

LEGACY HOUSING INSTALLATION MANUAL

Keep this booklet with your manufactured home. Title VI of the Housing and Community Development Act of 1974 provides you with protection against certain construction and safety hazards in your manufactured home. To help assure your protection, the manufacturer of your manufactured home needs the information which these cards, when completed and mailed, will supply. If you bought your home from a dealer, please be sure that your dealer has completed and mailed a card for you. If you acquired your home from someone else who is not a dealer, you should promptly fill out and send a card to the manufacturer. It is important that you keep this booklet and give it to any person who buys the manufactured home from you.



EDITION 1.11
01-01-2026



MANUFACTURER'S ONE-YEAR LIMITED WARRANTY

Legacy Housing, LTD. (the "Manufacturer") warrants that your new home has been constructed in accordance with all building codes, standards, requirements, and regulations prescribed by the United States Department of Housing and Urban Development under the National Manufactured Housing Construction and Safety Standards Act of 1974 (42 U.S.C. Section 5401 et seq.), and that the home, including the structure, plumbing, heating and electrical systems, and all appliances and equipment installed by the Manufacturer, is free, under normal use, from manufacturing defects in material or workmanship, except for cosmetic defects. This warranty is in effect until the first anniversary of the date of initial installation of the home at the consumer's homesite, or the closing of the consumer's purchase or acquisition of an already installed new home, whichever is later.

The appliances and equipment in the home may be covered by warranties provided by the manufacturers of such items. Such warranties will be delivered to you with the home.

THIS WARRANTY EXTENDS ONLY TO THE FIRST RETAIL OR COMMERCIAL PURCHASER AND APPLIES ONLY WHILE THE HOME IS LOCATED AT THE ORIGINAL RETAIL OR COMMERCIAL SITE. SOME STATES MAY NOT PERMIT SUCH LIMITATIONS DURING THE FIRST YEAR OF THE WARRANTY, SO THESE LIMITATIONS MAY NOT APPLY TO YOU.

This warranty covers only those defects which become evident within the applicable warranty period and where written notice is provided to the retailer or Manufacturer not later than fifteen (15) days after the expiration of the warranty period.

You, the Owner of the home, are responsible for normal maintenance as described in the Owner's Manual. If a problem occurs which the Owner believes is covered by this warranty, the Owner should contact the retailer from whom the home was purchased, provide the retailer with a written description of the problem, and cooperate so that the problem can be resolved by the retailer. If the retailer is unable to resolve a problem which the Owner is convinced is covered by this warranty, the Owner should contact the Manufacturer at the address listed below, and provide a written description of the problem and the attempts made to resolve it.

Upon receipt of such written description, and where the retailer was unable to resolve the problem, the Manufacturer will perform any repairs or replace any parts necessary to correct defects in material or workmanship covered by this warranty, or will take other appropriate action as may be required.

THIS WARRANTY DOES NOT COVER ANY OF THE FOLLOWING:

- 1. ANY HOME REGISTERED OR LOCATED OUTSIDE THE UNITED STATES.**

2. **PROBLEMS RESULTING FROM A FAILURE TO COMPLY WITH INSTRUCTIONS CONTAINED IN THE OWNER'S INSTALLATION MANUAL.**
3. **BEDDING, DRAPERIES, FURNITURE, TIRES, WHEELS OR AXLES.**
4. **APPLIANCES OR ACCESSORIES PROVIDED OR INSTALLED BY THE RETAILER OR A THIRD PARTY.**
5. **DEFECTS OR PROBLEMS CAUSED BY OR RELATED TO:**
 - A. **IMPROPER SOIL CONDITIONS, SITE PREPARATION, INSTALLATION OR VENTILATION AT THE RETAIL PURCHASER'S SITE, RESULTING IN WATER OR OTHER DAMAGE;**
 - B. **USE, IN THE HOME, OF A KEROSENE HEATER OR OTHER TYPE OF FUEL-BURNING PORTABLE HEATER;**
 - C. **ABUSE, MISUSE, NEGLIGENCE OR ACCIDENT;**
 - D. **ALTERATION OR MODIFICATION OF THE HOME; OR**
 - E. **NORMAL DETERIORATION DUE TO WEAR OR EXPOSURE.**
6. **LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, LOSS OF USE OF THE HOME, INCIDENTAL CHARGES SUCH AS TELEPHONE CALLS, HOTEL BILLS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.**

ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, HABITABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THE ITEMS OR COMPONENTS COVERED BY THIS ONE-YEAR EXPRESS LIMITED WARRANTY ARE LIMITED IN DURATION TO THE TERM OF THIS EXPRESS LIMITED WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

The remedies provided in this warranty are the owner's exclusive remedies. The Manufacturer is not responsible for any undertaking, representation or warranty made by a retailer or other person or entity beyond those expressly set forth in this warranty.

LEGACY HOUSING, LTD.
4801 MARK IV PARKWAY
FT. WORTH, TEXAS 76106



Dispute Resolution Process

Many states have a consumer assistance or dispute resolution program that homeowners may use to resolve problems with manufacturers, retailers, or installers concerning defects in their manufactured homes that render part of the home unfit for its intended use. Such state programs may include a process to resolve a dispute among a manufacturer, a retailer, and an installer about who will correct the defect. In states where there is not a dispute resolution program that meets the federal requirements, the HUD Manufactured Home Dispute Resolution Program will operate. These are "HUD-administered states." The HUD Manufactured Home Dispute Resolution Program is not for cosmetic or minor problems in the home. You may contact the HUD Manufactured Housing Program Office at (202) 708-6423 or (800) 927-2891, or visit the HUD website at www.hud.gov to determine whether your state has a state program or whether you should use the HUD Manufactured Home Dispute Resolution Program. Contact information for state programs is also available on the HUD website. If your state has a state program, please contact the state for information about the program, how it operates, and what steps to take to request dispute resolution. When there is no state dispute resolution program, a homeowner may use the HUD Manufactured Home Dispute Resolution Program to resolve disputes among the manufacturer, retailer, and installer about responsibility for the correction or repair of defects in the manufactured home that were reported during the 1-year period starting on the date of installation. Even after the 1-year period, manufacturers have continuing responsibility to review certain problems that affect the intended use of the manufactured home or its parts, but for which correction may no longer be required under federal law.

Additional Information

HUD Manufactured Home Dispute Resolution Program

The steps and information outlined below apply only to the HUD Manufactured Home Dispute Resolution Program that operates in HUD-administered states, as described under the heading "Dispute Resolution Information" in this manual. Under the HUD Manufactured Home Dispute Resolution Program, homeowners must report defects to the manufacturer, retailer, installer, a State Administrative Agency, or HUD within 1 year after the date of the first installation. Homeowners are encouraged to report defects in writing, including, but not limited to, email, written letter, certified mail, or fax, but they may also make a report by telephone. To demonstrate that the report was made within 1 year after the date of installation, homeowners should report defects in a manner that will create a dated record of the report: for example, by certified mail, by fax, or by email. When making a report by telephone, homeowners are encouraged to make a note of the phone call, including names of conversants, date, and time. No particular format is required to submit a report of an alleged defect, but any such report should at a minimum include a description of the alleged defect, the name of the homeowner, and the address of the home.

Homeowners are encouraged to send reports of an alleged defect first to the manufacturer, retailer, or installer of the manufactured home, or a State Administrative Agency. Reports of alleged defects may also be sent to HUD at: HUD, Office of Regulatory Affairs and Manufactured Housing, Attn: Dispute Resolution, 451 Seventh Street, SW., Washington, DC 20410-8000; faxed to (202) 708-4213; e-mailed to mhs@hud.gov, or reported telephonically at (202) 708-6423 or (800) 927-2891. If, after taking the steps outlined above, the homeowner does not receive a satisfactory response from the manufacturer, retailer, or installer, the homeowner may file a dispute resolution request with the dispute resolution provider in writing, or by making a request by phone. No particular format is required to make a request for dispute resolution, but the request should generally include the following information: (1) The name, address, and contact information of the homeowner; (2) The name and contact information of the manufacturer, retailer, and installer of the manufactured home; (3) The date or dates the report of the alleged defect was made; (4) Identification of the entities or persons to whom each report of the alleged defect was made and the method that was used to make the report; (5) The date of installation of the manufactured home affected by the alleged defect; and (6) A description of the alleged defect. Information about the dispute resolution provider and how to make a request for dispute resolution is available at <http://www.hud.gov> or by contacting the Office of Manufactured Housing Programs at (202) 708-6423 or (800) 927-2891. A screening agent will review the request and, as appropriate, forward the request to the manufacturer, retailer, installer, and mediator. The mediator will mediate the dispute and attempt to facilitate a settlement. The parties to a settlement include, as applicable, the manufacturer, retailer, and installer. If the parties are unable to reach a settlement that results in correction or repair of the alleged defect, any party or the homeowner may request nonbinding arbitration. Should any party refuse to participate, the arbitration shall proceed without that party's input. Once the arbitrator makes a non-binding recommendation, the arbitrator will forward it to the parties and HUD. HUD will have the option of adopting, modifying, or rejecting the recommendation when issuing an order requiring the responsible party or parties to make any corrections or repairs in the home. At any time before HUD issues a final order, the parties may submit an offer of settlement to HUD that may, at HUD's discretion, be incorporated into the order. In circumstances where the parties agree that one or more of them, and not the homeowner, is responsible for the alleged defect, the parties will have the opportunity to resolve the dispute outside of the HUD Mediation and Arbitration process by using the Alternative Process. Homeowners will maintain the right to be informed in writing of the outcome when the Alternative Process is used, within 5 days of the outcome. At any time after 30 days of the Alternative Process notification, any participant or the homeowner may invoke the HUD Manufactured Home Dispute Resolution Program and proceed to mediation. The HUD Manufactured Home Dispute Resolution Program is not a warranty program and does not replace the manufacturer's or any other warranty program.

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LEGACY HOUSING Ltd.

Installation and Homeowner's Manual

Addendum

Please be advised that the standard for tie down straps has been updated to the ASTM Standard Specification D3953-97; "Standard Specification for strapping, flat steel, and Seals". This standard will be effective after June 8th, 2014.



INTRODUCTION

TO THE HOMEOWNER:

Thank you for purchasing one of our manufactured home. This Installation Manual contains instructions that must be followed for the proper installation of your home. **PLEASE READ ALL INSTRUCTIONS PRIOR TO SET-UP.**

Chapter 1 - Introduction

1.1 How to use this manual

This manual contains detailed installation instruction, including specifications and procedures, for installation and hook-up of your manufactured home. It has been written in an objective and easy-to-understand manner. It discusses the installation of the home from preparation of the site through final inspection. It includes many tables and figures giving important data for proper installation. Careful adherence to this manual by the installation crew will assure you of a quality, safe and affordable home for many years to come. Consultation with a registered professional architect or engineer for those unusual circumstances not covered in this manual is required.

1.2 Pre-installation Considerations

Prior to locating or relocation of 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, installation zoning or development covenants may apply and should also 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 Alterations

Prior to altering this home after installation, (such as modifying the electrical, plumbing or heating systems, adding a room, carport, garage, or major repairs) be sure to contact the authority having jurisdiction, as a permit or plan approval may be required. **ALSO SUCH ALTERATIONS MAY VOID IN WHOLE OR IN PART THE LIMITED WARRANTY CONTAINED IN THE SET-UP MANUAL.**

1.4 SAFETY

ONLY TRAINED CREWS SHOULD INSTALL THE HOME. INSTALLERS SHOULD FOLLOW

THE SAFETY INSTRUCTIONS PROVIDED IN THIS MANUAL.

WARNING

THIS HOME WEIGHS SEVERAL TONS. USE ENOUGH TEMPORARY WOOD BLOCKING TO SUPPORT THE HOME DURING SET-UP OR WHEN LOCATED AT DEALER LOTS OR FACTORY FOR AN EXTENDED PERIOD OF TIME. NO ONE SHOULD BE ALLOWED UNDER THE HOME UNLESS THE BLOCKING IS SECURELY IN PLACE, EVEN IF THE HOME IS NOT MOVING.

1.5 Consumer Information Card

The distributor or dealer of your manufactured home shall fill out the CONSUMER INFORMATION CARD located with the invoice packet shipped with your home and return it to the plant which manufactured your home, so that you may be notified of revised instruction or new products.

1.6 Before you begin

There are several documents that must be reviewed prior to the installation of this home. They can be found in the important information packet shipped with this home.

Utility schematics

If your home has more than one drain drop out a copy of the drain line drawing will be shipped with your home.

Installation Manual Supplements

Supplement pages may be included with this manual. These supplements outline special features included in the home which are not covered in the set-up manual, or which differ from details in the set-up manual.

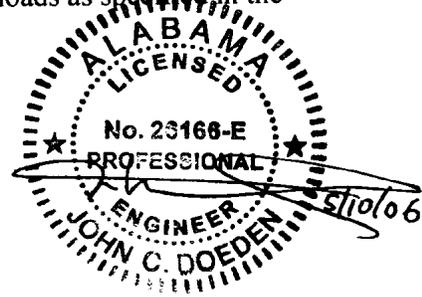
APPROVED BY

**NIA** INC.
Revised
Aug 14, 2000
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

Legacy Housing

Alternate Floor Widths

All tables in the installation manual that specify 180" floor width with 12" maximum eaves may be used for 184" wide floor with 8" maximum eaves. This is acceptable for Wind Zones 1, 2, and 3 and for 20, 30, and 40 psf roof live loads as specified in the FMHCSS.



APPROVED BY



May 25, 2006

FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

Legacy Housing Retail Location and Storage Guidelines

Weather Protection

If the installation cannot be started immediately upon delivery of the home, the retailer and/or the installer has the responsibility to ensure the exterior weather protection of multi section marriage walls and endwalls of homes with vinyl siding has not been damaged during shipment. The home should be inspected immediately upon delivery and frequent inspections should be conducted during storage. Any and all tears in the weather proofing materials shall be made to prevent any damage from the elements. Roof shingles and siding shall also be inspected and repairs made as needed.

Support Blocking

Where allowed by local jurisdiction, the following guidelines may be used in lieu of the instructions noted in our installation manual for any Legacy Housing manufactured home on display at a retail lot in a temporary manner or for storage.

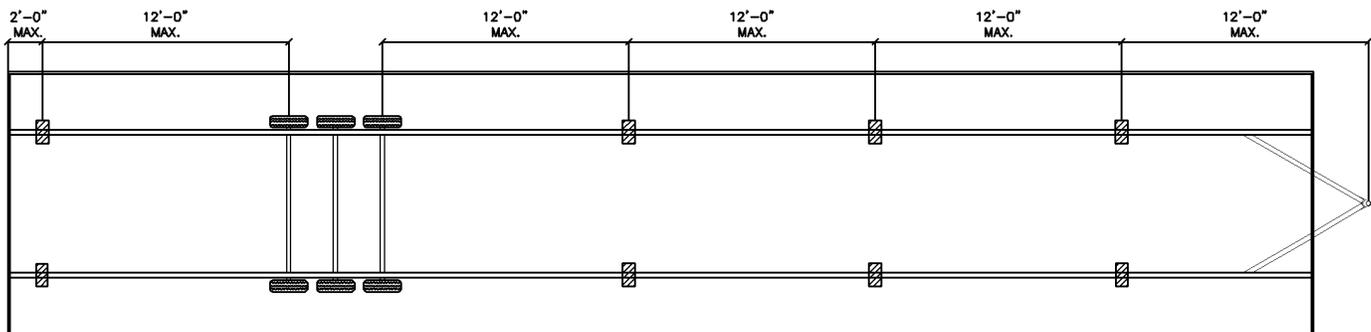
Homes for Display:

Single section homes shall be setup with single block piers, metal piers or jack stands spaced 12'-0" on center maximum beneath each I-beam. The tire and axle system of the home may be used as one of the required supports. Additionally, the hitch jack may also be used as one of the required supports. One pier shall be located 2'-0" maximum from the rear of the home with additional piers located at openings 4'-0" or greater (i.e. sliding glass doors, bay windows, etc.).

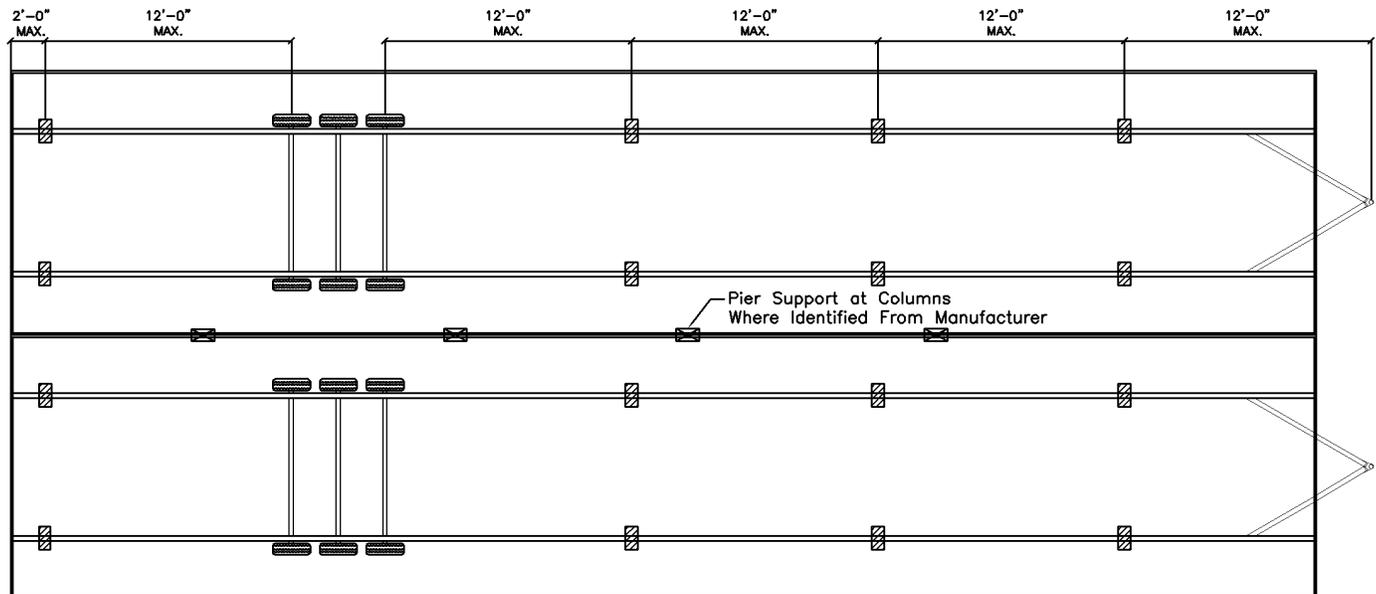
Multi section homes also require additional supports below marriage wall column supports along the mate line. These locations are identified from the manufacturer.

Footings are required below each pier and may be placed directly on the surface grade without excavation. Footings may be ABS pads, 2"x10"x16" pressure treated lumber or 16"x16"x4" concrete pads.

Single Section Home



Multi Section Home



Homes for Storage:

Homes being stored for more than 30 days shall be supported to prevent any premature damage. A pier must be located 2'-0" maximum each end of the home below each I-beam. An additional pier may be placed at approximately the center of the home length at each I-beam.

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 equipment shall be approved or certified for use on HUD Code homes.

Anchoring System

A combination of ties, anchoring equipment, and ground anchors that will, when properly designed and installed, resist the overturning of the home or sideways movement caused by wind.

Authority Having Jurisdiction

The organization, office, or individual responsible for approving plans, equipment, an installation, or an alteration procedure.

Data Plate

Self adhesive label required on all manufactured homes containing: name and address of manufacturer, serial no., model no., date of manufacture, list of appliances, zone maps and design approval name.

Diagonal Tie

A tie intended to resist horizontal or shear forces and to resist vertical, uplift, and overturning forces.

Frame, Main

That part of the structural system that is normally used to transmit accumulative design loads to the support system.

Footing

The part of the support system that sits directly on the ground at, below or partly below grade to support the piers or foundations.

Foundation

That part of a building that is an engineered structure designed to transfer the weight of the building or structure to the soil.

Information Packet

The important papers provided with the home including appliance instructions, warranties, set-up and home owner manuals, etc.

Installation

Assembly, at the site of occupancy, of all portions of the manufactured home, connection of the home to existing utility connections, and installation of support or anchoring systems.

Installation Instructions

Instructions provided by the manufacturer, which accompany each manufactured home and detail the manufacturer's requirements for ground support, anchoring systems, and other work completed on site.

Pier

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, and
3. Concrete blocks

Should: This is a recommendation.

Shall: This is a requirement.

Site, Manufactured Homes

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.

Skirting

A weather-resistant material used to enclose the space from the bottom of the manufactured home to grade.

