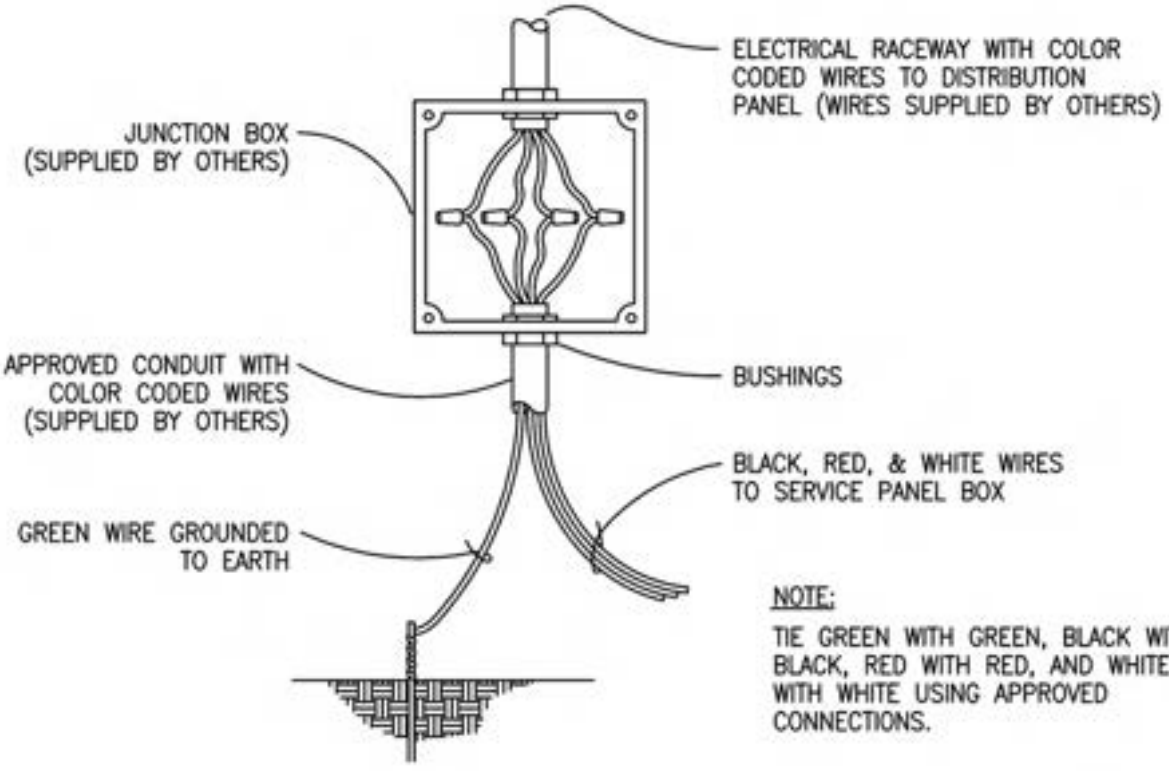

FIGURE 8.12
TYPICAL UNDERSIDE FEEDER ASSEMBLY

Table 8.13(a)
COPPER CONDUCTOR SIZE

SERVICE AMPS	WIRE SIZE		CONDUIT SIZE
	FEEDER	GROUNDING CONDUCTOR	
100	#4	#8	1-1/2"
125	#2	#6	2"
150	#1	#6	2"
200	#2/0	#4	2"

Refer to notes 1 and 2 for minimum box size.
Conductor types: RH-, RHH, -RHW, -THHN, -THW, -THWN, -XHHN, USE

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Table 8.13(b)
JUNCTION BOX SIZE

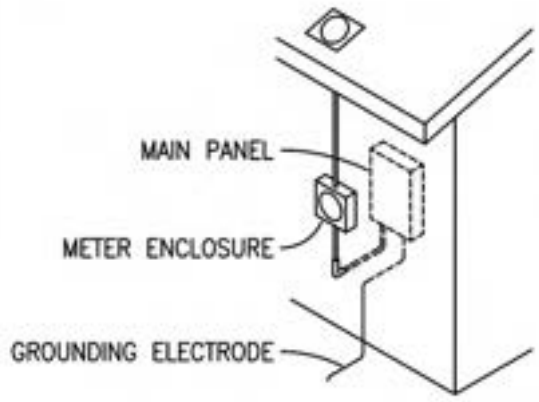
Notes:

1. For straight pulls, the length of the box shall not be less than eight times the trade diameter of the largest raceway.

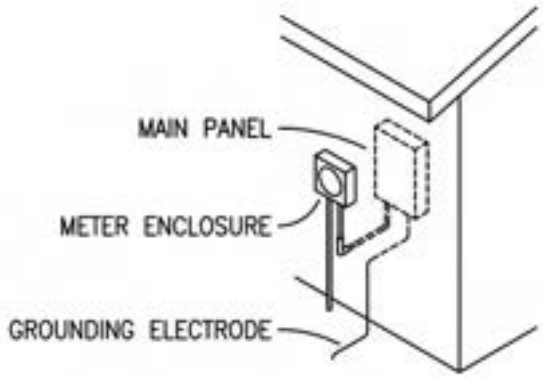
2. For angle pulls, the distance between each raceway entry inside the box and the opposite wall of the box shall not be less than six times the trade diameter of the largest raceway.

   Note: For angle pulls, if one of the raceway entries is opposite a cover, the distance between the entry and the cover may be less than indicated above, but shall not be less than given in the following table:

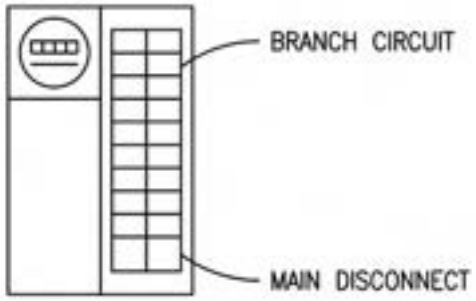
SIZE OF FEEDER CONDUCTORS TO BE INSTALLED Awg OR MCM	DISTANCE, RACEWAY ENTRY TO COVER IN.
4-3	2"
2	2-1/2"
1	3"
1/0-2/0	3-1/2"
3/0-4/0	4"
250	4-1/2"
300-350	5"