Stabilizing Devices

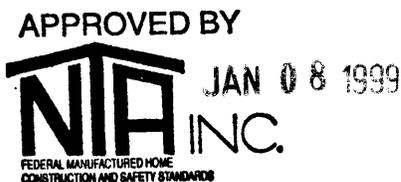
All components of the anchoring and support systems, such as piers, footings, ties, anchoring equipment, ground anchors, or any other materials and methods of construction that support and secure the manufactured home to the ground.

Stand, Manufactured Home

That area of a manufactured home site that has been reserved for the 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 - Use of Zone Maps

Your home is designed for certain weather conditions and roof loads (see zone maps located on the inside of the cabinet door below the kitchen sink and Figure 3.1 of this manual). Do not site or relocate your home in a zone requiring greater wind, roof load, or heating or cooling capabilities than those for which it was designed.

WIND ZONE 1 (15 PSF)

Includes areas of the United States and its territories that are not otherwise included as being in Wind Zone 2 or 3

This home has not been designed for the higher wind pressure and anchoring provisions required for ocean/coastal areas and should not be located within 1,500' of the coastline in Wind Zone 2 and 3, unless the home and its anchoring and foundation system have been designed for the increase requirements specified for Exposure D in ANSI/ASCE 7-88.

WIND ZONE 2 (100 MPH)

Following are the local governments, listed by state (counties or parishes, unless specified otherwise) which are within Wind Zone 2:

ALABAMA - Baldwin, Mobile

FLORIDA - All counties except those identified as being within Wind Zone 3.

GEORGIA - Bryan, Camden, Chatam, Glynn, Liberty, McIntosh.

LOUISIANA - Acadia, Allen, Ascension, Assumption, Calcasieu, Cameron, East Baton Rouge, East Feliciana, Evangeline, Iberia, Iberville, Jefferson Davis, LaFayette, Livingston, Pointe Coupee, St. Helena, St. James, St. John the Baptist, St. Landry, St. Martin, St. Tammany, Tangipahoa, Vermillion, Washington, West Baton Rouge, West Feliciana.

MAINE - Hancock, Washington.

MASSACHUSETTS - Barnstable, Bristol, Dukes, Nantucket, Plymouth.

MISSISSIPPI - George, Hancock, Harrison, Jackson, Pearl River, Stone.

NORTH CAROLINA - Beaufort, Brunswick, Camden, Chowan, Columbus, Craven, Currituck, Jones, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, Washington.

SOUTH CAROLINA - Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry, Jasper, Williamsburg.
 TEXAS - Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kenedy, Kleberg, Matagorda, Nueces, Orange, Refugio, San Patricio, Willacy.
 VIRGINIA - (Cities) Chesapeake, Norfolk, Portsmouth, Princess Anne, Virginia Beach.

WIND ZONE 3 (110 MPH)

The following local governments listed by State, (counties or parishes, unless specified otherwise) are within Wind Zone 3:

FLORIDA - Broward, Charlotte, Collier, Dade, Franklin, Gulf, Hendry, Lee, Martin, Manatee, Monroe, Palm Beach, Pinellas, Sarasota.

LOUISIANA - Jefferson, LaFourche, Orleans, Plaquemines, St. Bernard, St. Charles, St. Mary, Terrebonne.

NORTH CAROLINA - Carteret, Dare, Hyde.

The following states and territories are within Wind Zone 3:

State of HAWAII

All of ALASKA Coastal regions between the 90 mph isotach on ANSI/ASCE 7-88 wind map and the coast.

US TERRITORIES: America Samoa, Guam, Northern Mariana Islands, Puerto Rico, Trust Territory of Pacific Islands, U.S. Virgin Islands.

3.1.1 Access For Transporter

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

3.1.2 Encroachments And Setback Distances

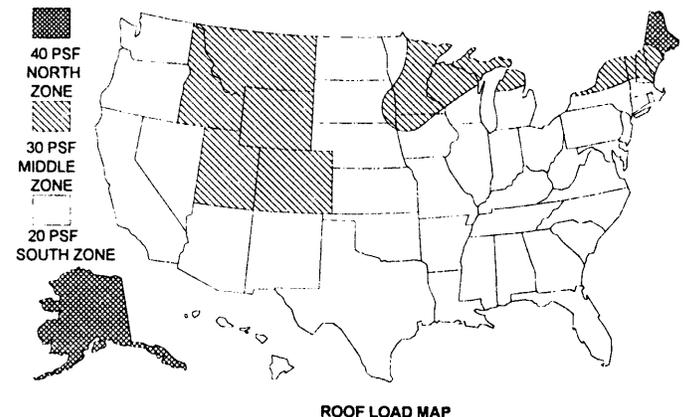
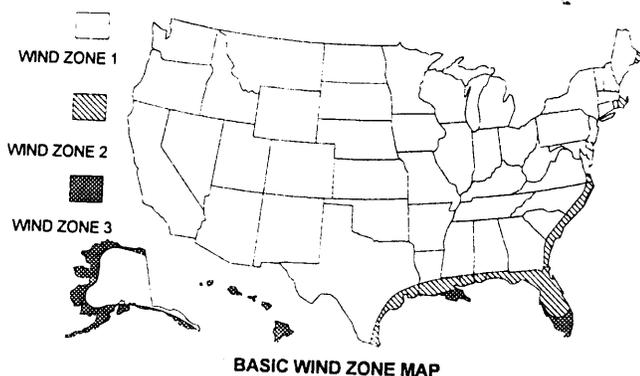
Obey local laws regarding encroachments in streets, yards and courts, and permissible setback distances from property lines and public roads. Consider future additions, such as awnings and screen rooms.

3.1.3 Issuance Of Permits

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

ZONE MAPS OF THE UNITED STATES

FIGURE 3.1



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3.4 Drainage

3.4.1 Purpose

Proper drainage prevents water buildup under the home which may cause shifting or settling of the foundation, dampness in the home, damage to siding and bottom board, buckling of walls and floors, and 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 the home. All drainage at the homesite must be diverted away from the home and must slope a minimum of one-half inch per foot away from the foundation for the first ten feet. See Figure 3.2

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 crawlspace under the home is to be enclosed with skirting or other material, you must provide ventilation per Section 5.6.4 in this manual. Section 5.6.4 indicates the minimum ventilation required. Additional free area or mechanical ventilation may be required depending on local conditions.

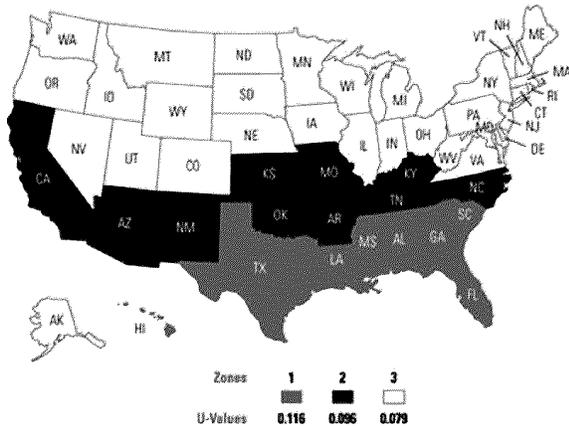
3.5.2 Acceptable Types of Ground Cover

Use polyethylene sheeting or its equivalent, at least six mils thick.

NOTE: If the home is installed in an arid region with an annual rainfall of 15" or less, the ground cover is not required as long as one square foot of open vent area is provided per 150 square feet of the home's floor area. See Section 5.6.4.

3.5.3 Proper Installation

Cover the entire area under the home with the sheeting and overlap it at least 12" at all joints and seal all joints with mastic. 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 penetrations for piers, utility connections, or other items. Repair any voids or tears in the retarder by patching with like material maintaining a 12" overlap and sealing joints with mastic.



CLIMATIC ZONE MAP

3.2 Soil Conditions

3.2.1 Requirements

To help prevent settling of your home, locate it on firm, undisturbed soil or fill compacted at least 90% of its maximum relative density. Installation on loose, uncompacted fill may cause the home to shift and settle in such a way as to damage the home which 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 cannot test the soil but can identify its type, use the foundation bearing pressure shown in Table 3.1 as a guide. If you cannot identify the soil, use the lowest value (1,000 psf from Table 3.1). 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 or manufactured housing supply houses) or 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.

TABLE 3.1 - SOIL-BEARING CAPACITY BY SOIL TYPE

Soil Type (and classification)	Allowable Pressure (psf)
Rock or hard pan (class 1)	4,000
Sandy gravel and gravel; very dense and/or cemented sands; coarse gravel/cobbles; preloaded silts, clays and coral (class 2)	2,000
Sand; silty sand; clayey sand; silty gravel; medium dense coarse sands; sandy gravel; very stiff silt, sand clays (class 3)	1,500
Clay, sandy clay, silty clay, clayey silt (classes 4A and 4B)	1,000
Uncompacted fill, peat, organic clays (class 5)	Professional testing required

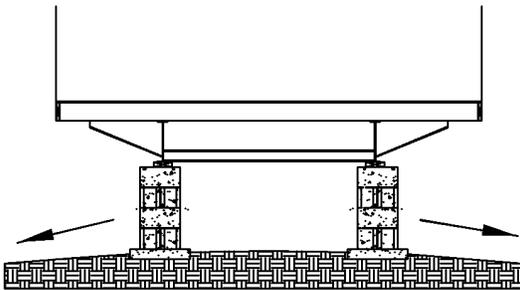
Note to table: No allowances made for overburden pressure, embedment depth, water table height or settlement problems.

This table is to be used only when none of the following is available:

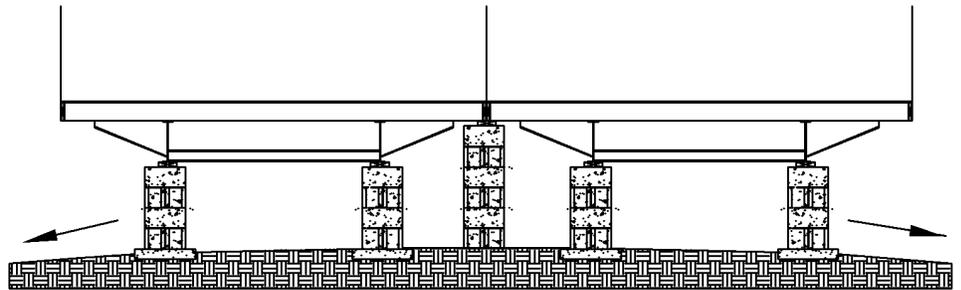
- A. Soil testing investigation and analysis of the site.
- B. Compliance with the local building code.
- C. Competent opinion by a local engineer or building official.

FIGURE 3.2 - ELIMINATION OF WATER BENEATH THE HOME

SINGLE SECTION



MULTI SECTION



CROWN THE SITE AWAY FROM THE FOUNDATION WITH A MINIMUM OF ONE-HALF INCH SLOPE PER FOOT FOR THE FIRST TEN (10) FEET. GRADE THE GROUND SO THAT WATER UNDER PORCHES, DECKS AND RECESSED ENTRIES FLOWS AWAY FROM THE HOME. IF PROPER GRADING IS NOT POSSIBLE, USE OTHER METHODS SUCH AS A DRAIN TILE AND AUTOMATIC SUMP PUMP SYSTEM TO REMOVE ANY WATER THAT MAY COLLECT UNDER THE HOME.

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 Oct 13, 2008
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS

Chapter 4 – Foundations

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/sq. ft 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 4.2, Table 4.3 and Table 4.4 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" x 16". 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 hardwood 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" x 6" 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

Piers less than 36" high may be constructed 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 ½" 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.

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 ½" 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 with consideration also given to the tie down system.

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. Piers supporting the frame are to be located within 24" of both ends and no more than 10' o.c. See Table 4.2 Note 4.

4.1.5.1 Single and Multisection Homes – 20# Roof Load

Figure 4.2 shows the recommended location and spacing of piers for 16' wide and 18' wide single-section and 32' wide multisection homes with a 20# roof load.

4.1.5.2 Single and Multi-section Homes – 30#, 40#, and 60# Roof Loads

Figure 4.3 shows the recommended location and spacing for single and multi-section homes with a 30#, 40#, or 60# roof load. Perimeter piers are required for these homes.

4.1.5.3 Under Doors and Heavy Furniture

Place piers on both sides of all exterior doors and other sidewall openings greater than 48” wide (such as recessed entries, bay windows and sliding glass doors), jamb studs of multiple windows, 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 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 are shown by paint marks and/or labels on the bottom board or floor framing. See Table 4.4 for the minimum pier capacity.

4.1.5.5 Perimeter 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’-0” must have intermediate piers placed at a maximum spacing of 10’-0” o.c. Location of these piers are identified by paint marks and/or labels on the bottom board or floor framing.

4.1.5.6 Piers Under Sidewalls in Large Open Areas

For single wide homes only, under any area where the distance between partition walls is greater than 16’, install perimeter blocks below, one column between each two outriggers, or 8’-0” o.c., whichever is greater.

4.2 Footings

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 4.5. 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

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

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 4.5 for recommended footing sizes for various pier capacities.

4.2.4 Other Footing Design Consideration

You should check with applicable state or local building authorities concerning any other requirements pertaining to design, construction or placement of acceptable footings.

4.3 Basement Foundations

Check local building codes and regulations and consult a registered professional engineer or registered architect when you are setting your home on a perimeter foundation wall without I-beam piers. Numerous special construction techniques must be used in the home’s setup.

4.3.1 Flood-prone Areas

Legacy Housing 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. All foundations for homes installed in flood prone areas must be designed by a registered engineer or a registered architect. The FEMA publication listed in Section 4.4 contains design and construction recommendations.

4.3.2 Severe Wind Area

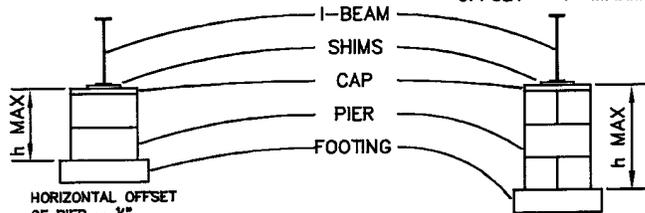
Special foundation and anchoring techniques are required when your home is located in a severe wind area (i.e. ocean/coastal area). Consult a registered professional or structural engineer. HUD foundations design listed in Section 4.4 contains recommendations for designing foundations and anchoring systems. Do not place your home in a wind zone more severe than the one indicated on your home's Data Plate.

4.3.3 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. Do not place your home in a roof zone more severe than the one indicated on your home's Data Plate.



PIER 1
I-BEAM PIER SINGLE
STACKED BLOCKS



HORIZONTAL OFFSET
OF PIER = 1/2"
MAXIMUM

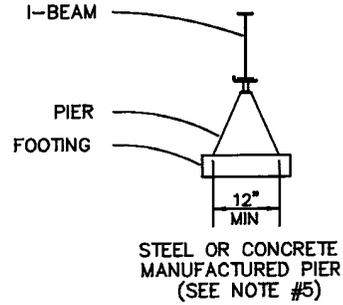
SINGLE BLOCKS
MAXIMUM HEIGHT = 36"
(SEE NOTE #2)

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

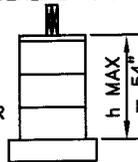
PIER 3
I-BEAM PIER



STEEL OR CONCRETE
MANUFACTURED PIER
(SEE NOTE #5)

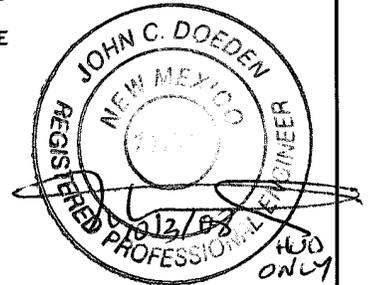
PIER 4
SINGLE STACKED PIER
SUPPORTING
CENTERLINE COLUMNS
OR PERIMETER OR
CENTERLINE JOISTS

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#

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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.
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 8" 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.

FIGURE 4.1
TYPICAL PIER CONSTRUCTION

MANUFACTURED HOUSING FOUNDATION SYSTEMS

A Division of Oliver Technologies, Inc.

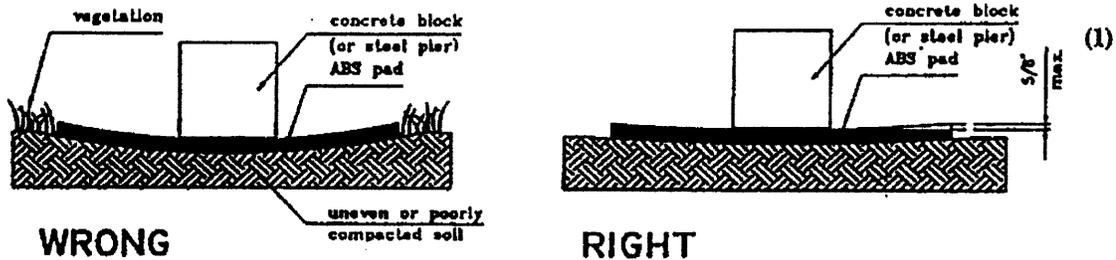
1-800-284-7437

HOME OF THE ORIGINAL ABS PIER PAD

(IMPORTANT)
IF PAD DEFLECTS MORE THAN 5/8" WHEN
INSTALLED, PIER SPACING IS INCORRECT FOR SOIL
CONDITIONS OR A DOUBLE FIRST BLOCK
CONFIGURATION SHOULD BE USED ⁽¹⁾

Installation Instructions for ABS Pads

The purpose of this addendum is to emphasize that the ground under the ABS pads must be leveled, evenly compacted, and cleared of all vegetation and debris before the placement of the pads.



The maximum deflection in a single pad is 5/8" measured from the highest point to the lowest point of the top. ⁽¹⁾

PAD SIZE	PAD AREA	1,000 LB SOIL	2,000 LB SOIL	3,000 LB SOIL
16" x 16"	256 SQ IN.	1,780 LBS	3,560 LBS	5,333 LBS
16" x 18"	288 SQ IN.	2,000 LBS	4,000 LBS	6,000 LBS
13" x 26"	338 SQ IN.	2,375 LBS	4,750 LBS	7,125 LBS
18.5" x 18.5"	342 SQ IN.	2,375 LBS	4,750 LBS	7,125 LBS
20" x 20"	400 SQ IN.	2,750 LBS	5,500 LBS	8,250 LBS*
24" x 24"	576 SQ IN. *	4,000 LBS	8,000 LBS*	

*Concrete blocks are only rated at 8,000 lbs. +8,000 lbs. must be double blocked.

General Notes:

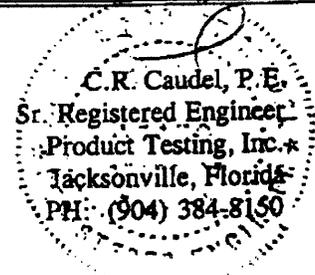
- Any configuration above may be used to replace a home manufacturer's recommended concrete or wood base pad.
- The maximum load at any intermediate soil value may be determined as the average of the next lower and next higher soil values given in the above table.
- Pad sizes shown are nominal dimensions and may vary up to 1/8".
- Pad loads are the same when using single stack or double stack blocks.

⁽¹⁾ NOTE: Actual test results were less than 5/8"

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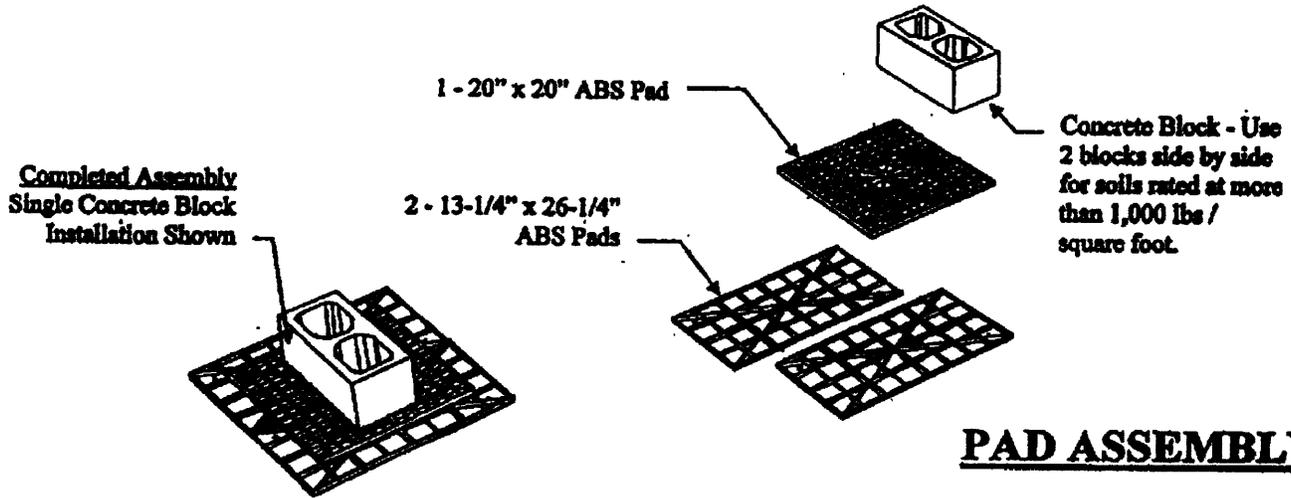


Page 8.1



MANUFACTURED HOUSING FOUNDATION SYSTEMS
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INSTALLATION INSTRUCTIONS FOR ABS PADS



PAD ASSEMBLY

ABS PAD TYPES:

Pad Size	Pad Area	Model Identification
13-1/4" x 26-1/4"	2.395 SQ FT	ID #4148-4
20" x 20"	2.777 SQ FT	ID #1055-7
26" x 26"	4.79 SQ FT	Nominal Size

GENERAL INSTRUCTIONS:

- All pads are to be installed flat side down, ribbed side up
- The ground under the pads should be leveled as smooth as possible with all vegetation removed. Pads to be placed on natural grade unless otherwise permitted by the local building authority.
- Pier and pad spacing will be determined by the manufactured homes' written set-up instructions or any local or state codes.
- The open cells between the ribbing on the upper side of the pads may be filled with soil or sand after installation to prevent any accumulation of stagnant water in the pads.
- A pocket penetrometer may be used to determine the actual soil bearing value. If soil-testing equipment is not available, use an assumed soil value of 1,000 lbs/square foot.
- All pad sizes shown are nominal dimensions and may vary up to 1/8".
- The maximum deflection in a single pad is 5/8" measured from the highest point to the lowest point of the top face. ⁽¹⁾
- In frost areas, a 6" deep gravel base installed in well drained, non-frost susceptible soil is recommended.