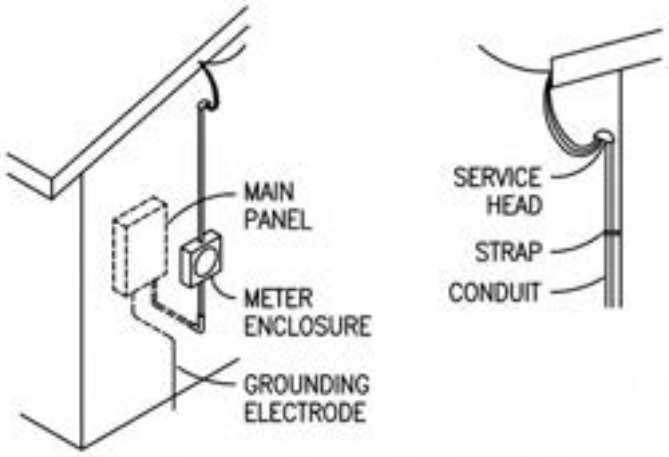
OVERHEAD ENTRANCE



UNDERGROUND ENTRANCE



EXTERIOR METER / PANEL BOX COMBONATION



ENTRANCE BELOW ROOF LINE

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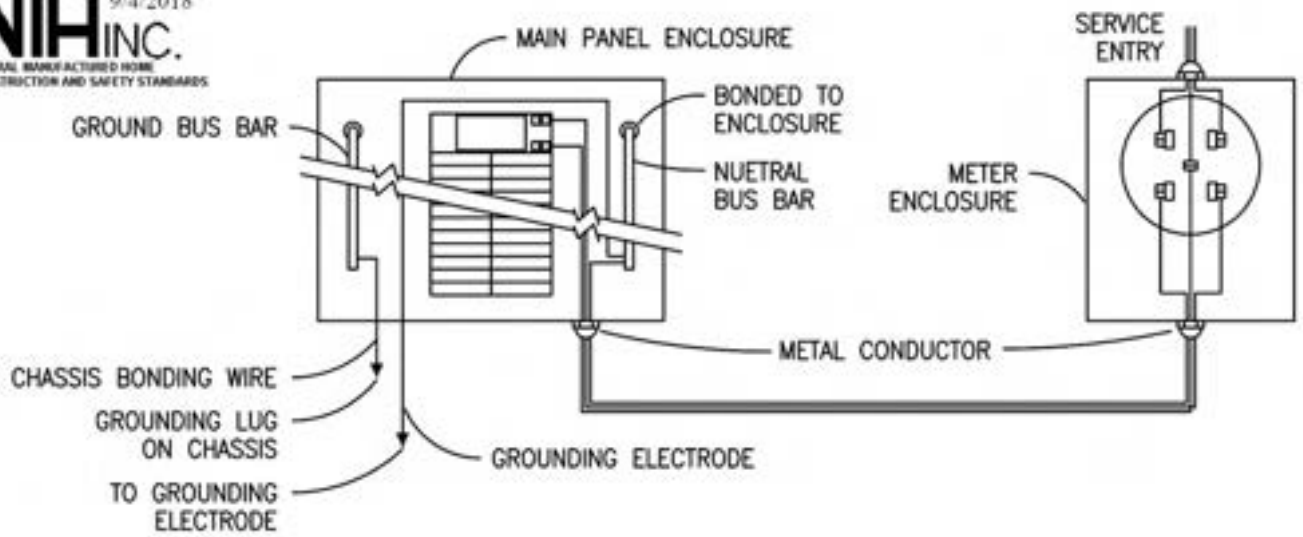
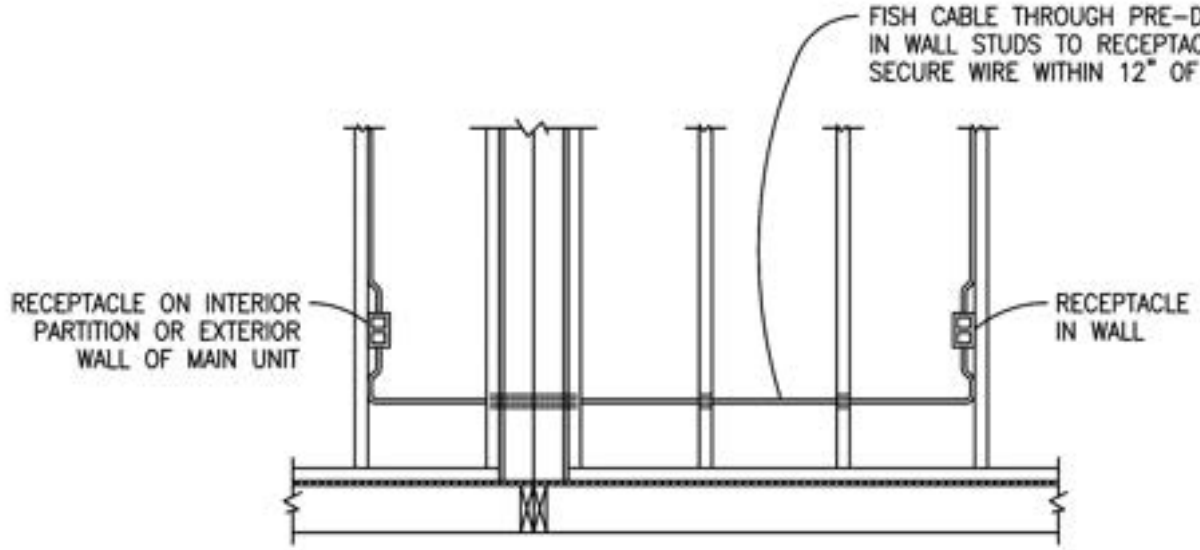


FIGURE 8.14
TYPICAL METER BASE INSTALLATIONS AND GROUNDING



NOTE:
TO ENSURE CIRCUIT CONTINUITY, CONNECT MATCHING COLOR CODED WIRES WITH APPROVED SPLICING DEVICES OR METHODS PER NEC.

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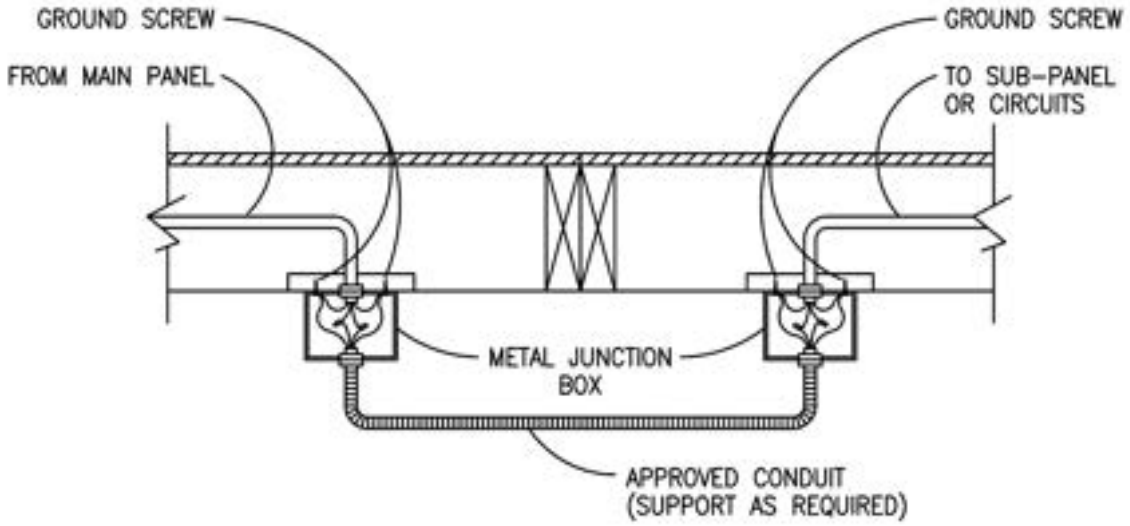
FIGURE 8.15A
ELECTRICAL CROSSOVER (ALTERNATE)