MAXIMUM PIER LOADS IN POUNDS:

No. of Concrete Blocks	Soil Bearing Value	Maximum Allowable Load
1	1,000 lbs/sq foot	4,800 lbs
2	2,000 lbs/sq ft "and greater"	9,600 lbs

⁽¹⁾ NOTE: Actual test results were less than 5/8"

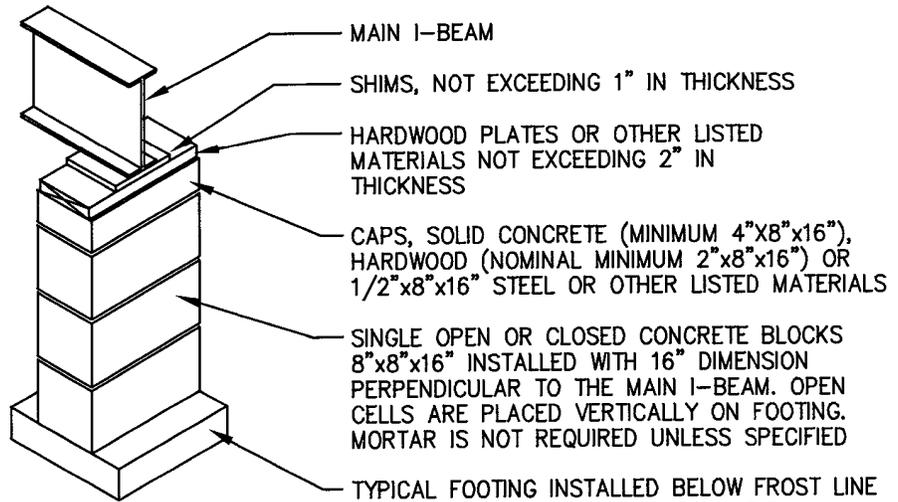
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Page 8.2

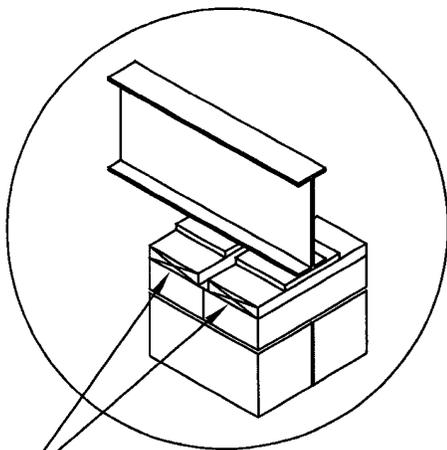
C.R. Caudel, P.E.
Sr. Registered Engineer
Product Testing, Inc.
Jacksonville, Florida
PH: (904) 384-8180

SINGLE STACKED CONCRETE BLOCKS

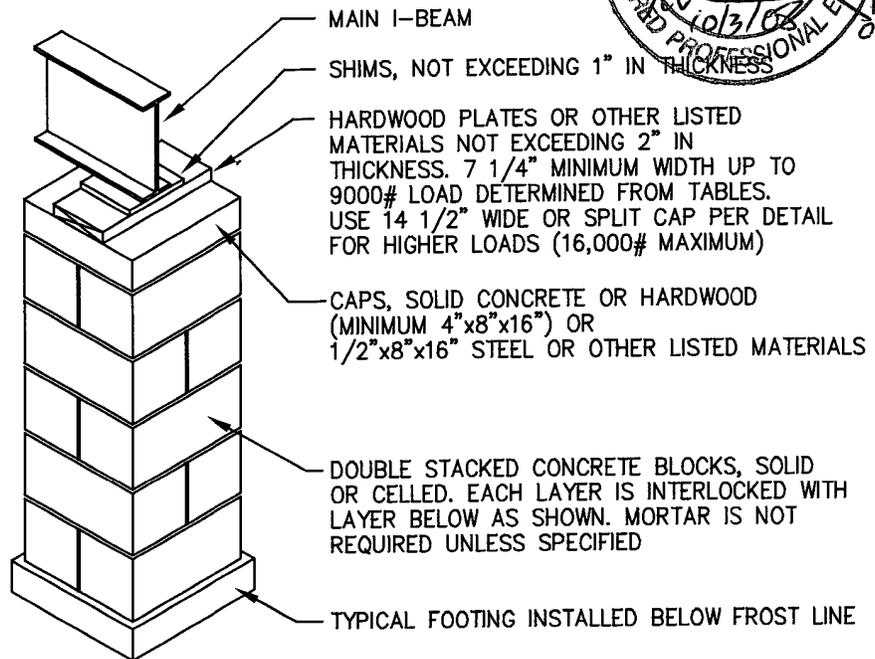


CAPACITY = 8,000 LBS.

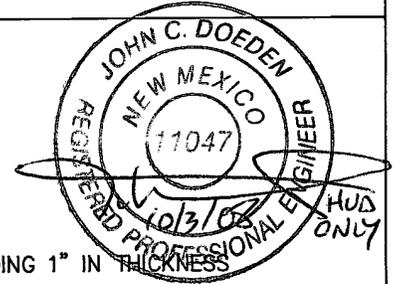
DOUBLE STACKED CONCRETE BLOCKS



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.



CAPACITY = 16,000 LBS.



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

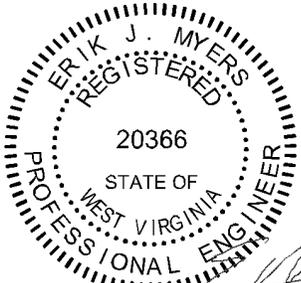
MINIMUM PIER CAPACITY TABLE (FRAME BLOCKING ONLY)

SECTION WIDTH (FEET)	SIDE OVERHANG (INCHES)	ROOF LIVE LOAD (PSF)	MAXIMUM PIER CAPACITY (POUNDS)		
			MAXIMUM PIER SPACING (FEET)		
			4	6	8
14/28 WIDE (164" FLOOR)	8" MAX.	20	3233	4525	5817
16/32 WIDE (184" FLOOR)	8" MAX.	20	3517	4950	6383
18/36 WIDE (210" FLOOR)	6" MAX.	20	3865	5473	7080
14/28 WIDE (164" FLOOR)	8" MAX.	30	3533	4975	6417
16/32 WIDE (184" FLOOR)	8" MAX.	30	3850	5450	7050

NOTES:

1. PIER LOADS BASED ON 10 PSF ROOF DEAD LOAD AND 10 PSF FLOOR DEAD LOAD.
2. PERIMETER BLOCKING IS NOT REQUIRED EXCEPT AS NOTED FOR LARGE OPENINGS.
3. REFERENCE DETAILS IN FIGURE 4.2 FOR PIER LOCATIONS.
4. REFERENCE TABLE 4.5 AND 4.6 FOR REQUIRED FOOTING SIZE CORRESPONDING TO THE LOAD DETERMINED ABOVE.
5. LOADS INCLUDE PIER WEIGHT OF 225 LBS. (SINGLE STACK) AND 450 LBS. (DOUBLE STACK) AND ESTIMATED FOOTING WEIGHT OF 200 LBS. (2'X2'X4").

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 Mar 03, 2015
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 ERIK J. MYERS
 REGISTERED
 20366
 STATE OF
 WEST VIRGINIA
 PROFESSIONAL ENGINEER
 Feb 26, 2015 

**TABLE 4.2
MINIMUM FRAME PIER CAPACITIES**

SETUP 189" WIDE FLOOR INSTALLATION REQUIREMENTS

PIER LOADS

EAVE OVERHANG (INCHES)	ROOF LOAD (PSF)	MAXIMUM PIER LOADS (POUNDS)		
		MAXIMUM PIER SPACING (FEET)		
		@ 4' O.C.	@ 6' O.C.	@ 8' O.C.
1"	20	3517#	4950#	6383#
1"	30	3850#	5450#	7050#

SEE PAGE I-9

TIE DOWN SPACING

WINDZONE	EAVE OVERHANG (INCHES)	TIE DOWN SPACING	MAXIMUM PIER HEIGHT
I	1"	10'-0" O.C.	54"
II	1"	6'-8" O.C.	30"
		5'-4" O.C.	46"

SEE PAGE I-25.1 & I-B-1

LONGITUDINAL TIE DOWNS

WINDZONE	QUANTITY	MIN. ANGLE
I	2	30°
II	2	60°

SEE PAGE I-B-7 & I-25.2 FOR INSTALLATION

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SETUP ADDENDUM

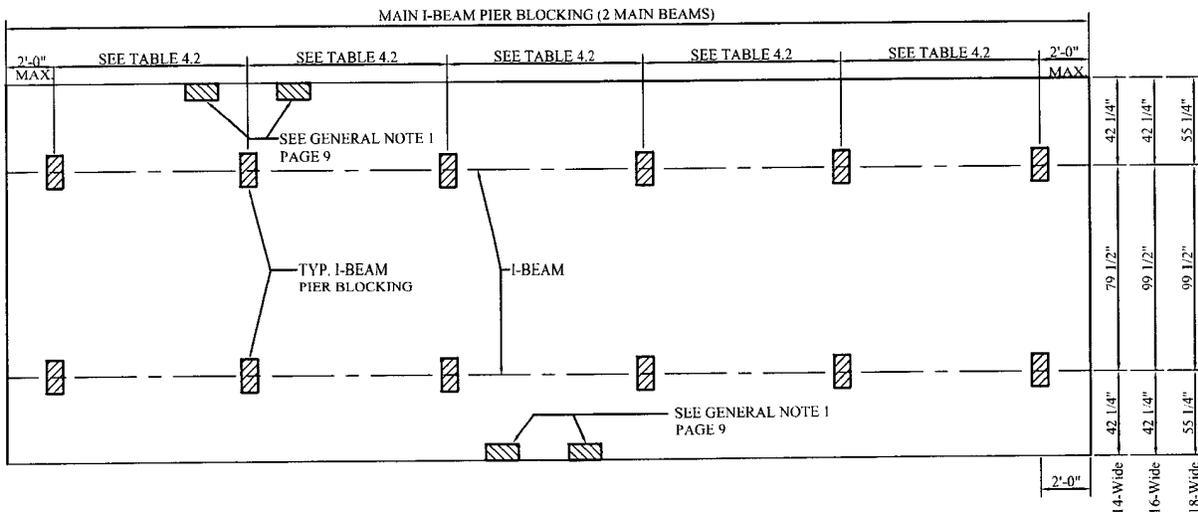
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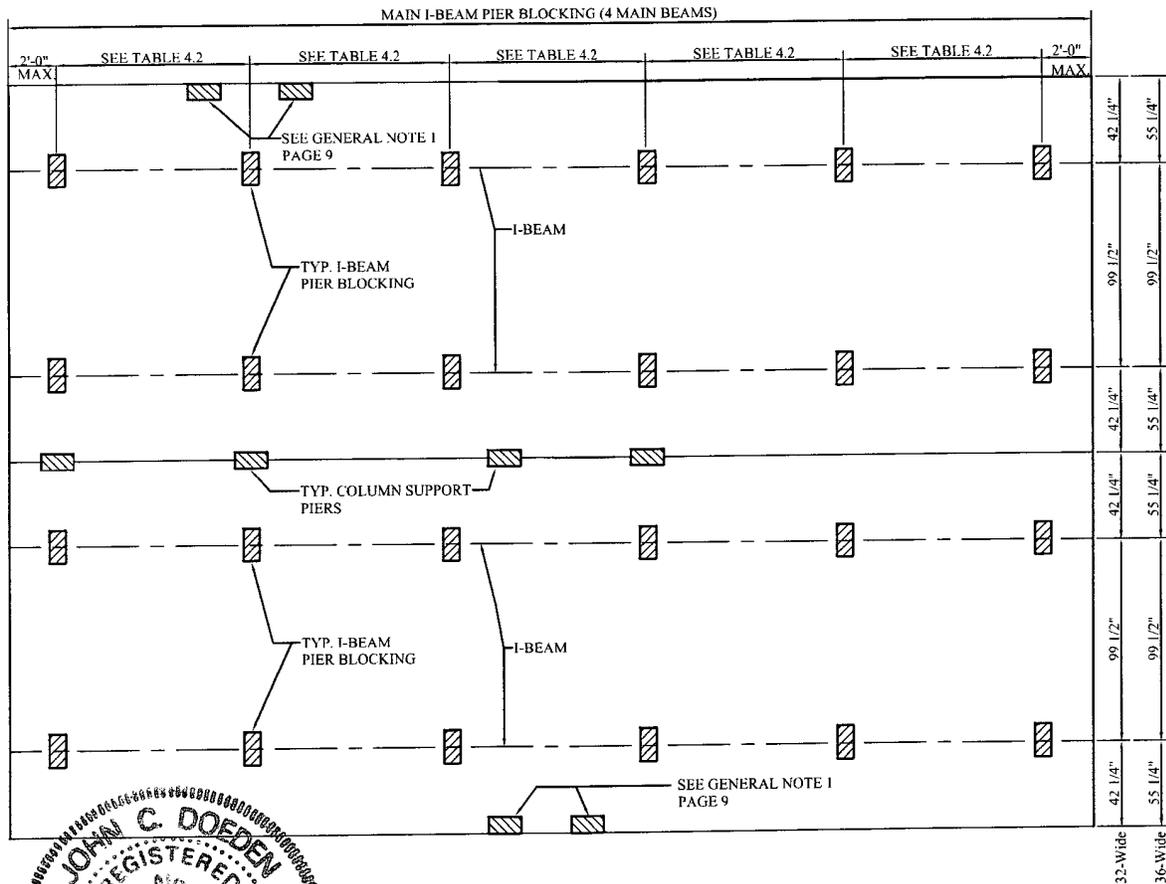
Apr 15, 2015

Figure 4.2

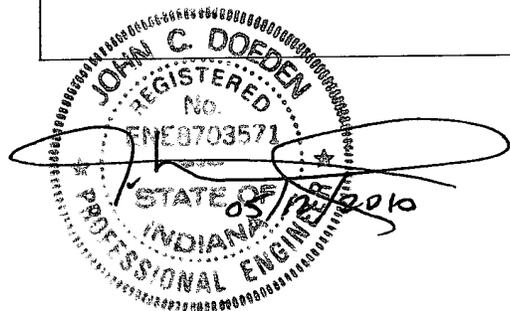
TYPICAL SINGLE SECTION PIER LAYOUT (NO PERIMETER BLOCKING)



TYPICAL MULTI-SECTION PIER LAYOUT (NO PERIMETER BLOCKING)



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**MINIMUM PIER CAPACITY TABLE
(FRAME AND PERIMETER BLOCKING)**

SECTION WIDTH (FEET)	SIDE OVERHANG (INCHES)	PIER LOCATION	ROOF LIVE LOAD (PSF)	MAXIMUM PIER CAPACITY (POUNDS)				
				MAXIMUM PIER SPACING (FEET)				
				4	6	8		
14 WIDE (164" FLOOR) 28 WIDE (164" FLOOR)	8" MAX.	MAIN I-BEAM	ALL ZONES	1885	2502	3119		
			PERIMETER PIERS UNDER SIDEWALL	20	1774	2448	3123	
				30	2074	2898	3723	
		40		2374	3348	4323		
		PERIMETER PIERS UNDER MATING WALL (Note 6)	20	2963	4231	5500		
			30	3509	5051	6593		
			40	4056	5871	7687		
		16 WIDE (184" FLOOR) 32 WIDE (184" FLOOR)	8" MAX.	MAIN I-BEAM	ALL ZONES	1985	2652	3319
					PERIMETER PIERS UNDER SIDEWALL	20	1957	2723
30	2290					3223	4156	
40	2624			3723		4823		
PERIMETER PIERS UNDER MATING WALL (Note 6)	20			3329	4781	6233		
	30			3943	5701	7460		
	40			4556	6621	8687		
18 WIDE (210" FLOOR) 36 WIDE (210" FLOOR)	6" MAX.			MAIN I-BEAM	ALL ZONES	2115	2847	3579
					PERIMETER PIERS UNDER SIDEWALL	20	2175	3051
		PERIMETER PIERS UNDER MATING WALL (Note 6)	20	3806		5496	7187	

NOTES:

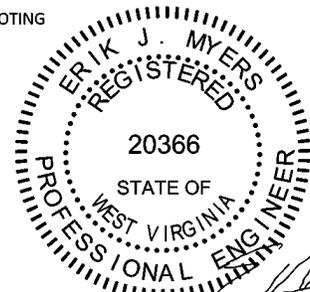
- 1.) PIER LOADS BASED ON 10 PSF ROOF DEAD LOAD AND 10 PSF FLOOR DEAD LOAD.
- 2.) REQUIRED PIER SPACING FOR PERIMETER PIERS IS 8'-0" MAXIMUM.
- 3.) REFERENCE DETAILS IN FIGURE 4.3 FOR PIER LOCATIONS.
- 4.) REFERENCE TABLE 4.5 AND 4.6 FOR REQUIRED FOOTING SIZE CORRESPONDING TO THE LOAD DETERMINED ABOVE.
- 5.) LEGACY HOUSING'S METHOD OF IDENTIFYING PIER LOCATIONS FOR THE PERIMETER AND CENTERLINE IS THE ATTACHMENT OF LABELS TO THE BOTTOM BOARD OR FLOOR FRAMING. THE INSTALLER SHOULD VERIFY THESE LOCATIONS ON THE FLOOR PLAN OF THE HOME.
- 6.) COLUMN SUPPORT PIERS ARE IN ADDITION TO REQUIRED PIERS UNDER FULL-HEIGHT MATING WALLS AND ARE TO BE LOCATED AT EACH SIDE OF CENTERLINE WALL OPENING. INTERMEDIATE PIERS ARE REQUIRED AT ALL MATING LINE OPEN SPANS GREATER THAN 10'-0" AND SPACED AT 10'-0" MAXIMUM.
- 7.) PERIMETER BLOCKING AT SIDEWALLS AND MATING WALLS IS REQUIRED ON ALL FLOOR WIDTHS DESIGNED WITH A 30# AND 40# ROOF LOAD.
- 8.) LOADS INCLUDE PIER WEIGHT OF 225 LBS (SINGLE STACK) AND 450 LBS (DOUBLE STACK) AND ESTIMATED FOOTING WEIGHT OF 200 LBS (2'X2'X4").