NOTES:
1. ONE GROUND WIRE (PIGTAIL) UNDER EACH GROUND SCREW.
2. JUNCTION BOXES TO BE INSTALLED BY MANUFACTURER.
3. TO ENSURE CIRCUIT CONTINUITY, CONNECT MATCHING COLOR CODED WIRES WITH APPROVED SPLICING DEVICES OR METHODS PER NEC.

FIGURE 8.15B
ELECTRICAL CROSSOVER (ALTERNATE)

NOTES:

1. ONE GROUND WIRE (PIGTAIL) UNDER EACH GROUND SCREW.
2. JUNCTION BOX TO BE INSTALLED BY MANUFACTURER.
3. TO ENSURE CIRCUIT CONTINUITY, CONNECT MATCHING COLOR CODED WIRES WITH APPROVED SPLICING DEVICES OR METHODS PER NEC.

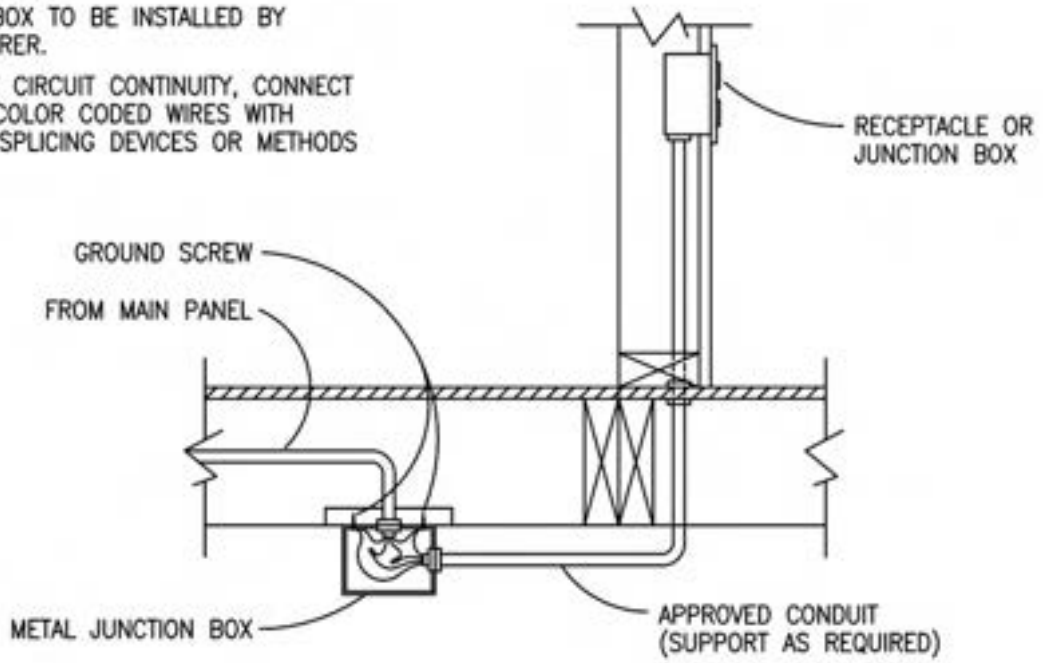


FIGURE 8.15C
ELECTRICAL CROSSOVER (ALTERNATE)

NOTES:

1. NM WIRE TO BE FIELD CONNECTED.
2. TO ENSURE CIRCUIT CONTINUITY, CONNECT MATCHING COLOR CODED WIRES WITH APPROVED SPLICING DEVICES OR METHODS PER NEC.

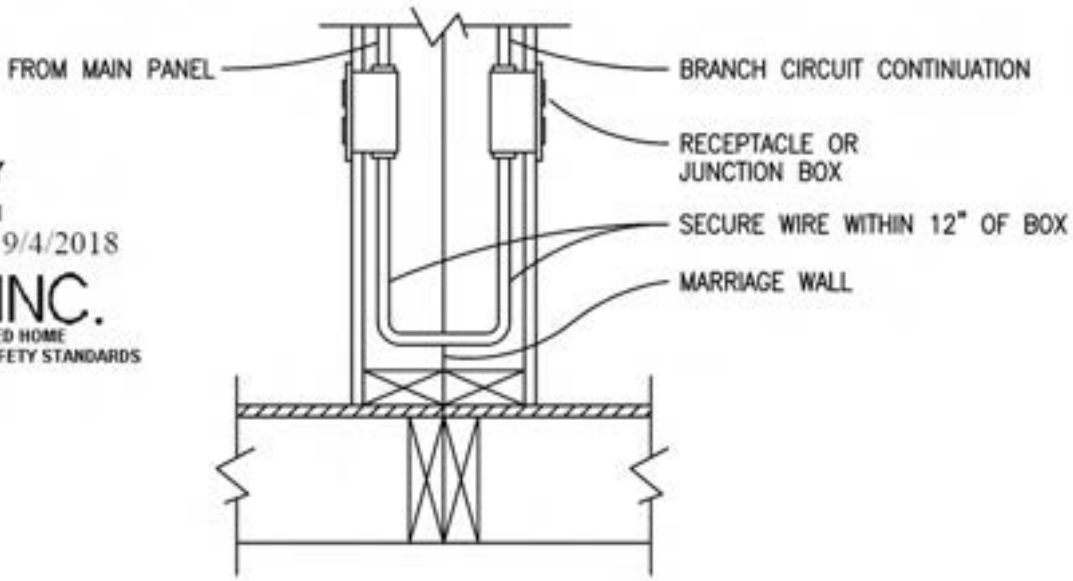


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FIGURE 8.15D
ELECTRICAL CROSSOVER (ALTERNATE) I-169

NOTES:

1. ONE GROUND WIRE (PIGTAIL) UNDER EACH GROUND SCREW.
2. JUNCTION BOX TO TO HAVE A BLANK COVER INSTALLED AFTER WIRING IS COMPLETED.
3. TO ENSURE CIRCUIT CONTINUITY, CONNECT MATCHING COLOR CODED WIRES WITH APPROVED SPLICING DEVICES OR METHODS PER THE NATIONAL ELECTRICAL CODE

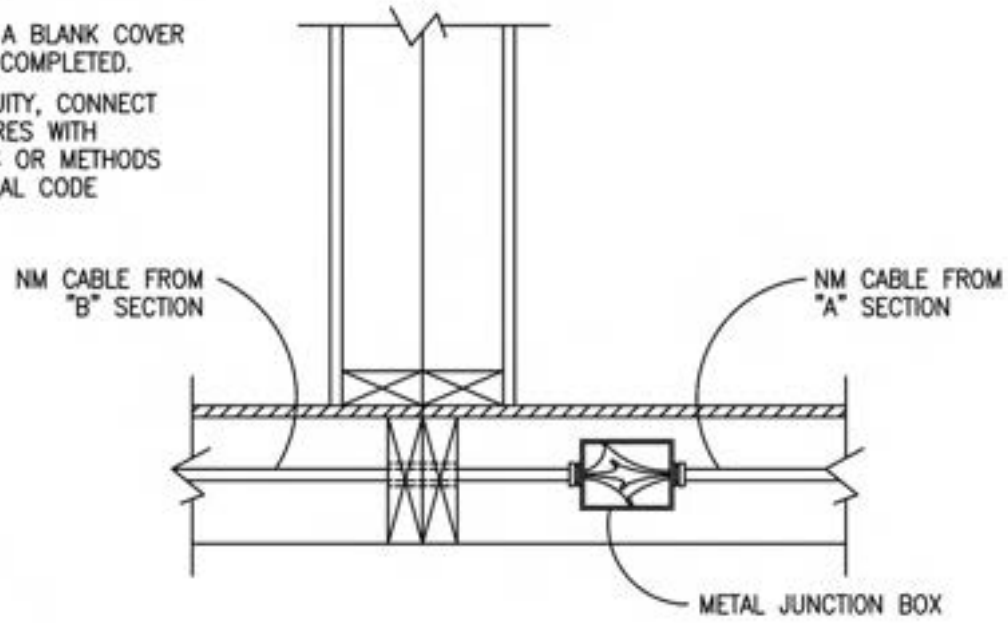

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FIGURE 8.15E
ELECTRICAL CROSSOVER (ALTERNATE)

NOTE:

INSTALL COPPER WIRE IN GROUND LUG ON OPPOSING CROSSMEMBER AND TIGHTEN FIRMLY.

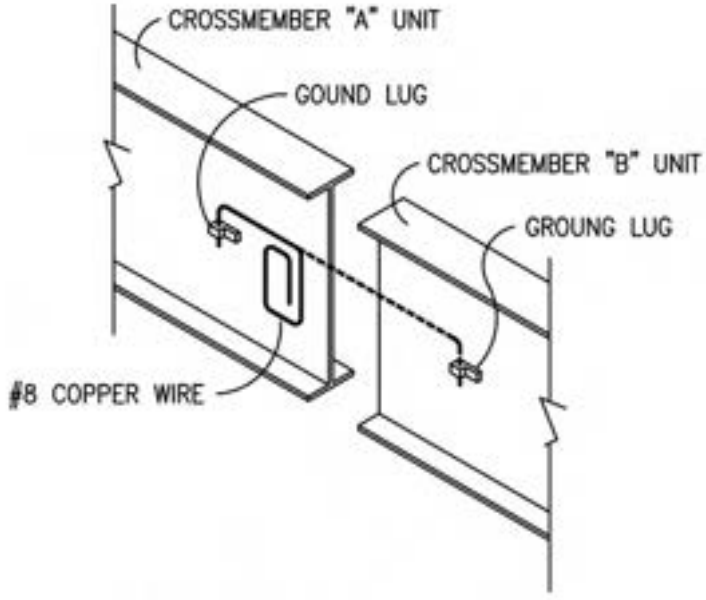

FIGURE 8.15F
BONDING OF MULTI–WIDE CHASSIS

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NOTES:

1. JUNCTION BOX TO TO HAVE A BLANK COVER INSTALLED AFTER WIRING IS COMPLETED.

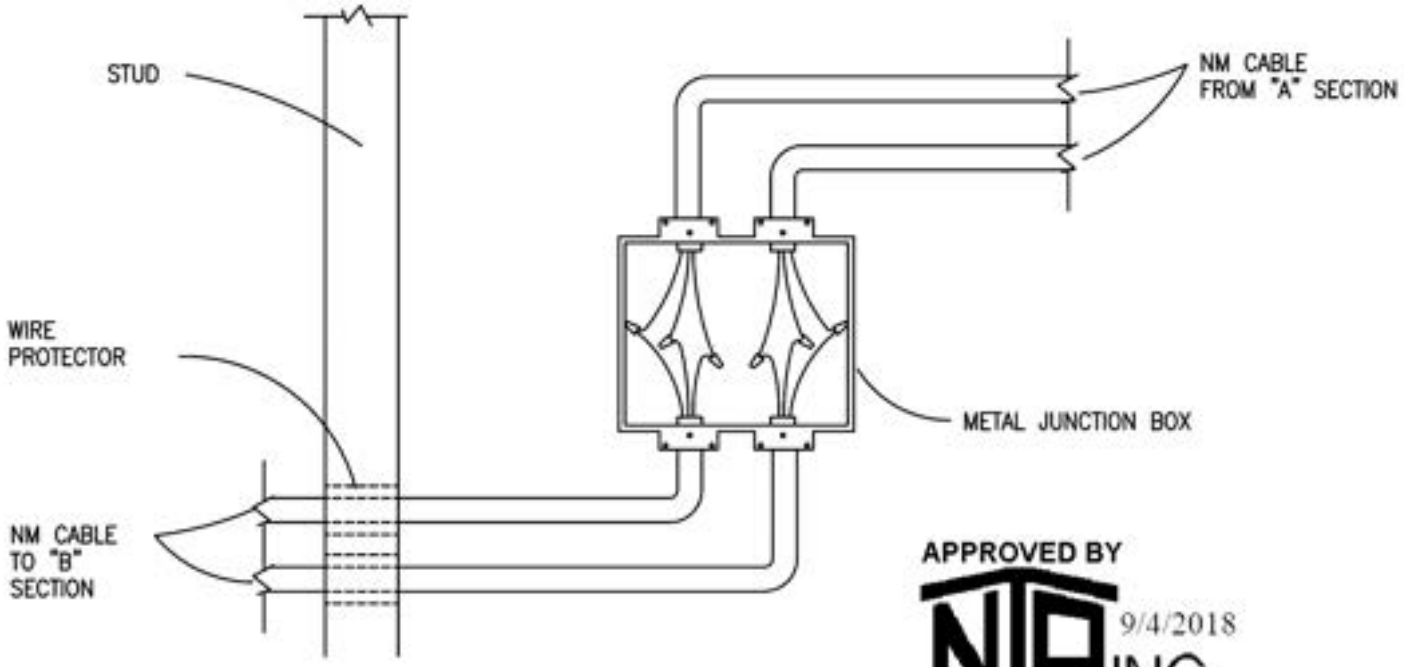

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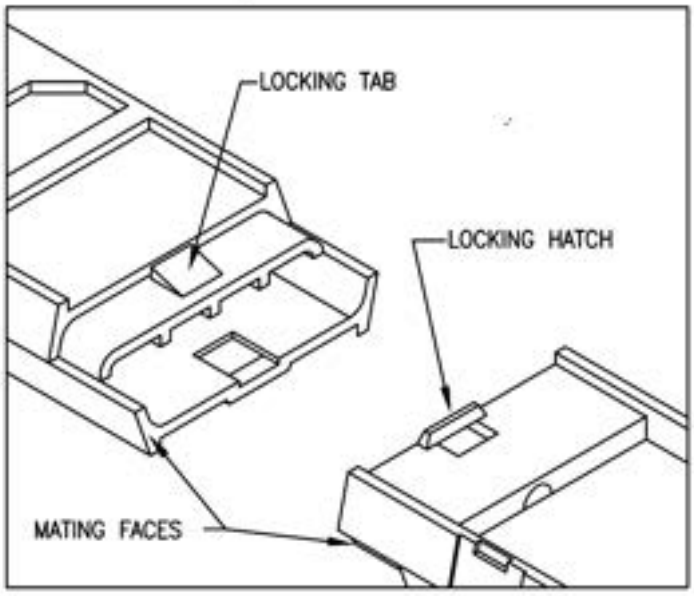
FIGURE 8.15(g)
ELECTRICAL CROSSOVER (ALTERNATE)



DETAIL OF SNAP-LOCK DEVICE

COUPLING SPLICES:
1. ORIENT THE SPLICES SO THE MATING ENDS ALIGN WITH EACH OTHER SHOWN IN THE FIGURE.
2. SLIDE THE SPLICES INTO EACH OTHER UNITL THE LOCKING LATCHES ENGAGE THE LOCKING TABS. ONCE COUPLED, THE SPLICES ARE NOT TO BE UNCOUPLED.

THIS COMPLETES THE ASSEMBLY OF THE CABLE SPLICING DEVICE.

MOUNTING SPLICES:
1. COUPLED SPLICES SHOULD BE MOUNTED TO STUDS OR POSTS WITH 4d COMMON NAILS.

CAUTION — DO NOT USE OVERSIZE NAILS OR DRIVE NAIL HEADS INTO SPLICE.

CAUTION — DO NOT UNCOUPLE SPLICES ONCE THEY HAVE BEEN MATED.

CAUTION — DO NOT RE-USE SPLICES.

FIGURE 8.15(h)
ELECTRICAL CROSSOVER (ALTERNATE)

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PROCEDURE:

1) REMOVE SHIPPING COVERS FROM ALL EXPOSED PIPING OR FITTINGS THAT EXTEND BELOW THE BOTTOM BOARD.
2) ALL PIPE AND FITTING CONNECTIONS SHALL BE PER THE CEMENT MANUFACTURERS INSTRUCTIONS WHICH IS PROVIDED. ANY PIPE SUPPLIED WITH SCREW FITTINGS MUST BE SEALED WITH TEFLON TAPE.

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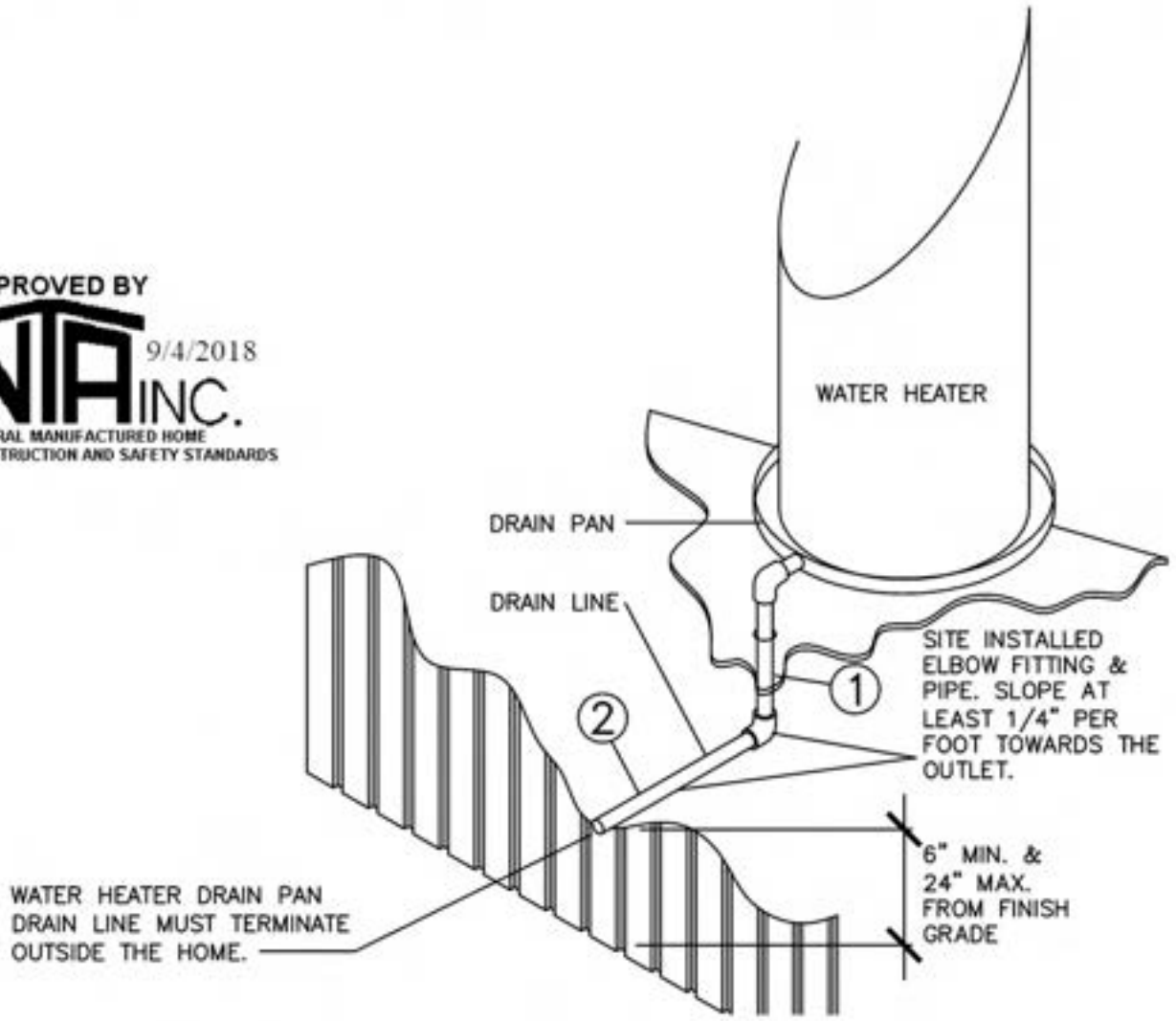