TABLE 4.3
MINIMUM FRAME PIER AND
PERIMETER PIER CAPACITIES

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I-10.1

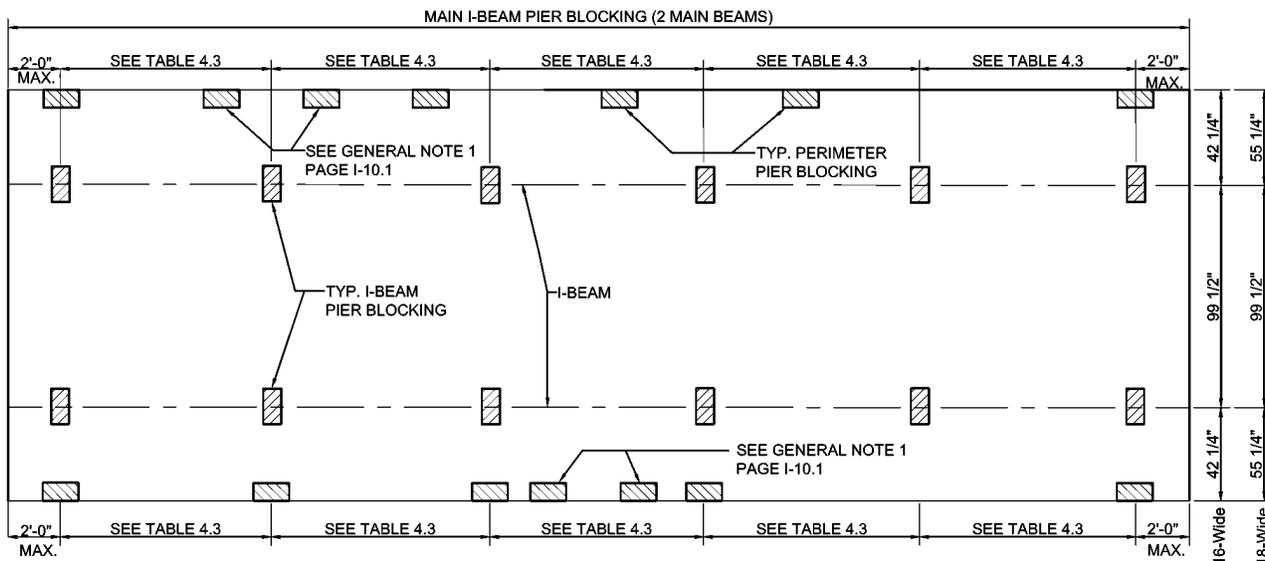
Page 10.1



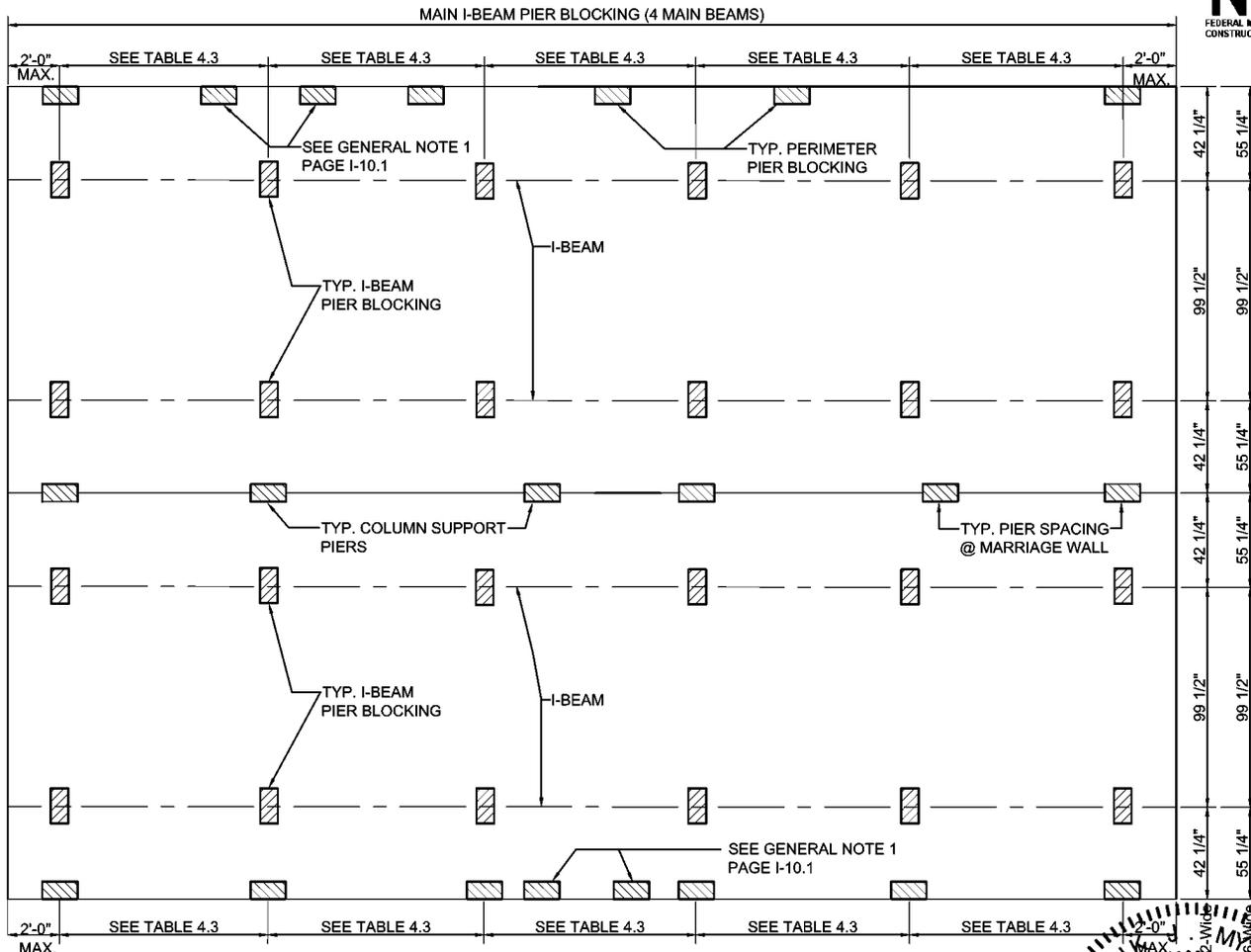
Aug 28, 2014

Figure 4.3

TYPICAL SINGLE SECTION PIER LAYOUT (PERIMETER BLOCKING REQUIRED)



TYPICAL MULTI-SECTION PIER LAYOUT (PERIMETER BLOCKING REQUIRED)

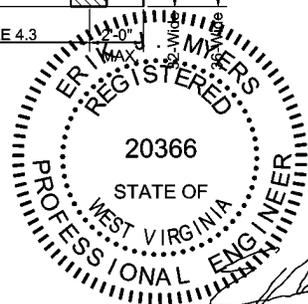


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NOTES:

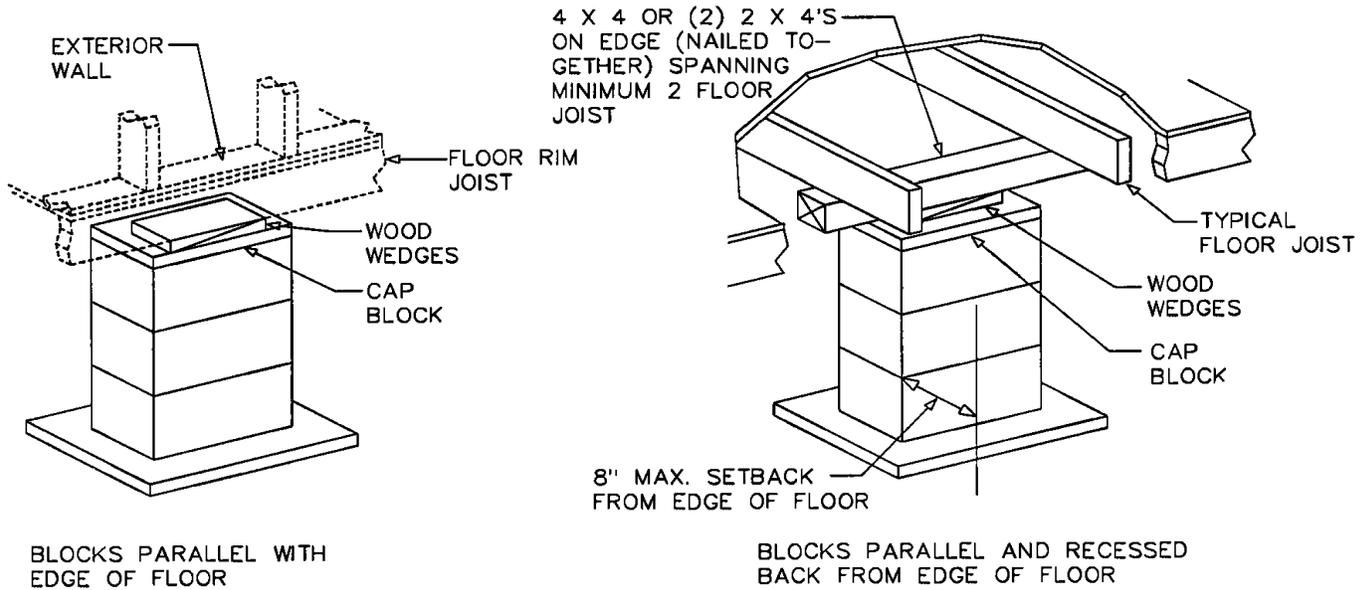
1. IF PIER AT EXTERIOR DOOR LOCATION IS WITHIN 3'-0" OF REQUIRED PERIMETER PIER LOCATION NO PERIMETER PIER IS REQUIRED.
2. IF MARRIAGE WALL COLUMN SUPPORT PIER IS WITHIN 3'-0" OF REQUIRED PIER NO PIER IS REQUIRED.
3. PERIMETER BLOCKING AT SIDEWALLS AND MATING WALLS IS REQUIRED ON ALL 30# AND 40# ROOF LOAD HOMES THAT ARE 210" (18-WIDE AND 36-WIDE) OR 184" (16-WIDE AND 32-WIDE) FLOOR WIDTH.



Jan 13, 2017

FIGURE 4.4

PERIMETER PIER LOCATION DETAILS



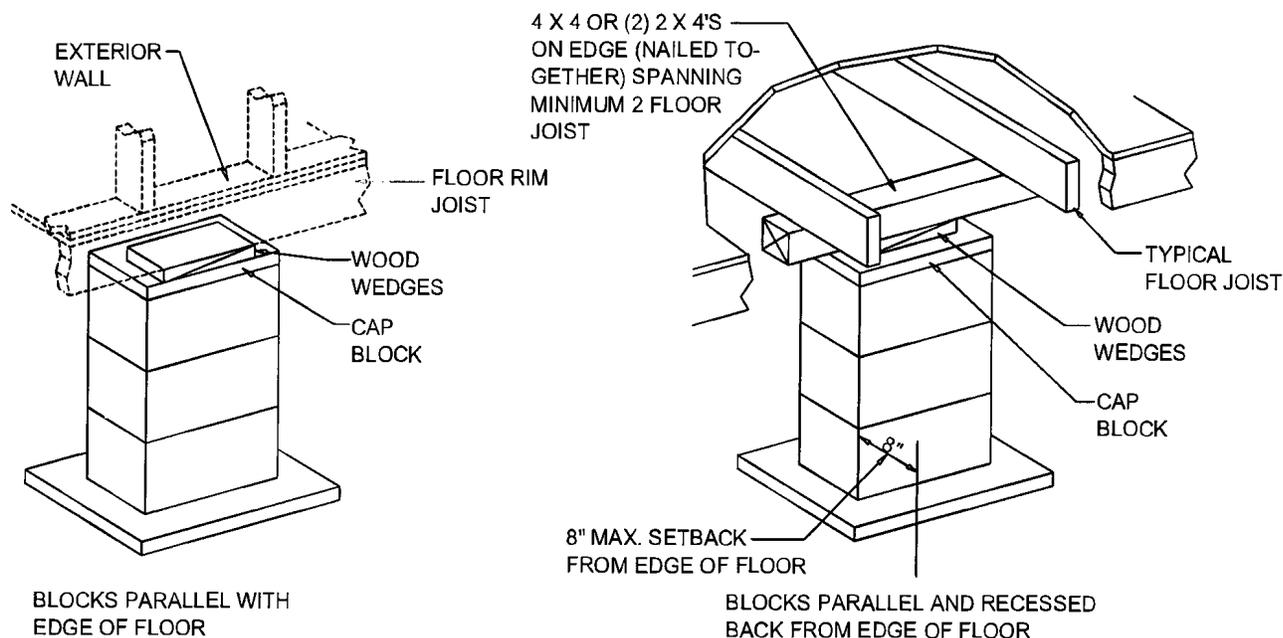
PIER MAY BE OFFSET UP TO 6" MAX. EACH SIDE OF STRAP TO MISS FRAME OBSTRUCTIONS AS LONG AS THE PIER STILL SUPPORTS THE FLOOR RIM JOIST.

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STATE OF
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PROFESSIONAL ENGINEER
Jan 13, 2017

Caps must be solid concrete or masonry at least 4 inches in nominal thickness, or hardboard lumber at least 2 inches nominal in thickness; or be corrosion-protected minimum one-half inch thick steel; or be of other listed materials.

PERIMETER PIER LOCATION DETAILS



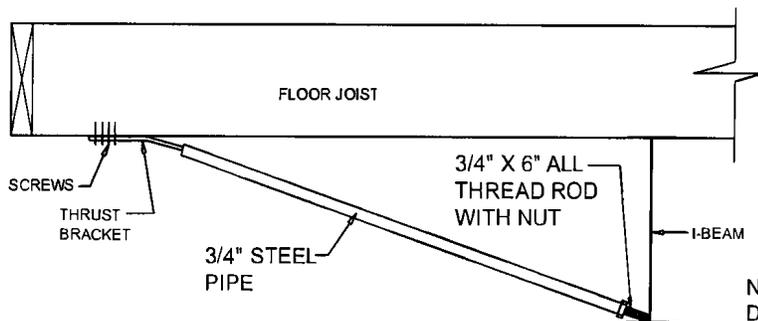
PIER MAY BE OFFSET UP TO 6" MAX. EACH SIDE OF STRAP TO MISS FRAME OBSTRUCTIONS AS LONG AS THE PIER STILL SUPPORTS THE FLOOR RIM JOIST.

Caps must be solid concrete or masonry at least 4 inches in nominal thickness, or hardboard lumber at least 2 inches nominal in thickness; or be corrosion-protected minimum one-half inch thick steel; or be of other listed materials.

FIGURE 4.5

OPTIONAL ADJUSTABLE OUTRIGGER

SHALL NOT REPLACE REQUIRED PIER



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NOTE: OUTRIGGER NOT TO BE IN PLACE DURING TRANSPORTATION.

INSTALLATION INSTRUCTIONS:

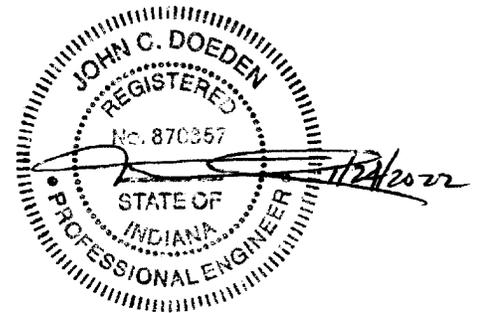
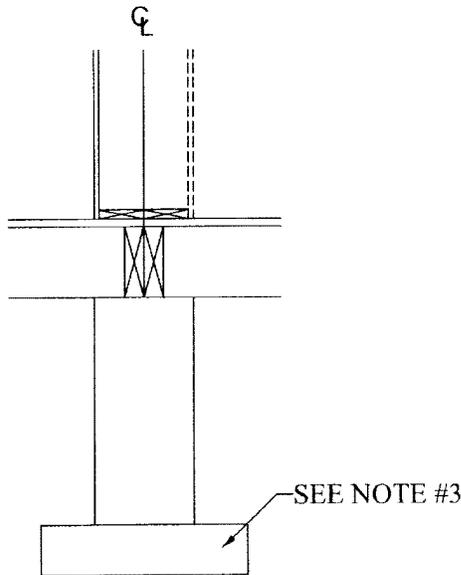
1. LOCATE THE FLOOR JOIST THAT REQUIRES SUPPORT.
 2. MARK I-BEAM DIRECTLY UNDER THE FLOOR JOIST TO ALIGN OURTIGGER.
 3. ADJUST NUT ON THE THREADED ROD SO IT CLEARS THE FRAME FLANGE FOR EASY ADJUSTMENT.
 4. SET THREADED ROD IN THE PIPE AND AGAINST THE FRAME.
 5. MAKE SURE PIPE IS SECURED AGAINST THRUST BRACKET.
 6. SET THRUST BRACKET ON FLOOR JOIST AND SECURE IT WITH FIVE #12 X 2" SCREWS.
 7. BOTTOM BOARD AND INSULATION MAY BE BETWEEN BRACKET AND JOIST.
 8. ALIGN DOOR OR WINDOW OPENINGS BY TIGHTENING OR LOOSENING THE ADJUSTMENT NUT.
1. THE ADJUSTABLE OUTRIGGER SHALL NOT REPLACE THE FOLLOWING REQUIREMENTS:
 - A. ON-CENTER PERIMETER PIER SUPPORTS.
 - B. PIER SUPPORTS REQUIRED AT COLUMN SUPPORTS ALONG THE MATING LINE.
 - C. PERIMETER PIER SUPPORTS REQUIRED AT PORCHES AND/OR RECESSED ENTRIES OR WALLS.
 2. THE ADJUSTABLE OUTRIGGER MAY REPLACE PIER SUPPORTS REQUIRED AT JAMB STUD OF DOORS AND WINDOWS OPENING LESS THAN 48" AND FOR 20# PSF LL ROOF LOAD MAX.

TOTAL WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MAXIMUM PIER CAPACITY (POUNDS)									
		MAXIMUM SPAN TO NEXT SUPPORT (FEET)									
		4	8	12	16	20	24	28	32	36	40
24 WIDE (23'-4" ACTUAL)	20	1315	2200	3080	3965	4895	5730	6615	7495	8380	9260
28 WIDE (27'-4" ACTUAL)	20	1470	2500	3535	4570	5605	6640	7675	8705	9740	10775
32 WIDE (30'-8" ACTUAL)	20	1595	2755	3915	5075	6235	7395	8555	9715	10875	12035
36 WIDE (35'-0" ACTUAL)	20	1760	3080	4405	5730	7055	8380	9705	11030	12350	13675

NOTES: (1) ACTUAL DIMENSION IS FLOOR WIDTH.
(2) *WITHOUT WEIGHT OF PIER AND FOOTER, PIER LOAD IS LESS THAN 16,000 LB.
THEREFORE, DOUBLE STACKED BLOCK PIER IS ACCEPTABLE.

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NOTES:

1. PIER LOADS BASED ON 10 PSF ROOF DEAD LOAD.
2. LOADS TABULATED ARE TOTAL FOR BOTH HALVES AT COLUMN SUPPORT.
3. REFER TO TABLE 4.5 FOR FOOTER DESIGN.
4. THE LOADS IN THE TABLE ABOVE ARE TOTAL LOADS INCLUDING AN ASSUMED WORST CASE WEIGHT FOR THE PIER AND FOOTER. TABULATED LOADS ALSO ASSUME UNIT IS NOT PERIMETER BLOCKED.
5. PIER LOCATIONS AT THE MATE LINE COLUMN SUPPORT LOCATIONS ARE IDENTIFIED BY A LABEL ATTACHED TO THE BOTTOM BOARD.

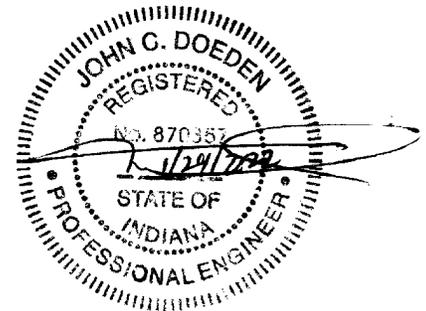
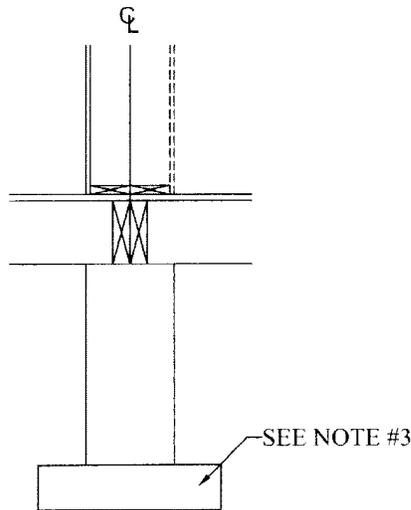
TABLE 4.4 MINIMUM PIER CAPACITY MULTI-SECTION RIDGEBEAM COLUMN SUPPORT

TOTAL WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MAXIMUM PIER CAPACITY (POUNDS)									
		MAXIMUM SPAN TO NEXT SUPPORT (FEET)									
		4	8	12	16	20	24	28	32	36	40
24 WIDE (23'-4" ACTUAL)	20	3705	4570	5470	6355	7240	8120	9005	9885	10770	11650
	30	4465	5600	6735	7870	9005	10140	11275	12410	13545	14680
	40	5220	6605	7995	9380	10770	12155	13545	14930	16320*	17705*
	65	7111	9130	11150	13165	15185	17200*	N/A	N/A	N/A	N/A
28 WIDE (27'-4" ACTUAL)	20	4375	5410	6445	7480	8515	9550	10580	11615	12650	13685
	30	5265	6595	7925	9250	10580	11910	13240	14570	15900	17230
	40	6150	7775	9400	11025	12650	14275	15900	17525*	N/A	N/A
	65	8365	10730	13095	15460	17735*	N/A	N/A	N/A	N/A	N/A

NOTES: (1) ACTUAL DIMENSION IS FLOOR WIDTH.
(2) *WITHOUT WEIGHT OF PIER AND FOOTER, PIER LOAD IS LESS THAN 16,000 LB. THEREFORE, DOUBLE STACKED BLOCK PIER IS ACCEPTABLE.

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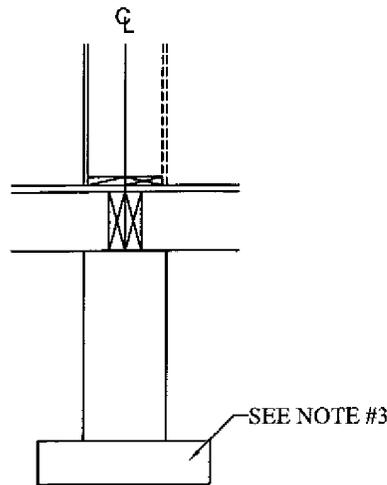
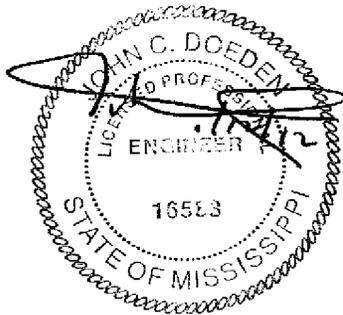


NOTES:
1. PIER LOADS BASED ON 10 PSF ROOF DEAD LOAD.
2. LOADS TABULATED ARE TOTAL FOR BOTH HALVES AT COLUMN SUPPORT.
3. REFER TO TABLE 4.5 FOR FOOTER DESIGN.
4. THE LOADS IN THE TABLE ABOVE ARE TOTAL LOADS INCLUDING AN ASSUMED WORST CASE WEIGHT FOR THE PIER AND FOOTER. TABULATED LOADS ALSO ASSUME UNIT IS PERIMETER BLOCKED AND THAT COLUMN PIER SERVES AS ONE OF THE REQUIRED PERIMETER PIERS. 30 PSF ROOF, 40 PSF ROOF, AND 65 PSF ROOF REQUIRE PERIMETER BLOCKING.
5. PIER LOCATIONS AT THE MATE LINE COLUMN SUPPORT LOCATIONS ARE IDENTIFIED BY A LABEL ATTACHED TO THE BOTTOM BOARD.

TABLE 4.4 MINIMUM PIER CAPACITY MULTI-SECTION RIDGEBEAM COLUMN SUPPORT

TOTAL WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MAXIMUM PIER CAPACITY (POUNDS)								
		MAXIMUM SPAN TO NEXT SUPPORT (FEET)								
		4	8	12	16	20	24	28	32	36
32 WIDE (30'-8" ACTUAL)	20	4795	5880	6980	8045	9125	10210	11290	12370	13455
	30	5880	7320	8765	10210	11650	13095	14535	15980	17425*
	40	8260	10060	11870	13670	15475	17280*	19080*	N/A	N/A
	65	8692	11400	14105	16810*	19515*	N/A	N/A	N/A	N/A
36 WIDE (35'-0" ACTUAL)	20	6175	7345	8510	9675	10845	12010	13175	14345	15510
	30	6010	7565	9120	10675	12230	13785	15340	16900*	18450*
	40	6980	8925	10870	12815	14760	16700*	18650*	N/A	N/A
	65	7395	10310	13230	16145	19060*	N/A	N/A	N/A	N/A

NOTES: (1) ACTUAL DIMENSION IS FLOOR WIDTH.
(2) *WITHOUT WEIGHT OF PIER AND FOOTER, PIER LOAD IS LESS THAN 16,000 LB. THEREFORE, DOUBLE STACKED BLOCK PIER IS ACCEPTABLE.



- NOTES:
1. PIER LOADS BASED ON 10 PSF ROOF DEAD LOAD.
 2. LOADS TABULATED ARE TOTAL FOR BOTH HALVES AT COLUMN SUPPORT.
 3. REFER TO TABLE 4.5 FOR FOOTER DESIGN.
 4. THE LOADS IN THE TABLE ABOVE ARE TOTAL LOADS INCLUDING AN ASSUMED WORST CASE WEIGHT FOR THE PIER AND FOOTER. TABULATED LOADS ALSO ASSUME UNIT IS PERIMETER BLOCKED AND THAT COLUMN PIER SERVES AS ONE OF THE REQUIRED PERIMETER PIERS. 30 PSF ROOF, 40 PSF ROOF, AND 65 PSF ROOF REQUIRE PERIMETER BLOCKING.
 5. PIER LOCATIONS AT THE MATE LINE COLUMN SUPPORT LOCATIONS ARE IDENTIFIED BY A LABEL ATTACHED TO THE BOTTOM BOARD.

TABLE 4.4 MINIMUM PIER CAPACITY MULTI-SECTION RIDGEBEAM COLUMN SUPPORT

PIER CAPACITY (POUNDS)	MINIMUM FOOTING SIZE (OR EQUAL AREA) (INCHES)				SINGLE ↓ STACK CMU
	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	
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	
18000	51x51	42x42	36x36	25x25	
19000	52x52	43x43	37x37	26x26	
20000	54x54	44x44	38x38	27x27	SPECIAL DESIGN ↓
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 (SQ. INCHES) REQUIRED FOR THE LOAD. OTHER FOOTING CONFIGURATIONS (RECTANGULAR) MAY BE USED PROVIDED THE AREA (SQ. 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 REQUIRE 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 WEIGH APPROXIMATELY 30 POUNDS A PIECE AND CONCRETE FOOTERS WEIGH APPROXIMATELY 150 PCF (EXAMPLE: 24x24x6 FOOTER WEIGHS 300#)

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TABLE 4.5
FOOTER SIZES

MINIMUM THICKNESS OF FOOTERS FOR SINGLE AND DOUBLE STACKED PIERS (INCHES)

SOIL BEARING CAPACITY (PSF)

PIER FOOTING SIZE	1000		1500		2000		2500		3000		3500		4000	
	SINGLE	DOUBLE												
	16x16	4	4	4	4	4	4	4	4	4	4	4	4	4
17x17	4	4	4	4	4	4	4	4	4	4	4	4	4	4
18x18	4	4	4	4	4	4	4	4	4	4	4	4	4	4
19x19	4	4	4	4	4	4	4	4	4	4	4	4	4	4
20x20	4	4	4	4	4	4	4	4	4	4	4	4	4	4
21x21	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22x22	4	4	4	4	4	4	4	4	4	4	4	4	4	4
23x23	4	4	4	4	4	4	4	4	4	4	4	4	4	4
24x24	4	4	4	4	4	4	4	4	4	4	4	4	4	4
25x25	4	4	4	4	4	4	4	4	4	4	4	4	4	4
26x26	4 1/4	4	4	4	4	4	4	4	4	4	4	4	4	4 3/8
27x27	4 3/8	4	4	4	4	4	4	4	4	4	4	4	4	4 7/8
28x28	4 3/4	4	4	4	4	4	4	4	4	4	4	4	4	5 1/4
29x29	4 7/8	4	4	4	4	4	4	4	4	4	4	4	4	6 1/8
30x30	5 1/8	4	4	4	4	4	4	4	4	4	4	4	4	6 5/8
31x31	5 3/8	4	4	4	4	4	4	4	4	4	4	4	4	7 1/2
32x32	5 5/8	4	4	4	4	4	4	4	4	4	4	4	4	8 3/8
33x33	5 7/8	4	4	4	4	4	4	4	4	4	4	4	4	9 1/4
34x34	6 1/8	4 1/4	4	4	4	4	4	4	4	4	4	4	4	10 3/8
35x35	6 3/8	4 3/8	4	4	4	4	4	4	4	4	4	4	4	11 1/8
36x36	6 1/2	4 3/4	4	4	4	4	4	4	4	4	4	4	4	12 1/8
37x37	6 3/4	4 7/8	4	4	4	4	4	4	4	4	4	4	4	13 1/8
38x38	7	5 1/8	4	4	4	4	4	4	4	4	4	4	4	14 1/8
39x39	7 1/4	5 3/8	4	4	4	4	4	4	4	4	4	4	4	15 1/8
40x40	7 3/8	5 5/8	4	4	4	4	4	4	4	4	4	4	4	16 1/8
41x41	7 3/4	5 7/8	4	4	4	4	4	4	4	4	4	4	4	17 1/8
42x42	7 7/8	6 1/8	4	4	4	4	4	4	4	4	4	4	4	18 1/8
43x43	8 1/8	6 3/8	4	4	4	4	4	4	4	4	4	4	4	19 1/8
44x44	8 3/8	6 1/2	4	4	4	4	4	4	4	4	4	4	4	20 1/8
45x45	8 5/8	6 3/4	4	4	4	4	4	4	4	4	4	4	4	21 1/8
46x46	8 3/4	7	4	4	4	4	4	4	4	4	4	4	4	22 1/8
47x47	9	7 1/4	4	4	4	4	4	4	4	4	4	4	4	23 1/8
48x48	9 3/8	7 3/8	4	4	4	4	4	4	4	4	4	4	4	24 1/8
49x49	9 1/2	7 3/4	4	4	4	4	4	4	4	4	4	4	4	25 1/8
51x51	10	8 1/8	4	4	4	4	4	4	4	4	4	4	4	26 1/8
52x52	10 1/4	8 3/8	4	4	4	4	4	4	4	4	4	4	4	27 1/8
54x54	10 5/8	8 3/4	4	4	4	4	4	4	4	4	4	4	4	28 1/8
55x55	10 7/8	9	4	4	4	4	4	4	4	4	4	4	4	29 1/8
57x57	11 3/8	9 1/2	4	4	4	4	4	4	4	4	4	4	4	30 1/8
58x58	11 5/8	9 3/4	4	4	4	4	4	4	4	4	4	4	4	31 1/8
59x59	11 3/4	10	4	4	4	4	4	4	4	4	4	4	4	32 1/8
60x60	12	10 1/4	4	4	4	4	4	4	4	4	4	4	4	33 1/8

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.

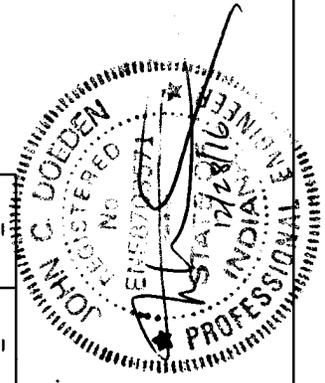


Table 4.6
MINIMUM FOOTING THICKNESSES

LEGACY HOUSING

INSTALLATION INSTRUCTIONS: ADDENDUM FIGURE 1.0
TYPICAL BLOCKING LAYOUT FOR SINGLE-SECTION HOMES FOR 60 PSF ROOF LIVE LOAD
(PERIMETER PIERS)

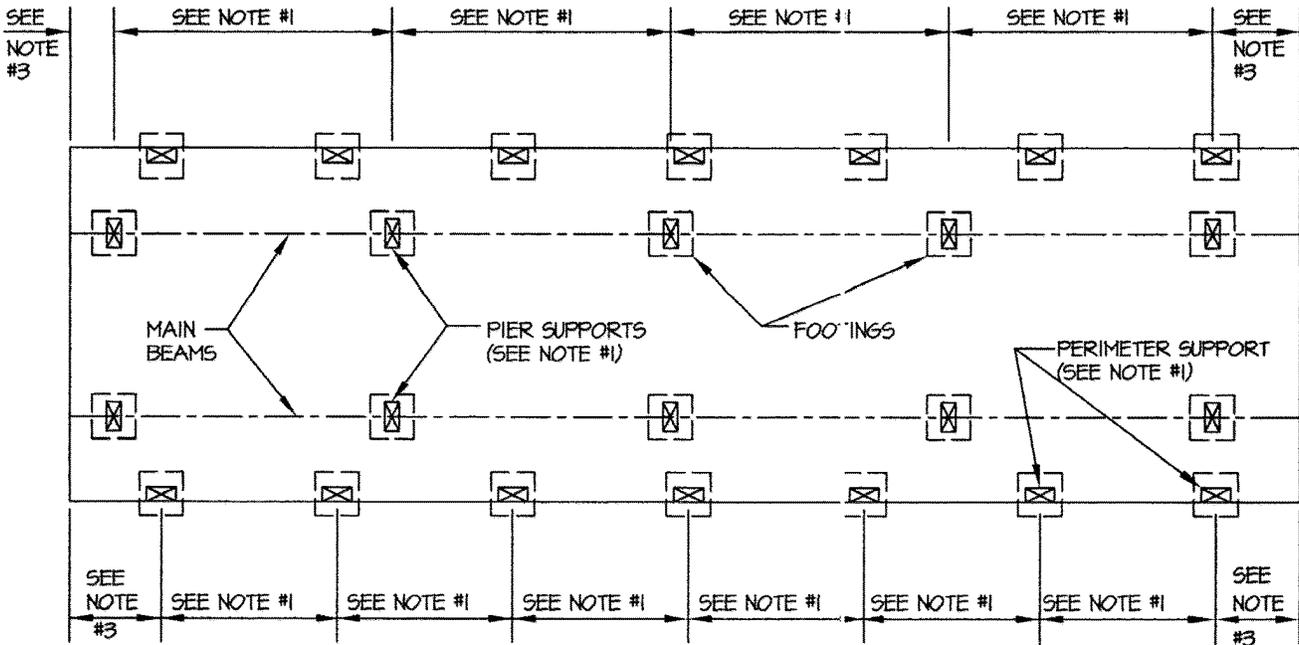


FIGURE 1.0 NOTES:

1. SEE TABLE 1.0 FOR REQUIRED PIER CAPACITY AND SPACING.
2. PIERS SHALL BE LOCATED AT EACH SIDE OF ALL PERIMETER OPENINGS (4) FEET AND WIDER IN WIDTH. THIS WILL INCLUDE DOORS, WINDOWS, RECESSED ENTRIES, PORCHES, ETC. USE TABLE 4.1 FOR PIER CAPACITY REQUIREMENTS.
3. PIERS SHALL BE LOCATED AT A MAXIMUM 2 FEET FROM BOTH ENDS.

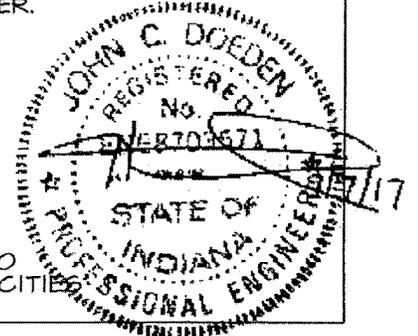
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SECTION WIDTH	PIER LOCATION	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)			
			MAXIMUM PIER SPACING (FEET)			
			4	6	8	10
187 1/2" FLOOR WIDTH W/ 3" EAVE (SINGLE WIDE ONLY)	MAIN I-BEAMS	NOT APPLICABLE	1440#	1835#	2445#	3055#
	PERIMETER PIERS UNDER SIDEWALLS	60	3170#	4950#	6135#	SEE NOTE #3

TABLE 1.0 NOTES:

1. REFERENCE DETAILS IN FIGURE 1.0 FOR PIER LOCATIONS.
2. SEE OTHER DETAILS AND CHARTS IN THE INSTALLATION MANUAL FOR REQUIRED FOOTING SIZES.
3. MAXIMUM SPACING OF PERIMETER PIERS IS 8'-0" ON CENTER.
4. DESIGN IS BASED ON 99 1/2" I-BEAM SPACING.
5. VALUES IN TABLE REPRESENT THE LOAD AT THE TOP OF THE FOOTER.



INSTALLATION INSTRUCTIONS ADDENDUM TABLE 1.0
60 PSF ROOF LIVE LOAD MINIMUM FRAME PIER CAPACITIES
(PERIMETER PIERS)

LEGACY HOUSING

TOTAL WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)										
		MAXIMUM INFLUENCE SPAN (FEET)										
		4	8	12	16	20	24	28	32	36	40	44
31'-1"	60	8750#	12060#	15085#	17825#	20510#	23310#	26055#	28800#	31540#	34285#	37025#

NOTES:

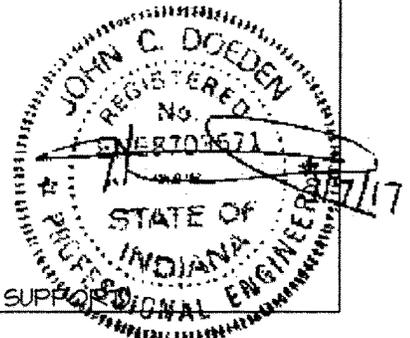
1. THIS TABLE IS TO BE USED FOR MULTISECTIONAL HOMES WITH THE MAIN I-BEAMS AT THE SPRING HANGER SPACING OF 99 1/2" CENTER-TO-CENTER AND SUPPORTED BY PIERS PER TABLE 2.0 AND PER FIGURE 2.0.
2. THE VALUES TABULATED ABOVE REFLECT THE ROOF LIVE LOAD AND DEAD LOAD.
3. THIS CHART IS FOR USE WITH DOUBLE WIDE HOMES.
4. DESIGN LOADS TABULATED ABOVE ARE BASED ON AN ASSUMED SOIL PRESSURE OF 1000 PSF MINIMUM.
5. TABLE IS BASED ON CENTERLINE PIERS SPACED AT 6'-0" O.C. MAX. FOR 60 PSF. PIERS MAY BE SPACED 10'-0" O.C. MAX. IN OPEN SPAN AREAS (FLOOR LOADS ONLY).
6. PROPER BEARING IS REQUIRED AT PIERS. A DOUBLE STACKED PIER WITH DOUBLE 2x8 CAP BLOCKS AND 5PF SINGLE CENTERLINE JOISTS HAS A CAPACITY OF 18,825 LBS. ADDITIONAL BEARING BLOCKS (PLANT INSTALLED) OR DOUBLE CENTERLINE RIM JOISTS MUST BE PRESENT ALONG THE JOIST AT COLUMNS OR OTHER MEANS AVAILABLE, WHEN LOAD EXCEEDS THIS VALUE.
7. THE LOADS IN THE TABLE ABOVE ARE TOTAL LOADS INCLUDING AN ASSUMED WORST CASE WEIGHT FOR THE PIER AND FOOTER. NOTE THAT TABULATED LOADS EXCEEDING 18,825 POUNDS (16,000 POUNDS MAXIMUM PER PIER) REQUIRES A SPECIAL DESIGN BY A REGISTERED ENGINEER.
8. FOR AN INTERMEDIATE COLUMN (POST) CONDITION LOADS TABULATED FOR THE COMBINED SPANS MUST BE INCREASED BY 25% TO OBTAIN THE DESIGN LOAD AT THE FOOTER (e.g.: ADJACENT 16' AND 20' SPANS AT 60 PSF DESIGN LOAD FOR 31'-1" UNIT = 1.25 x (17825 + 20510)/2 = 23991#)

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INSTALLATION INSTRUCTIONS ADDENDUM TABLE 3.0
 60 PSF ROOF LIVE LOAD MINIMUM PIER CAPACITIES
 MULTI-SECTION RIDGEBEAM COLUMN SUPPORT (WITH PERIMETER SUPPORT)