NOTES:
1. WATER HEATER TEMPERATURE AND PRESSURE (T&P) VALVE LINE MUST ALSO TERMINATE OUTSIDE THE HOME.
2. ALL TERMINATION POINTS MUST BE RODENT PROOF

FIGURE 8.16
WATER HEATER DRAIN INSTALLATION.

CHAPTER 9 - FINAL INSPECTION

Make a final inspection when home installation is complete to make sure that no items have been overlooked and that all work was done properly Place special emphasis on the following "checklist" items:

9.1 **Water and drain systems.** All water and drain systems work properly and do not leak.

9.2 **Appliance function and operation.** Appliances have been tested and work properly.

9.3 **Windows, doors and drawers.** All windows, doors and drawers work properly.

9.4 **Exit windows.** One window in each bedroom is designated as secondary exit to be used in case of emergency. Each exit window is labeled as such with operating instructions. All shipping hardware should be removed and the window should operate as explained in the window manufacturer's instructions.

9.5 **Exterior siding and trim.** There are no gaps, voids, or missing fasteners, and all seams are sealed.

9.6 **Stack heads and vent pipe flashings on roof.** All stack head or vent pipe flashings are properly attached and sealed.

9.7 **Composition roof.** All shingles are properly attached, none are loose or missing, and all holes are filled.

9.8 **Skirt venting.** The skirting around the home has nonclosing vents, located at or near each corner as high as possible to cross-ventilate the entire space under the home. The free area of these vents must be equal to at least one square foot for every 150 square feet of floor area of the home. The vent size must be increased to allow for insect screens, slats, louvers, etc., used over the open vent area.

9.9 **Low-hanging trees and bushes.** If there are any low-hanging trees or bushes near your home, trim or cut them. Think about the plants' possible movement during windy conditions or under snow or ice loads in limiting their future growth.

9.10 **Exhaust fan operation and air flow.** Check all exhaust fans for proper operation and air flow.

9.11 **Bottomboard.** Carefully inspect the bottom covering of the home for loosening or tears from installation of pipes or wires. Seal openings around the floor perimeter, pipes or pipe hangers and splits or tears with weather-resistant tape. See bottomboard manufacturers patching and repair instructions for proper methods (separately provided with this manual).

9.12 **Ground cover.** Repair any cuts or tears in the ground cover with tape.

9.13 **Anchors and straps.** Be sure the correct number of anchors have been installed at the proper angle, and that all straps have been tightened.

9.14 **Interior details.** Inspect for, and correct, all interior finishing details, such as loose molding, carpet seams, etc.

9.15 **P-Traps.** P-Traps must be checked to be sure they are well insulated and covered.

9.16 **Gas Lines**. The gas lines have been inspected and tested for leaks after completion at the site.

9.17 **Electrical System.** The electrical system has been inspected and tested after completion at the site.

The retailer's representative should inspect the home with the homeowner, give the homeowner a copy of the Homeowner's Manual, and brief the homeowner about maintaining the home.

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CHAPTER 10 - RELOCATING THE HOME

10.1 Relocation of the home. If it is necessary to move your home, **HAVE IT MOVED BY A PROFESSIONAL MANUFACTURED HOME MOVER, MAKE SURE HE USES ENOUGH TEMPORARY WOOD BLOCKING,** and check the following items:

10.1.1 New Zones. Check the roof and wind load and the temperature requirements at the new location. If the new requirements are greater than those shown on your home's compliance certificate, check the cost of adapting the home before moving. Otherwise, **any resulting damage will not be covered under your warranty, and you may be held liable for any failures.** Check with New Vision Manufacturing, your home retailer, or a qualified manufactured home mover about making these home improvements.

10.1.2 Tires and axles. Replace any removed tires or axles as required by the manufacturer. Be sure that tires are inflated correctly, have at least 1/16" tread, and do not have any cracks or splits. Check and repair bearings and brakes as necessary.

10.1.3 Appliances. Secure appliances to prevent movement during transportation.

10.1.4 Dust caps. Place dust caps on the ends of all pipe connections.

10.1.5 Blocking during storage. Any home placed in storage, including those on sales lots, must be immediately blocked under each I-beam for anticipated roof and floor loads to prevent excessive deflection and possible structural damage. Follow the blocking procedure specified in this manual or consult a registered professional engineer.

10.1.6 Transit of furniture and belongings. Substantial damage may result if furniture, personal belongings, setup materials or other items are stored in the home during transit. **TRANSIT DAMAGE IS NOT COVERED UNDER YOUR WARRANTY.**

10.1.7 Multisection homes. Re-install temporary structural supports and bracing materials before moving the home. Cover open sides of sections with weather-proof materials such as 6-mil plastic sheeting. After the sections have been separated, secure 2" x 6" shipping braces at the front end and in the axle area. Place ridge beam supports in open areas at a maximum of 4' on center.

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CHAPTER 11 – DISPLAY AND STORAGE OF THE HOME

11.1 Weather protection. If the installation is not started immediately upon delivery of the home, the retailer and/or installed has the responsibility to ensure the exterior weather protection covering of marriage walls and the roof of homes has not been damaged during shipment. Inspect the home immediately upon the delivery and frequently during storage. Promptly repair tears in the home closure materials to prevent damage from the elements. Inspect and repair nail holes in roof shingles with asphalt cement or replace damaged shingles. Inspect and repair siding as needed.