LEGACY HOUSING

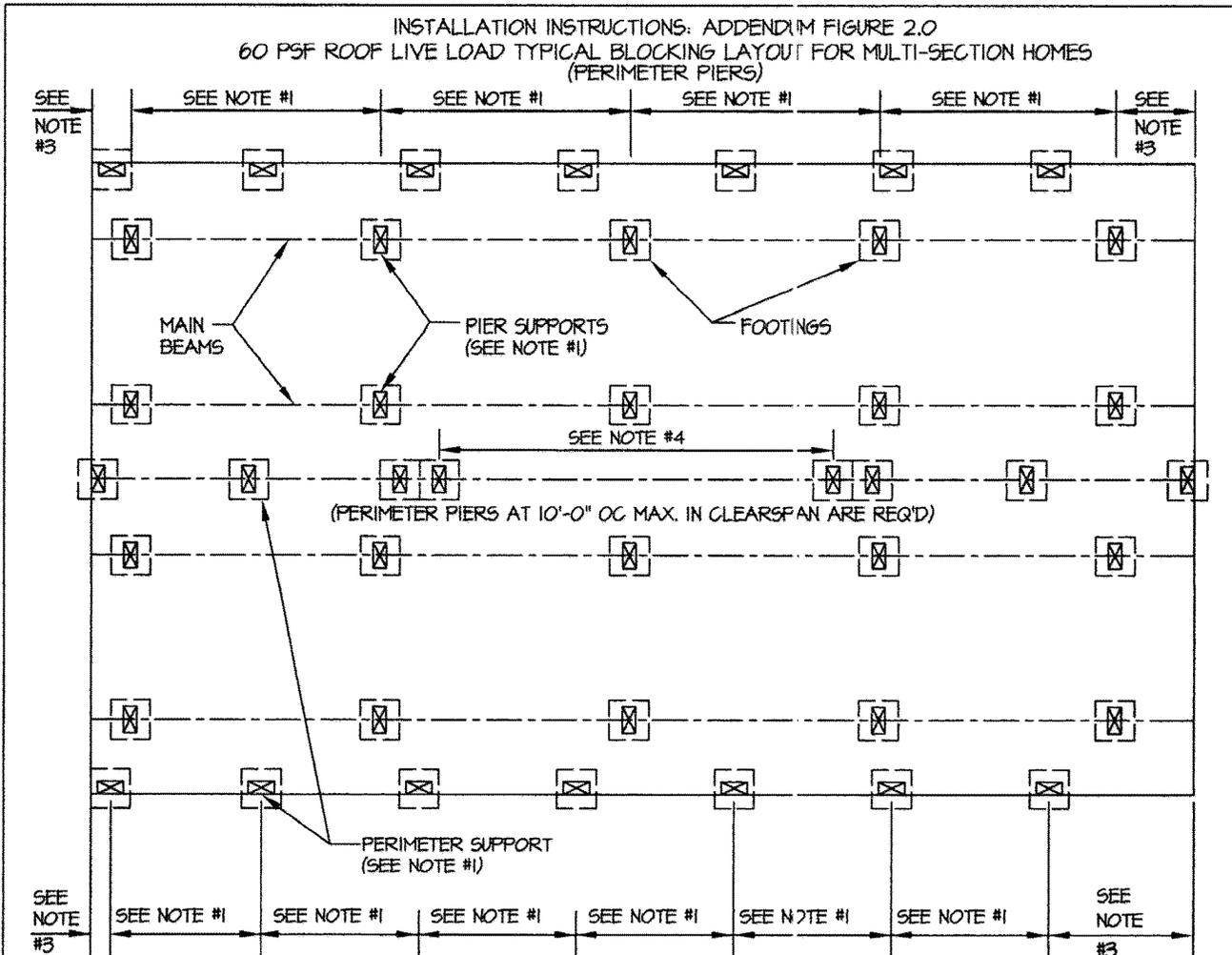


FIGURE 2.0 NOTES:

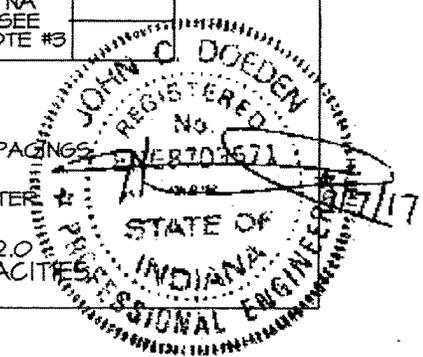
1. SEE TABLE 2.0 FOR REQUIRED PIER CAPACITY AND SPACING.
2. PIERS SHALL BE LOCATED AT EACH SIDE OF ALL PERIMETER OPENINGS (> 4 FEET AND WIDER IN WIDTH. THIS WILL INCLUDE DOORS, WINDOWS, RECESSED ENTRIES, PORCHES, ETC. USE TABLE 2.0A FOR PIER CAPACITY REQUIREMENTS.
3. PIERS SHALL BE LOCATED AT A MAXIMUM 2 FEET FROM BOTH ENDS.
4. SEE TABLE 3.0 FOR PIER CAPACITIES AT RIDGEBEAM COLUMNS.

SECTION WIDTH	PIER LOCATION	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)			
			MAXIMUM PIER SPACING (FEET)			
			4	6	8	10
186 1/2" FLOOR WIDTH W/ 4 1/2" EAVE	MAIN I-BEAMS	NOT APPLICABLE	1515#	2070#	2625#	3180#
	PERIMETER PIERS UNDER SIDEWALLS	60	3330#	4745#	6260#	NA SEE NOTE #3
	PERIMETER PIERS UNDER MATING WALLS	60	6035#	8855#	NA SEE NOTE #3	NA SEE NOTE #3

TABLE 2.0 NOTES:

1. REFERENCE DETAILS IN FIGURE 2.0 FOR PIER LOCATIONS.
2. SEE OTHER TABLES FOR REQUIRED FOOTING SIZES.
3. MAXIMUM SPACING OF PERIMETER PIERS IS LIMITED TO LESSER SPACINGS.
4. DESIGN IS BASED ON 99 1/2" I-BEAM SPACING.
5. VALUES IN TABLE REPRESENT THE LOAD AT THE TOP OF THE FOOTING.

INSTALLATION INSTRUCTIONS ADDENDUM TABLE 2.0
 60 PSF ROOF LIVE LOAD MINIMUM FRAME PIER CAPACITIES
 (PERIMETER PIERS)



PIER SPACING - 187.5 " FLOOR & 3.5 " O.H.

I FOOTER LOADS UNDER I-BEAM WITH BEAMS 99.5 " C-C
 WITH PERIMETER BLOCKING 8 FT. O.C. MAX. - ALL ROOF ZONES

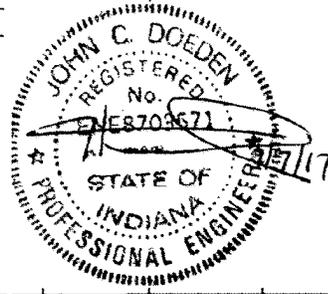
PIER SPACING (FT)	SOIL CAPACITY IN PSF				0
	1000	TOTAL			
4 FOOTER AREA (SQ. IN)	1336 192	1436			
6 FOOTER AREA (SQ. IN)	1704 245	1832			
8 FOOTER AREA (SQ. IN)	2273 327	2443			
10 FOOTER AREA (SQ. IN)	2841 409	3054			

REF TABLE 1.0

METHOD OF DETERMINING LOAD: PIER SPACING x ((45x ((IBEAM SPACING+W) / 4 (12)) + 15 PLF FRAME DL)

II. PERIMETER PIERS SPACED PER CHART BASED ON 99.5 " I-BEAM SPACING

4 FT. O.C.		SOIL CAPACITY IN PSF					
ROOF ZONE		1000	TOTAL				
		SIDEWALL					
60 PSF LOAD =		2759	3166				
FOOTER		397					
Truss R (lbs) =	0						
@Spacing (in o/c) =	24						
Line Load (#/FT) =	0						
@ Rim =	123						
6 FT. O.C.		SOIL CAPACITY IN PSF					
ROOF ZONE		1000	TOTAL				
		SIDEWALL					
60 PSF LOAD =		4139	4649				
FOOTER		596					
8 FT. O.C.		SOIL CAPACITY IN PSF					
ROOF ZONE		1000	TOTAL				
		SIDEWALL					
60 PSF LOAD =		5518	6132				
FOOTER		795					



REQUIRED FOOTING SIZES FOR SNOW ROOF ZONE

RIDGE BEAM SUPPORT

I-BEAM SPACING = 99.5 " C-C MIN.

LOAD AT COLUMN =

$$(ROOF LL + DL) \times (UNIT WIDTH) + WALL DL + REMAINING FLOOR LOAD W/ PIERS IN SPAN SPAC 10 FT. o/c$$

LOAD AT EACH PIER =

$$PIER SPACING \times LOAD AT COLUMN + FOOTER \& PIER WT.$$

- 15 PSF ROOF DEAD LOAD
- 60 #/FT Wall & I-Beam DEAD LOAD
- 10.0 PSF FLOOR & MISC. DL

LEGACY HOUSING
BY K2E, Inc.

- 150 PCF CONCRETE LOAD ; APPR 3X PIER WT= 400 #
- 12 IN. THICK PAD ASSUMED FOR PURPOSES OF INCLUDING FOOTER WEIGHT

SOIL BEARING (PSF)	OPENING SPAN	TRIB. SPAN (FEET)	FOOTING SIZE (MIN. SQUARE INCHES) WITH PERIMETER BLOCKING	
			15.54 WIDE FOOTER SQ. IN.	LOAD
1000 PSF MIN. 60 PSF ROOF P-BLOCK AT 4 FT. o.c. MAX.	4	4.00	1021	7091
	8	6	1498	10401
	12	8	1934	13428
	16	10	2329	16171
	20	12	2724	18913
	24	14	3118	21656
	28	16	3513	24399
1000 PSF MIN. 60 PSF ROOF P-BLOCK AT 6 FT. o.c. MAX.	4	5	1259	8746
	8	7	1736	12057
	12	9	2172	15083
	16	11	2567	17826
	20	13	2962	20568
	24	15	3357	23311
	28	17	3752	26054
1000 PSF MIN. 60 PSF ROOF P-BLOCK AT 8 FT. o.c. MAX.	4	6	1498	10401
	8	8	1974	13712
	12	10	2410	16738
	16	12	2805	19481
	20	14	3200	22224
	24	16	3595	24966
	28	18	3990	27709

REF TABLE 3.0

USE THESE VALUES FOR COLUMN PIERS (WORST CASE)

N/A → LIMIT SPACING TO 6'-0" O/C FOR PERIMETER PIERS

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 8/11/2017
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS

PIER SPACING - 186.5 " FLOOR & 4.5 " O.H.

I FOOTER LOADS UNDER I-BEAM WITH BEAMS 99.5 " C-C
 WITH PERIMETER BLOCKING 8 FT. O.C. MAX. - ALL ROOF ZONES

PIER SPACING (FT.)	SOIL CAPACITY IN PSF				
	1000	1500	2000	2500	3000
4 FOOTER SIDE (IN.)	1513 15	1513 12	1513 10	1513 9	1513 9
6 FOOTER SIDE (IN.)	2069 17	2069 14	2069 12	2069 11	2069 10
8 FOOTER SIDE (IN.)	2625 19	2625 16	2625 14	2625 12	2625 11
10 FOOTER SIDE (IN.)	3181 21	3181 17	3181 15	3181 14	3181 12

METHOD OF DETERMINING LOAD: PIER SPACING x ((.45x ((IBEAM SPACING+W) /4 (12)) + 10 P'LF FRAME DL) + 400 LB.

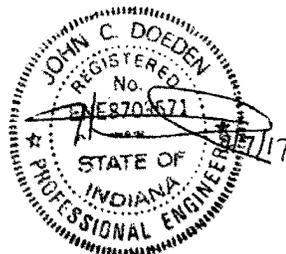
II. PERIMETER PIERS SPACED PER CHART BASED ON 99.5 " I-BEAM SPACING

ROOF DL = 15 PSF

4 FT. O.C.		SOIL CAPACITY IN PSF			
ROOF ZONE		1000	1000	2000	2000
		SIDEWALL	C.L.WALL	SIDEWALL	C.L.WALL
60 PSF	LOAD = FOOTER	3330 22	6035 29	3330 15	6035 21

6 FT. O.C.		SOIL CAPACITY IN PSF			
ROOF ZONE		1000	1000	2000	2000
		SIDEWALL	C.L.WALL	SIDEWALL	C.L.WALL
60 PSF	LOAD = FOOTER	4795 26	8853 36	4795 19	8853 25

8 FT. O.C.		SOIL CAPACITY IN PSF			
ROOF ZONE		SIDEWALL	C.L.WALL	SIDEWALL	C.L.WALL
		SIDEWALL	C.L.WALL	SIDEWALL	C.L.WALL
60 PSF	LOAD = FOOTER	6260 30	11670 41	6260 21	11670 29



Chapter 5 - Set-Up Procedures

5.1 Moving Home To Location

Make sure the following items are completed before placing the home:

1. The site is properly prepared. See Chapter 3.
2. All concrete work necessary to setting the home is finished.
3. Utilities are installed or available.
4. Any trenching, for crossover drain lines or for wheels that will be left in place, is complete.
5. Items that could be difficult to install after the home is sited (such as anchors and ground moisture retarders) are in their proper locations.

WARNING: THIS HOME WEIGHS SEVERAL TONS. USE ADEQUATE TEMPORARY SAFETY BLOCKING TO SAFEGUARD WORKERS. PLACE 4" X 6" X 48" TIMBERS BETWEEN THE I-BEAM AND GROUND IN CASE OF JACK FAILURE. TIMBERS SHOULD BE HARDWOOD.

5.1.1 Positioning The Home

When not placing the home on a concrete slab or poured-in-place footings, mark the corners of the home and lay out footings, and support devices close to where they will be used. Then move the home or first section into position.

5.2 Singlewide Homes - Leveling and Blocking

5.2.1 We recommend the use of a water level to properly level this home see Figure 5.2. Before doing any jacking place 4" x 6" x 48" minimum timbers between the I-Beam and ground in case of jack failure. Timbers should be hardwood.

5.2.2 Use at least one 12 ton jack for each 20 feet of home under the main I-Beam. At least one jack must be in the axle area and all jacks shall be resting on a firm and stable wooden or steel plate to prevent the jacks from tipping.

5.2.3 Jack only on the main chassis I-Beam. Locate the jack directly under the vertical web of the I-Beam. Do not jack on the seam (joint between flanges) of a twin I-Beam.

5.2.4 Use a large 3/8 inch thick steel plate, C-channel or other equivalent plate between the main chassis I-Beam and the jack head to distribute the load.

5.2.5 Do not operate the jacks while you are under the main I-Beam of the home.

5.2.6 Use jacks only for raising the home. Do not rely on the jacks to support the home.

5.2.7 Raise the home in small increments and provide additional blocking between the home and the piers and safety timbers as the home is raised.

5.2.8 Do not go under the home while it is supported on the jacks.

FAILURE TO FOLLOW THESE WARNINGS MAY RESULT IN SERIOUS INJURY OR DEATH.

Reminders before jacking...

1. Use only jacks in good condition with a minimum rating of 12 tons.
2. Use a Minute Man C-Channel jacking plate or equivalent between jack and steel I-Beam to distribute the concentrated loads from jack to I-Beam.
3. Use a firm support under the jack base to prevent tipping or setting of the jack. A 12" x 12" or larger wooden or steel plate is recommended.
4. Always follow the sequence of jacking outlined below to avoid overstressing structural members.

5.2.9 The jacking procedure is as follows:

5.2.9.1 After the home is located in its final position, you can preliminary level it by using the hitch jack but only after adequately wheel blocking the home so it does not roll.

5.2.9.2 Jack up one side of the home by placing one jack just forward of the front spring hanger and another just behind the rear spring hanger of the same I-Beam. These two jacks must be operated simultaneously to raise the home. Jack low side of the home first. Install footings and piers; one just forward of the front jack and another just behind the rear

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jack (taking care not to exceed the correct spacing selected from Table 4.2).

5.2.9.3 Next jack the main I-Beam at the front and position a pier within 2' -0" of the end of the I-Beam. At the completion of this step, this side of the home should be approximately level.

5.2.9.4 Repeat Steps 5.2.9.2 and 5.2.9.3 for the other side of the home. At the completion of this step, the home should be roughly level from front to rear and from side to side.

5.2.9.5 Place the remaining pier supports under the main I-Beam on each side taking care to maintain a maximum distance of no more than the spacing determined from Table 4.2 with piers located as specified at each end of each I-Beam (see Figure 4.2).

5.2.9.6 Level the home within reasonable tolerances, using a 6 foot carpenter's level, water level or similar equipment. The final height adjustment is obtained by jacking the I-Beam and placing hardwood shims between the piers and I-Beam or other approved methods such as adjustable piers.

THIS LEVELING PROCESS IS IMPORTANT FOR THE APPEARANCE AND IS ESSENTIAL FOR THE PROPER OPERATION OF DOORS, WINDOWS AND THE DRAINAGE SYSTEM.

5.2.9.7 Place additional supports at each side of sidewall openings 4'-0" wide or wider and each side of all exterior doors.

5.2.9.8 Within 90 days after initial set-up, the home should be re-leveled, if necessary, to compensate for any pier- settlement. Following the procedure in item 5.2.9.6 above.

5.2.9.9 NOTE: DURING THE LEVELING OR RELEVELING PROCESS, LOOSEN FRAME TIES AND OVER-THE-ROOF TIES (IF PROVIDED) PRIOR TO JACKING THE HOME.

NO FIELD MODIFICATION OF THE MANUFACTURED HOME CHASSIS IS ALLOWED.



5.3 Multi-Section Homes - Leveling and Blocking

With the exception of the requirement for support under the marriage wall of Double wide units, leveling and blocking procedure are the same as for single wide units. Prepare the site as previously described. It may be desirable to construct the footing and piers (to grade height) prior to moving the home to its final location. Figure 4.2 illustrate the typical pier layout~ making special note of additional piers required at center beam support locations.

5.3.1 Leveling and blocking the A-Half

Figure 5.2 shows the way we recommend you to level the home. To prevent tipping or settling, use a firm support under jacks. Use a steel channel or plate between jacks and steel beams to distribute the load. Use equipment in good working condition and strong enough to handle the loads. Work safely whenever you are under, in or around a home that is being set.

5.3.1.1 Install first half of home exactly as described for a single section home (See sect. 5.2).

5.3.1.2 Place the level lengthwise on the floor, and working towards each end of the home, place blocks and wedges under both I-Beam, at selected pier spacing. Make continuous checks with the level, both lengthwise and crosswise. If you must jack the A-side to keep it level as you work towards the ends, jack it only under the I-Beams and only enough to make it level.

5.3.2 Leveling and Blocking the B-Half

CAUTION: Do not proceed with the B-Half until the A-Half is completely level and properly blocked. After it is, proceed as follows:

5.3.2.1 The warranty on this home will not be operative unless all weather proofing (plastic) material applied for shipping purposes is removed from marriage and end walls if applicable before units are secured together (see Figure 5.1).

Park the B-Side within two to four feet of the A-Half. A foam mating gasket has been installed on one of the home sections at the factory located at the floor line, endwalls, and ceiling. **DO NOT REMOVE THIS GASKET!** This gasket is required to resist the entry of air, water, water vapor, insects, and rodents at all mate-line locations exposed to the exterior.

Position support piers under ridge beam support columns of the blocked half so that they are loose but positioned to hold both halves. Using a properly functioning rolling and jacking system in a manner commensurate with manufacturer of that systems operational directions or two come-a-longs, placing one end on the A-Half I-Beam and the other end on the B-Half I-Beam. Use one come-a-long at the front and one at the rear, or more if necessary at interim locations, move this side of the home over to meet the other. Care should be taken that the inner beam is slightly higher than the outer beam so there is no opportunity for the roof to touch before the floor when the two halves meet.

- 5.3.2.2 Place a 12 ton jack under the B-Half inside I-Beam about 1/3 of the floor length from each end. Carefully jack the B-Half inside I-Beam until the B-Half floor edge is about even with the A-Half floor edge, as shown in Figure 5.3.
- 5.3.2.3 Loosely lag the B-Half floor joists to the A-Half floor joist using #8" x 3" screws 36" o.c. or 5/16" x 3" lag screws 48" o.c. at Wind Zone 1, see Figure 5.4. See Figure 5.5 for wind zone 2 & 3. To prevent the splitting of rim joist pre-drilling of holes must be required. Do not tighten these lags at this time.
- 5.3.2.4 Temporarily block the B-Half inside I-Beam at selected pier spacing, removing the jacks and place them under the B-Half outside I-Beam about 1/3 of the floor length from each end.
- 5.3.2.5 Carefully jack the B-Half outside I-Beam until the B-Half floor is approximately level crosswise. Temporarily block the B-Half outside I-Beam at pier points. The B-Half should be very close to the A-Half, and the small space (if any) between the floors and ceilings of the B and A halves should be the same. The two sides should now be loosely attached at the floor joists. The A-Side is completely level and blocked. The B-Side should be nearly level because the ceilings and floors were made to match up. You are now ready to level the B-Half so that it is

even with the A-Half, and to permanently block it.

- 5.3.2.6 Place a 12 ton jack under each I-Beam of the B-Half at the axle area. Carefully adjust the floor to the B-Half until it is level with the floor of the A-Half. Go to the outside I-Beam of the B-Half and adjust it so that the B-Half floor is level crosswise. The B-Half floor should now be level crosswise and even with the A-Half floor.
- 5.3.2.7 Place blocks under the I-Beam, on each side of the B-Half at the pier points closest to the jacks. Insert wedges, as shown on the drawing, so that the blocks bear the weight.
- 5.3.2.8 Work towards either end, placing blocks and wedges under the I-Beam on both sides, at selected pier spacing. Make continuous checks with the water level to be sure that the floor of the B-Half is level and even with the A-Half. CAUTION: Do not over-jack the B-Half or you will strain the lags attaching the two halves together, make the floor unlevel or cause other problems.
- 5.3.2.9 Both halves should now be blocked and level. Before tightening the lags through the floor joists underneath the home, check all alignments. If care has been taken during leveling and the home has the proper footing the floor should require very little adjusting. **Are the front and rear end walls flush? Are the floors and ceilings flush?** Tighten the lags through the floor joists, starting in the center and working towards each end.

NOTE: When the two sections are in place, aligned and leveled, gaps between floors or ridge beams, 3/4" wide maximum, which DO NOT extend the full length of the home may be closed up with plywood or lumber shims. The lag screws in the shimmed portion shall be increased 1" (min. 2.1" penetration) in length to ensure that they engage both the floor rim or roof ridge beam with the same penetration as area's without gap. Lag screws at floor rim and roof ridge to be installed at a 45 degree angle from vertical.

5.3.2.10 Now that each half is properly leveled and blocked, and the floors are securely lagged together, you are ready to move to the ridge beam.

5.3.3 Roof Ridge Fastening

See Figure 5.4 or 5.4B for Wind Zone 1, Figure 12.10 for Wind Zones 2 & 3.

5.3.4 Endwall Fastening

Secure the endwall studs where the two halves come together with #8 x 3" screws at 16" o.c. or 9mm x 3" lag screws at 32" o.c. staggered for wind zone 1. For wind zones 2 and 3, secure with #8 x 3" screws at 8" o.c. staggered. The home should now be level, properly blocked and securely fastened together.

CAUTION: Once again, use the level and be sure that the floor is properly level through out the home. Many problems will result if the floors are not level or if the home is not properly fastened together. This is the final check for level. Adjust the wedges between the blocks and the I-Beam so that the floor is level.

5.3.5 Shingle Roof Close-Up

See Figure 5.4, Figure 5.4B or Figure 12.10

5.3.6 Interior Closure

5.3.6.1 Install the center beam or trim furnished with the home.

5.3.6.2 Fit and secure carpet. Use a carpet stretcher. Bond carpet seams with heat bond tape and a seaming iron. Put the tape (glue side next to carpet) under the seam and apply heat to the top of the tape pressing the carpet into the glue. (NOTE: The carpet must be stretched up to the seam and tacked down temporarily until the carpet is seamed).

5.3.6.3 Install interior trim moulding, as necessary.

5.3.6.4 Adjust for proper operation of all cabinet doors, interior and exterior doors and sliding or folding doors, as necessary.

5.3.7 Exterior Closure

5.3.7.1 The house type exterior lap siding (if applicable) needed to close-up the ends has been furnished with the home. Starting at the bottom, install each course of siding, cutting to fit as necessary (See Figure 5.6).

5.4 Crossover Connections for Multi-Section

5.4.1 Utility Crossovers

Connect water, drainage, gas, electricity, telephone, and utility crossovers as outlined in Chapter 8.

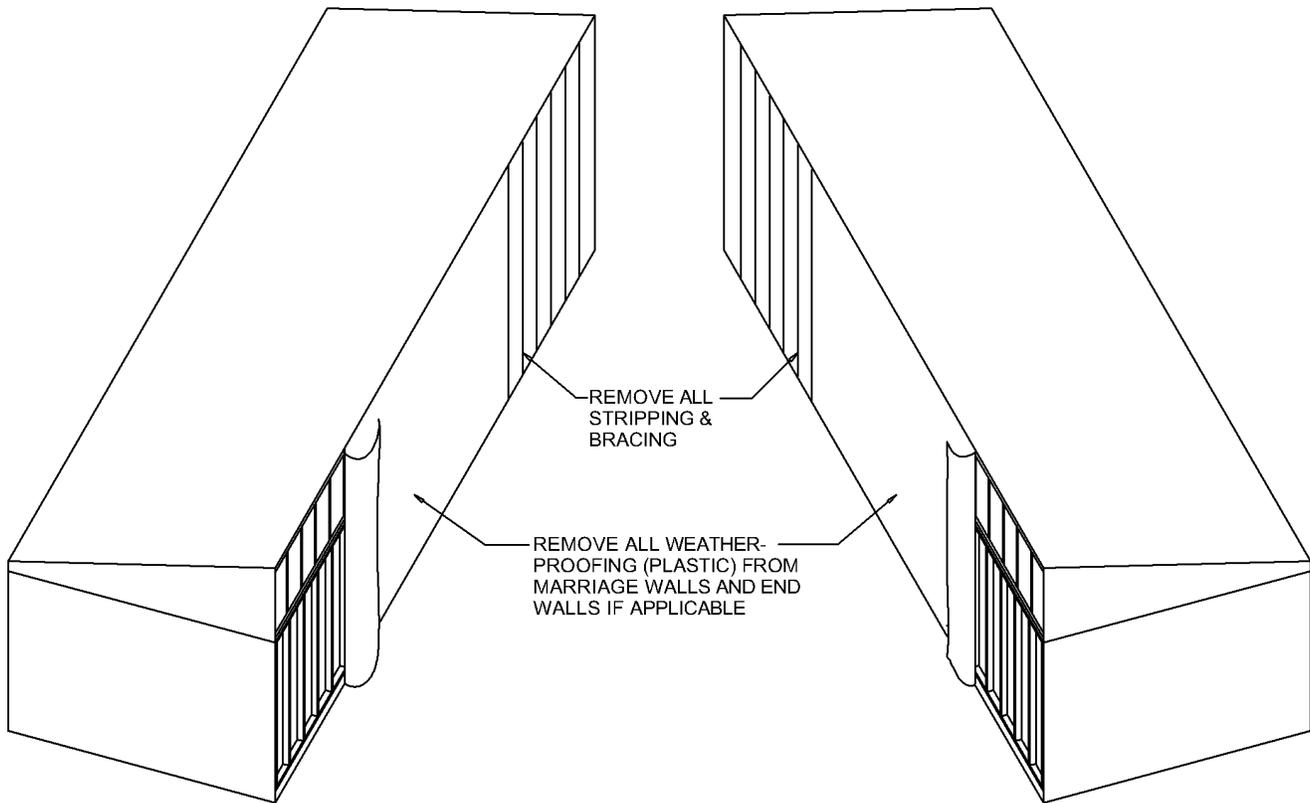
5.4.2 Ductwork Crossovers

See Figure 5.7 for in floor duct system or Figure 5.8 for overhead duct system.



FIGURE 5.1 - Shipping Material Removal

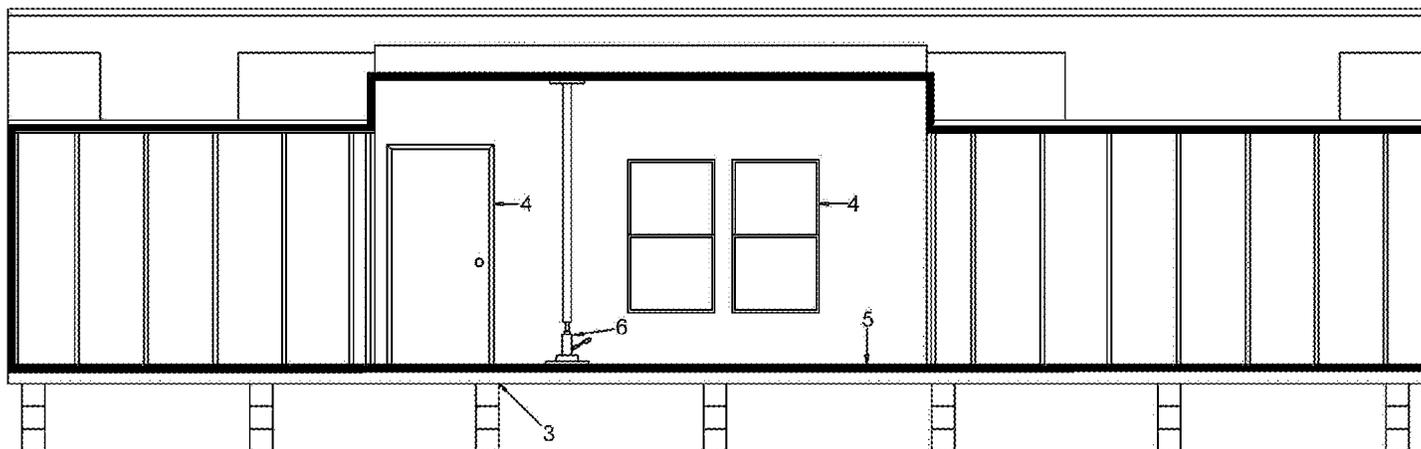
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NOTICE

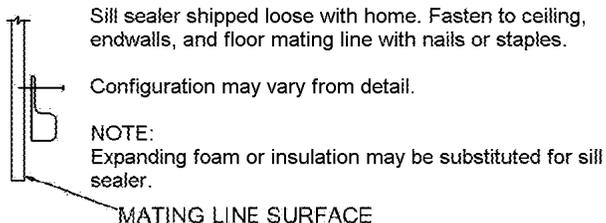
The warranty on this home will not be operative unless all weather proofing (plastic) material applied for shipping purposes is removed from marriage walls and end walls if applicable before units are secured together.

FIGURE 5.1.1 - MULTI-SECTION INTERIOR LEVELING



Detail shown with partial vault and flat ceiling, unit may be vaulted or flat thru out.

1. Check level of floor front to rear direction. (with water level)
2. Check level of floor across the section width.
3. Raise section and adjust pier wedges in all areas not level or plumb.
4. After leveling is complete check all windows, interior and exterior doors to make sure they operate freely with out binding.
5. Recheck sill sealer or insulation around ceiling, endwalls, and floor mating line. Repeat if necessary.
6. Be sure the ceiling from each section are flush at the mating line before the roof is totally fastened. If they are not flush, use a hydraulic jack and a padded tee underneath the low point. Carefully raise the jack until the two ceiling sections are flush. Then, fasten the two sections together to hold in place, if additional fastening is necessary the ridgebeam may be fastened together from inside the home by toe screwing (with #8 x 4" screws) the ridgebeam together.

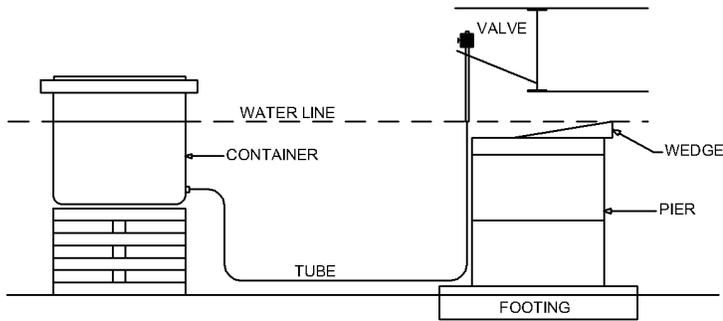


CAUTION: SPECIAL CARE MUST BE TAKEN TO ENSURE THAT THIS MATING LINE JOINT IS TIGHT TO RESIST AIR INFILTRATION AND MINIMIZE CONDENSATION.

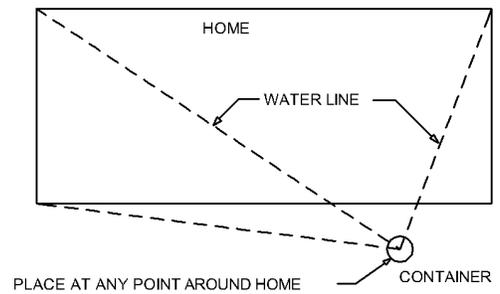
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FIGURE 5.2 - USE OF WATER LEVEL PLACEMENT



"HOW TO USE A WATER LEVEL"



Material to Make Level

- Five gallon pail with lid
- Plastic tubing - 100 feet x 3/8" or 1/2"
- Cork - 1-1/2"
- Male barbed fitting - 3/8" x 3/4"
- Steel washer - 7/8"
- Nut - 3/4"
- Female barbed fitting - 3/8" x 1/2"
- Male valve - 1/2"
- Pipe sealant....
- Food coloring - 8 oz.
- Use RV solvent in cold weather

Unroll tubing: Position level where it is to be used. Take care not to have kink in it, step on it or lay anything on it.

Check for air bubbles: To remove bubbles, lower valve below bottom of container and open valve. Close valve when bubbles are out.

Container location: Located so valve can reach all areas of home. Build up container so water line in valve end of tubing is at the predetermined height support devices will be set.

Leveling: Secure valve above determined height and open. Adjust device as needed. Close valve and move to next leveling location.

NOTE: Level all support devices before lowering home.

FIGURE 5.3 - CAREFULLY JACK THE B-HALF INSIDE I-BEAM UNTIL THE B-HALF FLOOR EDGE IS ABOUT EVEN WITH THE A-HALF FLOOR EDGE.

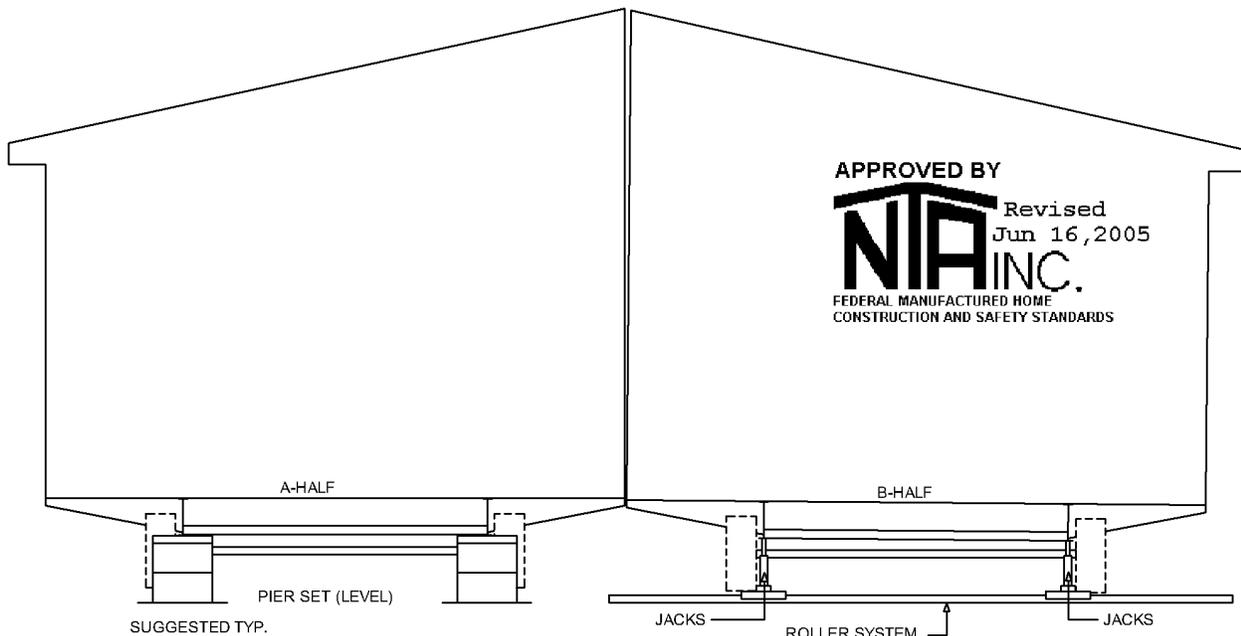
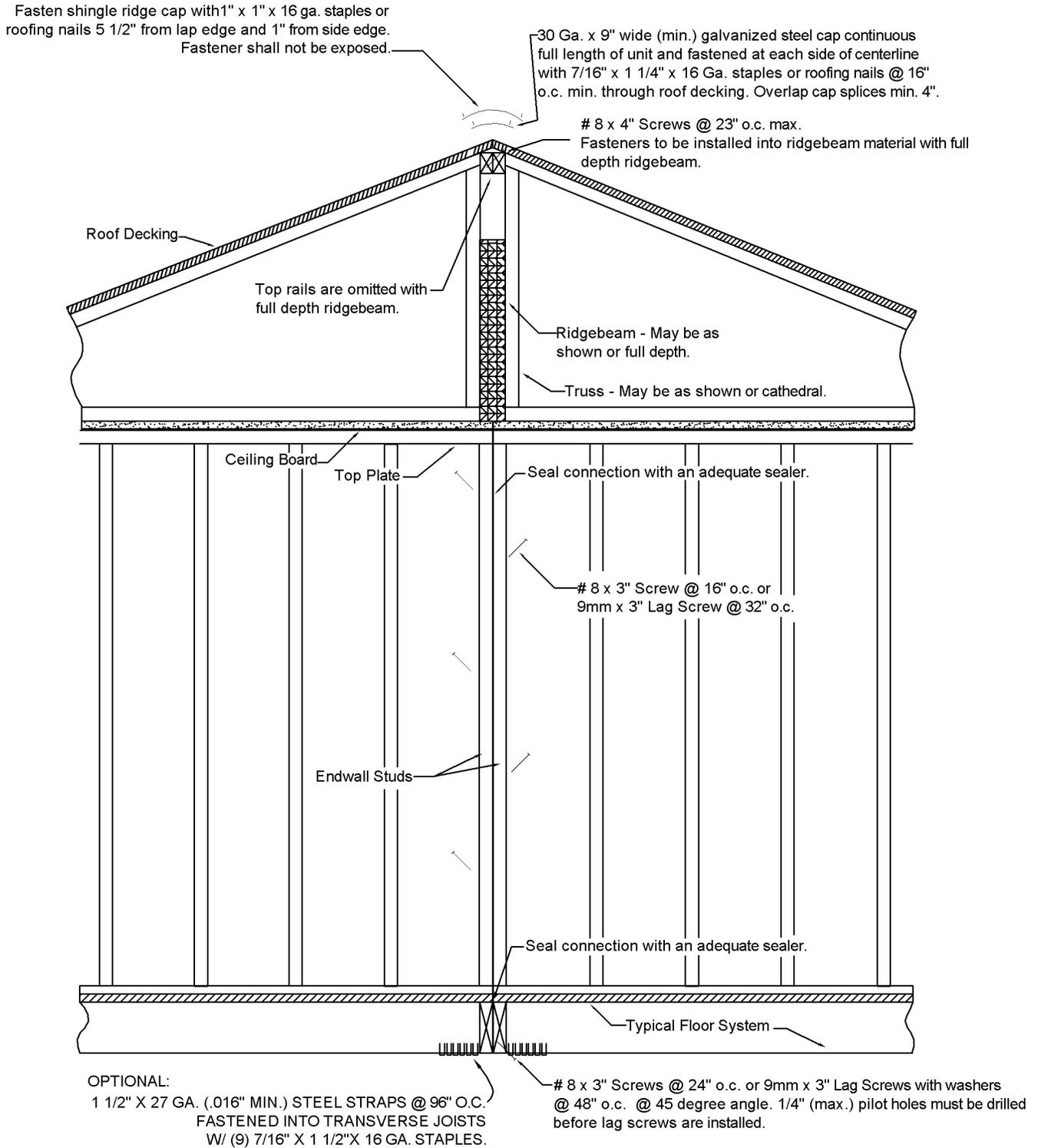


FIGURE 5.4 - Doublewide Onsite Fastening - Wind Zone 1

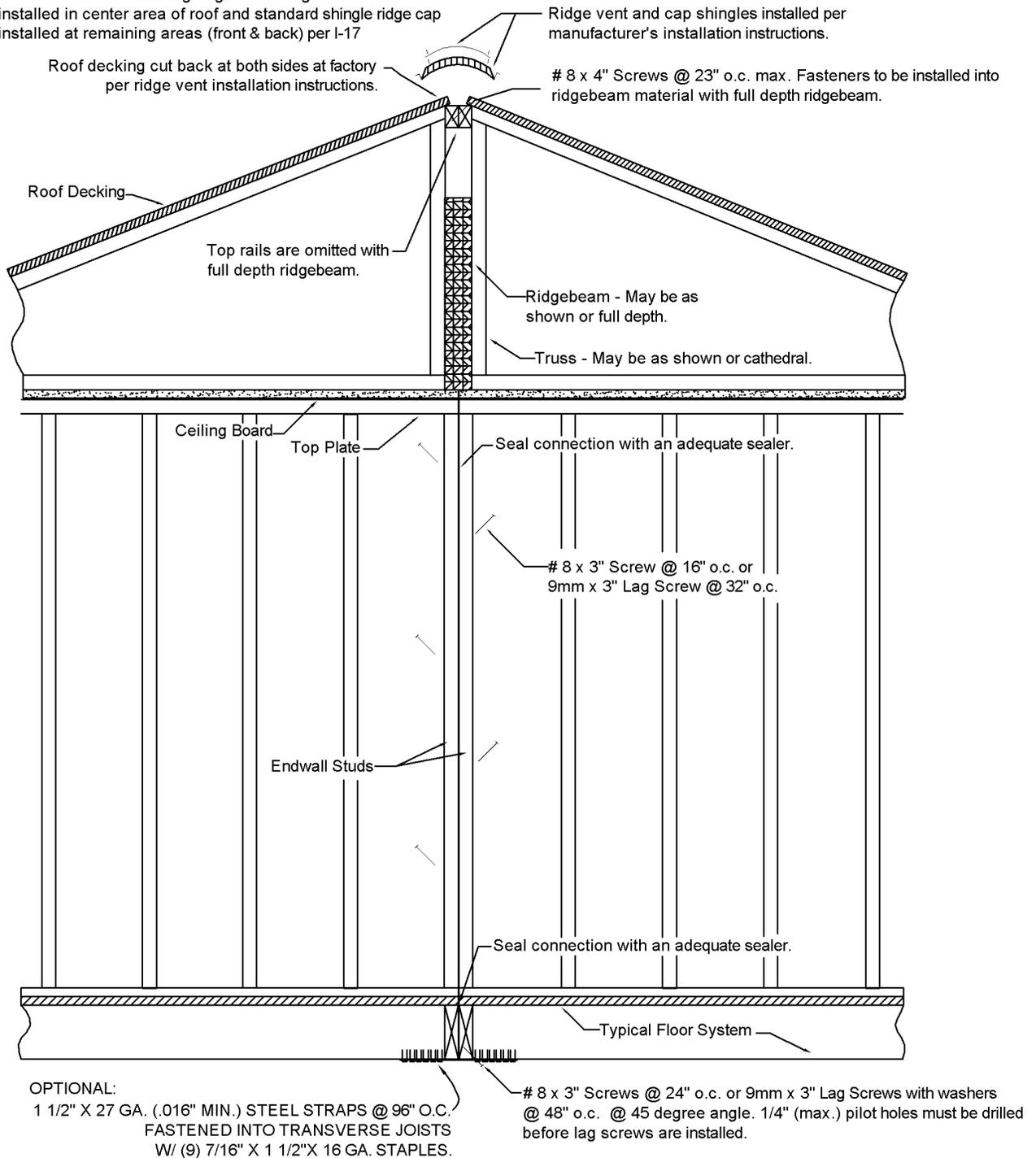


NOTES:

1. Bottom board not shown for clarity. Holes in bottom board must be patched with vinyl tape designed for repairing of holes, cuts, tears.
2. A protective covering material (bottom board, polyethylene, galvanized steel , or similar material may have been installed on top of the shingle roof at the front of the home and along the forward face of any dormer. This material was installed to prevent shingles from blowing off during transit. Holes resulting from fasteners used to secure this material to the roof shall be sealed with roofing cement when material is removed.