11.2 Supporting a home for display. When a new manufactured home is to be displayed at a retail location, temporarily block and support the home. Set up the home with a single block piers (maximum height per page Figure 4.1), metal piers or jack stands spaced no further apart than 12 feet on center beneath each I-beam. The tire and axle system may be used as one of these required supports and the hitch jack may be used as another. Locate the first pier no further than two feet from the rear end of the home (see figure below). Place additional pier along the perimeter on either side of openings greater than four feet (i.e. sliding glass doors, bay windows, etc.). For 18 wide homes perimeter piers must be spaced no further than 12 feet on center.

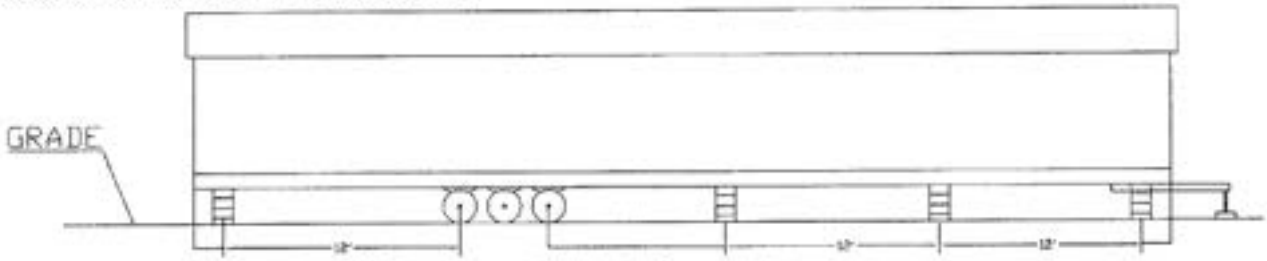

Figure 1. Supporting a home for display.

For mult- section homes, locate additional piers along the marriage line under support columns. These locations will be marked by the manufacturer.

For all homes, place footings below each pier. Footings may be placed directly on the surface grade without excavation and may be PVC pads, 2x10x16 inch long pressure treated lumber or 16"x16"x4" thick concrete pads.

11.3 Supporting a home for storage. To prevent damage to homes being stored at the manufacuter's facility, model home center or home site, but not on display (i.e. people shall not be permitted inside the home) for a period not exceeding thirty days, locate piers below each I-beam no further than two feet from each end of the home and at the approximate center of the home length. For 18' wide homes perimeter supports must also be spaced no further than 12 feet on center.

Whether the home is being supported for display or storage the height of the homes should be no higher than 48 inches as measured from the top of the ground to the bottom of the I-beam. In addition it is extremely important that the roof/ridge vents are installed while the home is on display. Failure to install the roof/ridge bents may lead to significant damage to the roof and home.

NEW VISION MANUFACTURING

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New Vision Manufacturing
1110 North Industrial Road
Ada, OK 74820

Installation Manual Addendum

February 2019

Subject: ***Special Foundation Systems – Tie Down Engineering Xi2 Foundation Systems***

This letter is intended to serve as an addendum to the New Vision Installation Manual as it pertains to foundations. New Vision has determined that Tie Down Engineering's Xi2 Systems are acceptable for use on their homes in Wind Zones 1 and 2 under the following conditions:

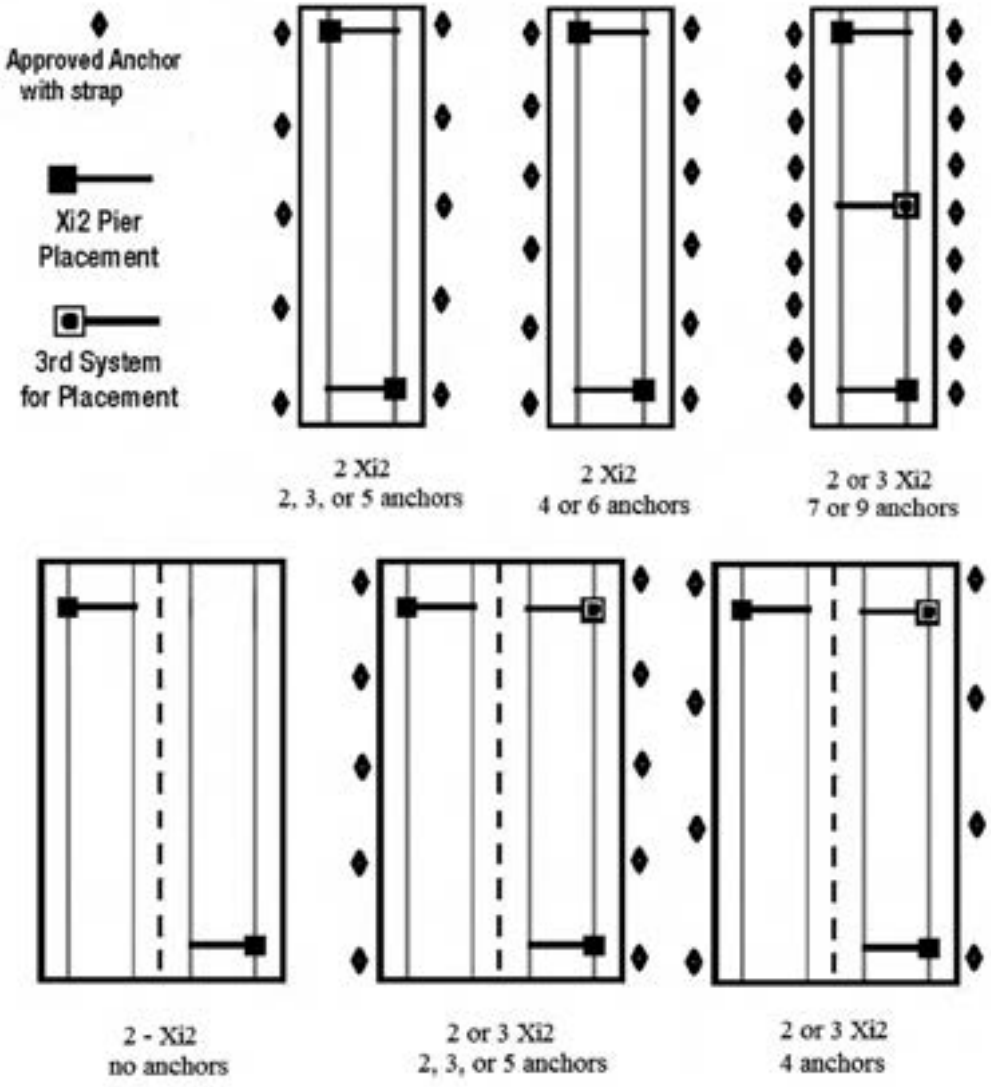
- Maximum sidewall height = 96″
- Main I-bean spacing = 99.5″
- Maximum eave projection = 12″
- Single Wide home widths from 164″ to 204″
- Double Wide home widths from 328″ to 360″
- Maximum roof pitch <20 degrees
- Maximum prier height = 36″
- All foundation systems are installed per manufacturers installation instructions

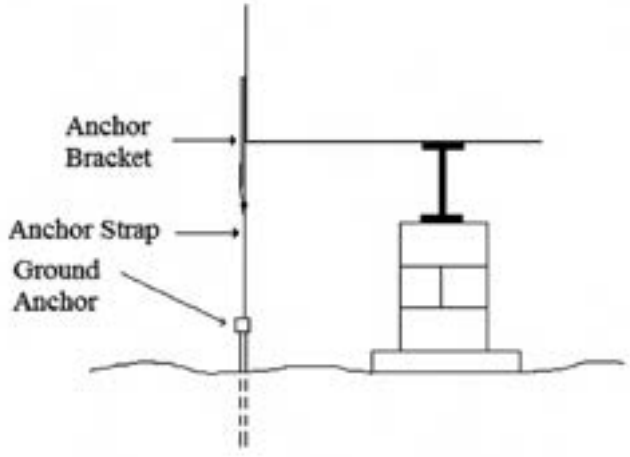
In addition to the Xi2 Foundation Systems, ground anchors and strapping (3150 lbs. allowable load) may need to be installed vertically to the sidewall, evenly spaced along the home (beginning no more than two feet from either end of the home) to restrain against uplift and over turning forces. No additional anchoring of the main beams is required when using the Xi2 System.

The minimum number of systems & anchoring required as follows:

Xi2 Foundation System						
	1810 min. lbs. Bracket			2350 min. lbs. Bracket		
	Max. Box Length	No. of Xi2 Systems	No. of Anchors at Each Side	Max. Box Length	No. of Xi2 Systems	No. of Anchors at Each Side
Singlewides						
Box Width >		204" Max.	164" Min.		204" Max.	164" Min.
WZ1	80'	2	2	80'	2	2
WZ2	0 - 52'	2	5	0 - 48'	2	4
	53' - 56'	2	6	49' - 60'	2	5
	57' - 64'	2	7	61' - 72'	2	6
	65' - 76'	2	8	73' - 80'	3	7
	76' - 80'	3	9			
Doublewides						
Box Width >		2 x 180" Max.	2 x 164" Min.		2 x 180" Max.	2 x 164" Min.
WZ1	80'	2	0	80'	2	0
WZ2	0 - 52'	2	3	0 - 44'	2	2
	53' - 68'	2	4	45' - 68'	2	3
	69' - 76'	2	5	69' - 76'	2	4
	77' - 80'	3	5	77' - 80'	3	4

The Xi2 Foundation Systems and ground anchors shown in the table shall be located as shown below:





Typical Anchor at Sidewall Detail

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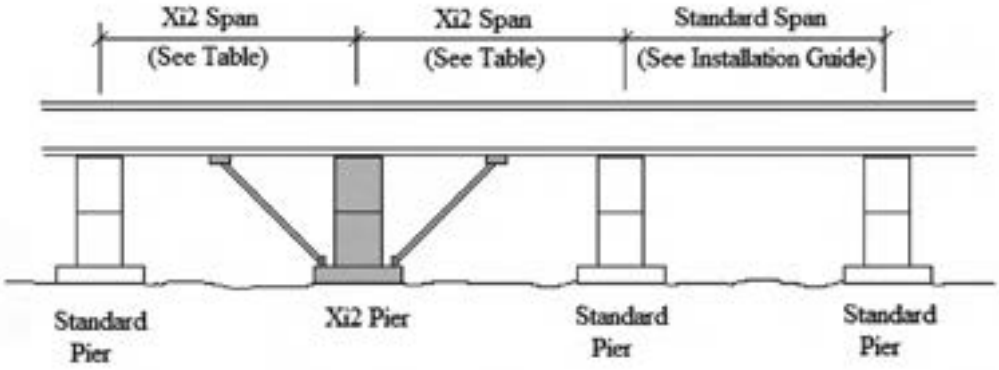
Feb 21, 2019



Xi2 Pier Span to Adjacent Piers

Concrete block piers and pads shown. Scheme is same for other approved piers and pads

36" Max. Pier Height

Xi2 Pier Span to Adjacent Piers		
Min. Soil Bearing	Min. Footing Size	Max. Section Width 204 in.
1000 psf	21" x 21"	n/a
	24" x 24"	n/a
	30" x 30"	n/a
	36" x 36"	3.52 ft.
1500 psf	21" x 21"	n/a
	24" x 24"	n/a
	30" x 30"	4.15 ft.
	36" x 36"	10.00 ft.
2000 psf	21" x 21"	n/a
	24" x 24"	n/a
	30" x 30"	9.45 ft.
	36" x 36"	10.00 ft.
2500 psf	21" x 21"	n/a
	24" x 24"	5.21 ft.
	30" x 30"	10.00 ft.
	36" x 36"	10.00 ft.
3000 psf	21" x 21"	3.51 ft.
	24" x 24"	8.60 ft.
	30" x 30"	10.00 ft.
	36" x 36"	10.00 ft.
4000 psf	21" x 21"	8.70 ft.
	24" x 24"	10.00 ft.
	30" x 30"	10.00 ft.
	36" x 36"	10.00 ft.

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REGISTERED PROFESSIONAL ENGINEER
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Feb 21, 2019

As stated in the Tie Down Engineering installation instructions the Xi2 is intended to replace one of the typical piers along the main beams of the home, and it may do so only as long as the criteria shown in the table above are followed. In no case can the span of the Xi2 piers exceed those for the standard piers as shown in the *New Vision Installation Guide*. The footings in the table above for the Xi2 system are indicated as cast-in-place concrete, but, where the 21"x21"x8" size is indicated in the table they may be replaced by the 21"x21" steel pads by Tie Down Engineering. The steel pads may not be used as a substitute in 4000 psf soils. The rest of the footings under the home may be any type approved in the *New Vision Installation Guide.*

In accordance with the Tie Down Engineering installation instructions any skirting installed with the home needs to be of the type that does not imposed any lateral loading on the home. Acceptable skirting includes vinyl skirting, any ventilated type, and any "tear away" skirting.

The conclusions in this letter are based on test reports provided by Tie Down Engineering as well as DAPIA approved comparison calculations performed by New Vision Engineering and QC departments.

For all other items pertaining to Tie Down Engineering's System, please reference Tie Down Engineering's current installation instructions

See the *New Vision Installation Guide* for all other applicable set up requirements not covered by this letter. Please contact us for any questions or additional information.

Sincerely,

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Jeremy Riddle

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