FIGURE 5.4B - Doublewide Onsite Fastening With Alternate Ridge Vent
Wind Zone 1

Install ship loose ridge vent for high ventilation per included manufacturer's installation instructions. ridge must be secured as shown before installing ridge vent. Ridge vent is to be installed in center area of roof and standard shingle ridge cap installed at remaining areas (front & back) per I-17

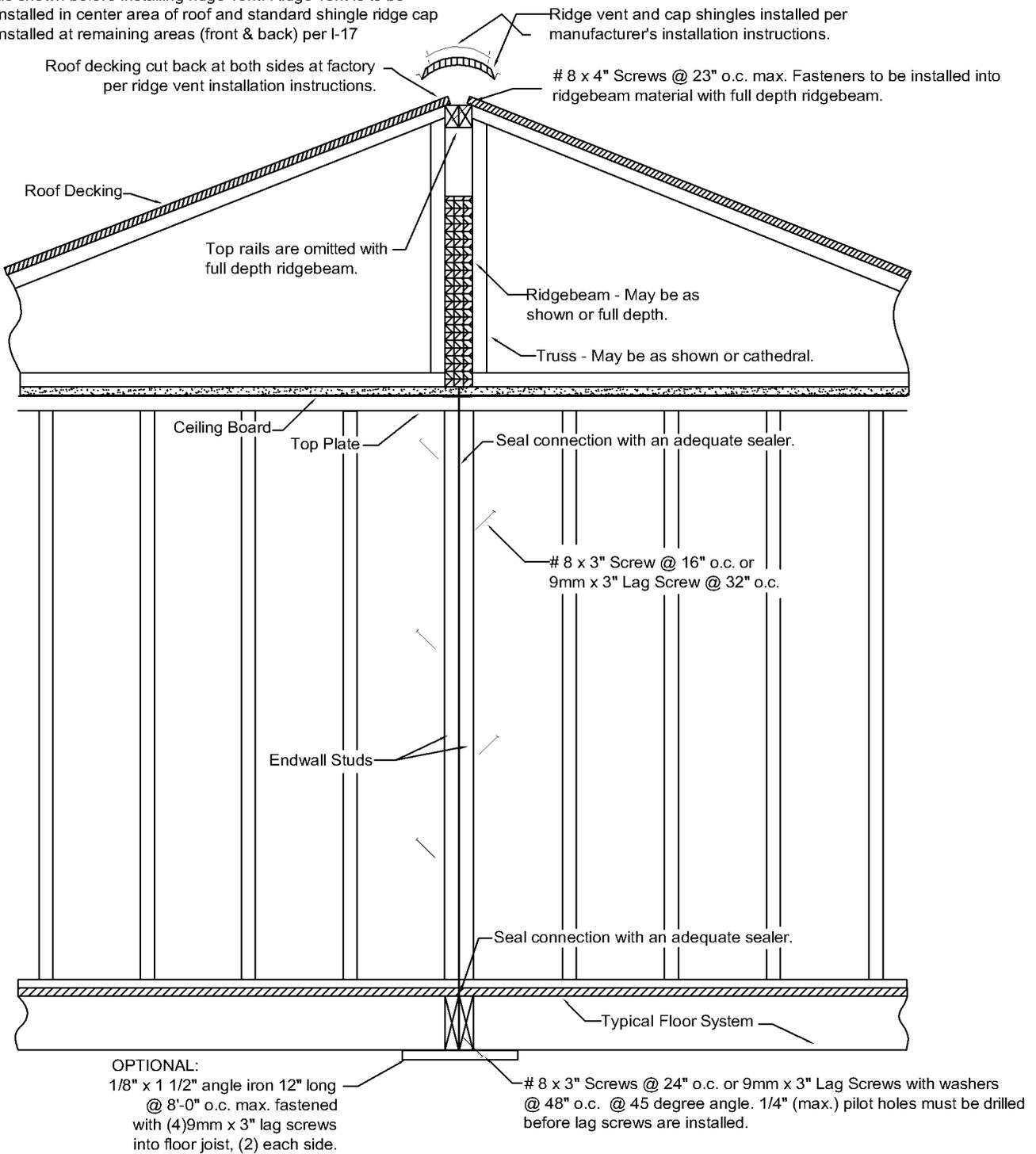


NOTES:

1. Bottom board not shown for clarity. Holes in bottom board must be patched with vinyl tape designed for repairing of holes, cuts, tears.
2. A protective covering material (bottom board, polyethylene, galvanized steel , or similar material may have been installed on top of the shingle roof at the front of the home and along the forward face of any dormer. This material was installed to prevent shingles from blowing off during transit. Holes resulting from fasteners used to secure this material to the roof shall be sealed with roofing cement when material is removed.

FIGURE 5.4 - Doublewide Onsite Fastening - Wind Zone 1

Install ship loose ridge vent for high ventilation per included manufacturer's installation instructions. Ridge must be secured as shown before installing ridge vent. Ridge vent is to be installed in center area of roof and standard shingle ridge cap installed at remaining areas (front & back) per I-17

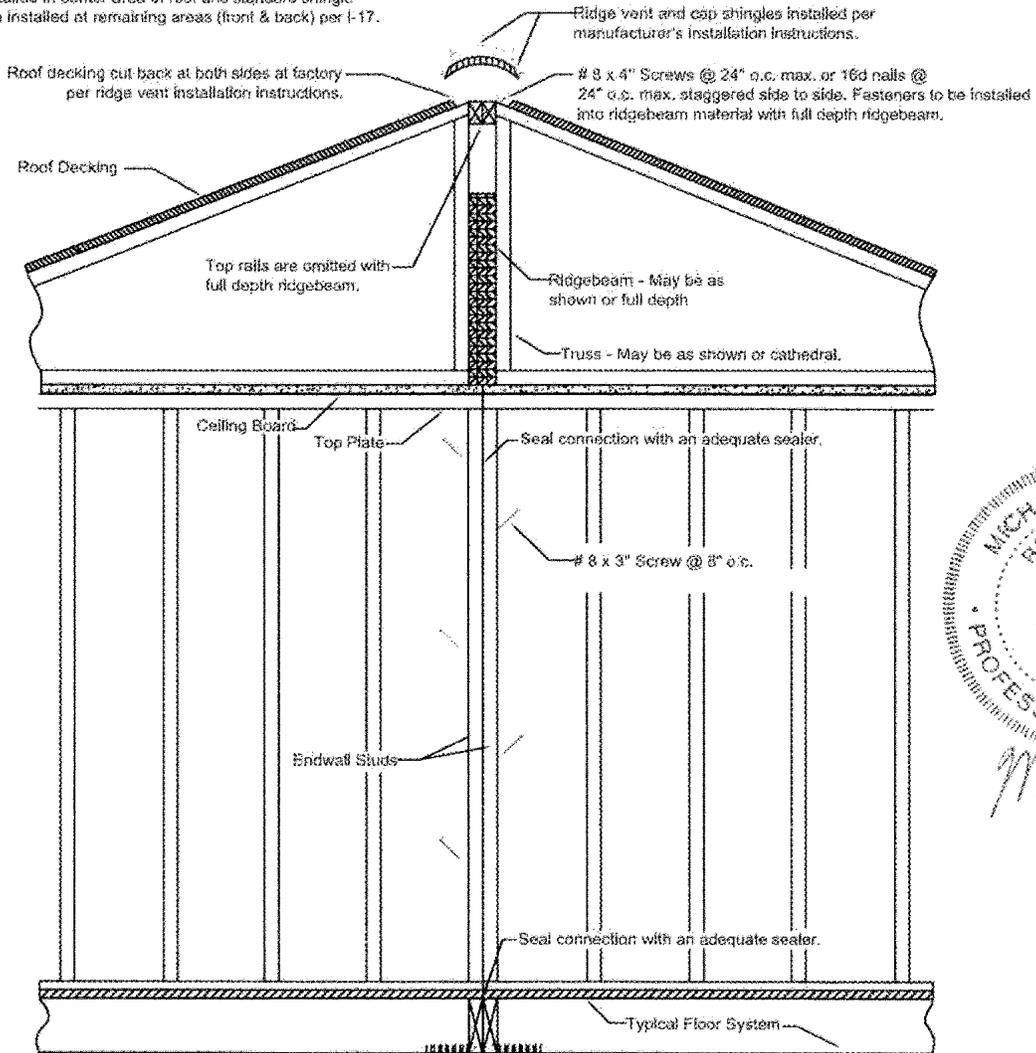


NOTES:

1. Bottom board not shown for clarity. Holes in bottom board must be patched with vinyl tape designed for repairing of holes, cuts, tears.
2. A protective covering material (bottom board, polyethylene, galvanized steel , or similar material may have been installed on top of the shingle roof at the front of the home and along the forward face of any dormer. This material was installed to prevent shingles from blowing off during transit. Holes resulting from fasteners used to secure this material to the roof shall be sealed with roofing cement when material is removed.

FIGURE 5.4C - Double Wide Onsite Fastening - Wind Zones 2 and 3 With Alternate Ridge Vent.
20 Degree Max. Roof Slope, 84" Sidewall, 184" Floor

Install ship loose ridge vent for high ventilation per included manufacturer's installation instructions. Ridge must be secured as shown before installing ridge vent. Ridge vent is to be installed in center area of roof and standard shingle ridge cap installed at remaining areas (front & back) per I-17.



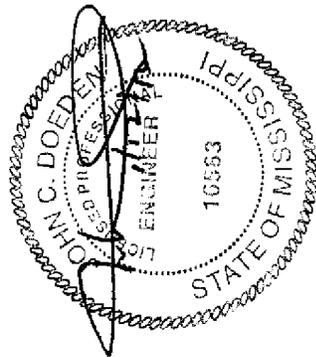
- OPTIONAL:
- 1 1/2" X 27 GA. (.016" MIN.) STEEL STRAPS @ 96" O.C. FASTENED INTO TRANSVERSE JOISTS W/ 7/16" X 1 1/2" X 16 GA. STAPLES - (8) WIND ZONE 2 & (10) WIND ZONE 3
 - 3/8" x 4" Lag Screws @ 8" o.c. @ 45 degree angle from vertical. 1/4" max. pilot holes must be drilled before installing lag screws (SYP rim only).

NOTES:

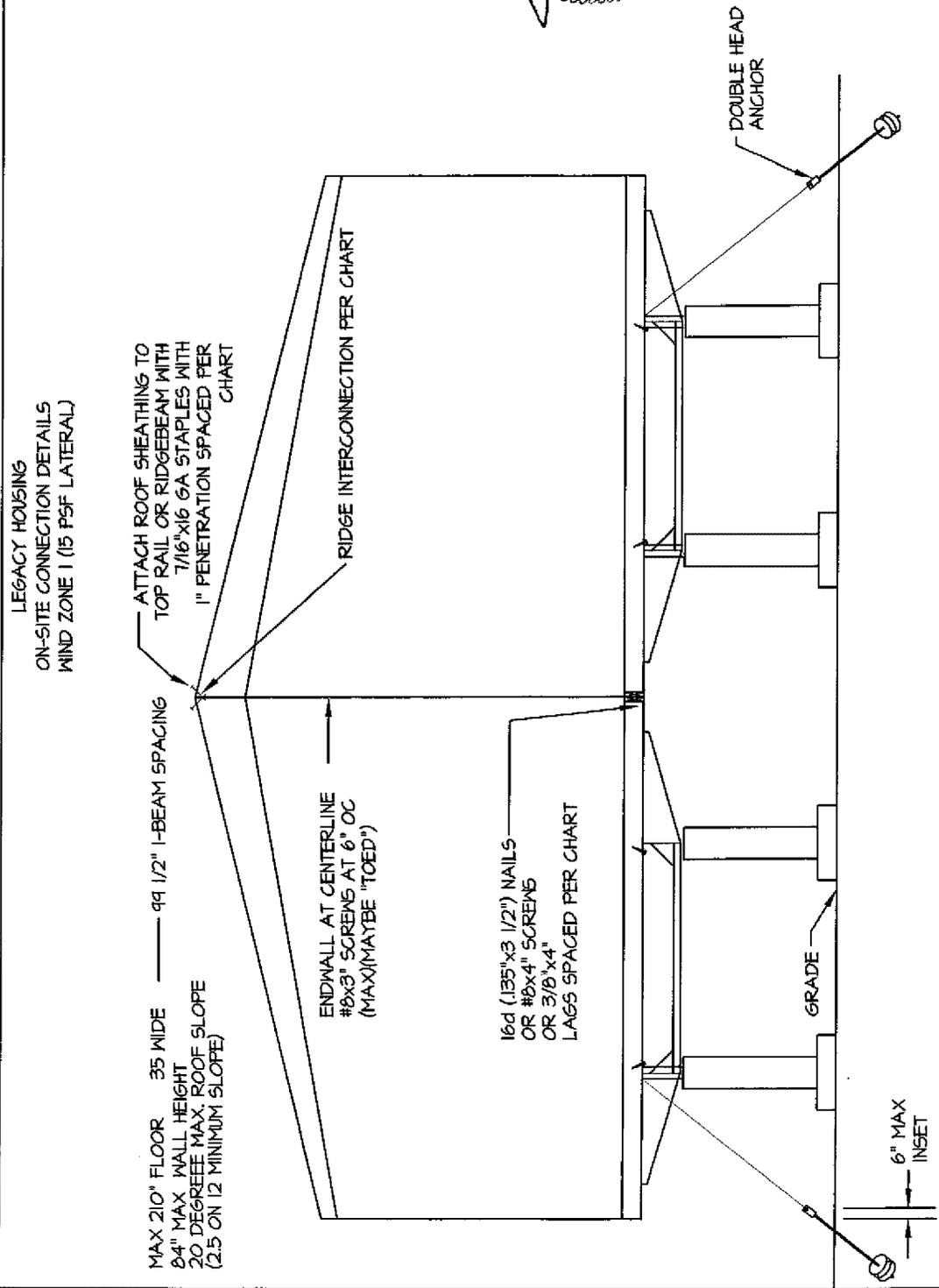
1. Bottom board not shown for clarity. Holes in bottom board must be patched with vinyl tape designed for repairing of holes, cuts, tears.
2. A protective covering material (bottom board, polyethylene, galvanized steel, or similar material may have been installed on top of the shingle roof at the front of the home and along the forward face of any dormer. This material was installed to prevent shingles from blowing off during transit. Holes resulting from fasteners used to secure this material to the roof shall be sealed with roofing cement when material is removed.

MAXIMUM FASTENER SPACING CHART		WIND ZONE
84" SIDEWALL HEIGHT		
CONNECTION		1
SHEATHING TO TOP RAILS OR RIDGEBEAM		5" o.c.
RIDGE INTERCONNECTION #10x4" SCREWS OR 3/8"x3" LAG SCREWS		18" o.c.
		30" o.c.
CENTERLINE STRAPS AT FLOOR		N/A
CENTERLINE FASTENING AT FLOOR	NAILS	32" o.c.
	SCREWS LAGS	32" o.c. 38" o.c.

MAXIMUM UNIT LENGTH = 76'-0"

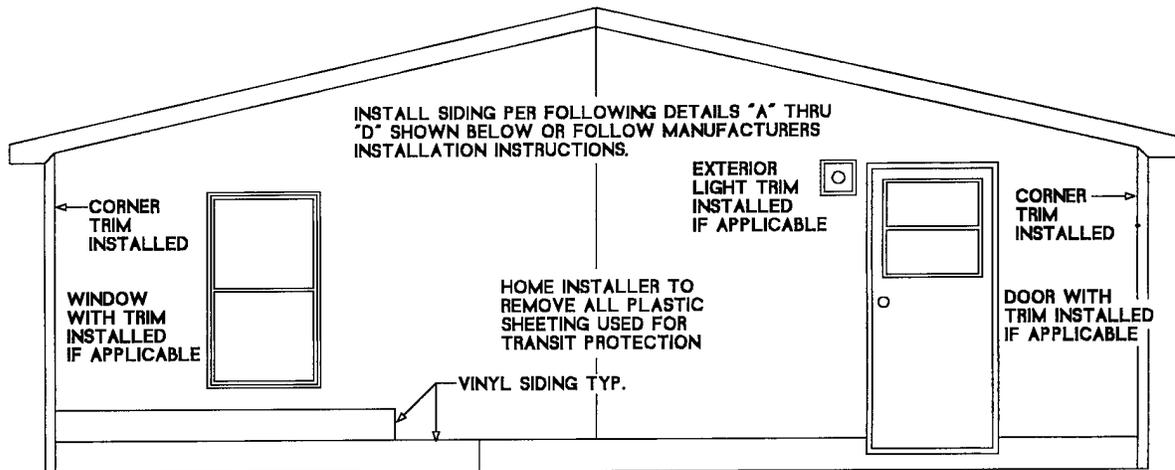


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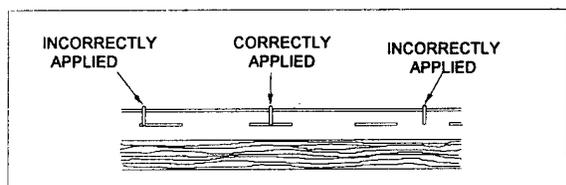


NOTES:
 1. ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 3150# (4725# ULTIMATE).

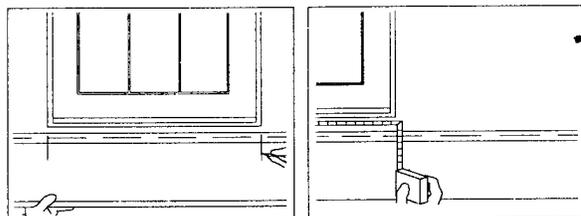
FIGURE 5.6 - FIELD APPLIED HORIZONTAL LAP SIDING



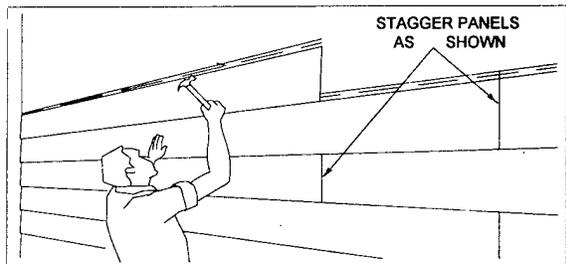
MULTI-SECTION HOMES WITH HORIZONTAL LAP SIDING MAY BE SHIPPED WITHOUT SIDING ON THE FRONT AND REAR END WALLS. THE FOLLOWING ITEMS WOULD BE INSTALLED: DOORS/WINDOW TRIM IF APPLICABLE AND CORNER TRIM; AND COVERED WITH PLASTIC SHEETING FOR TRANSIT. ALL SIDING, STARTER TRIM AND FASTENERS WILL BE SHIPPED LOOSE IN THE HOME FOR INSTALLATION ON SET UP. HOME INSTALLER TO COMPLETE INSTALLATION AFTER HOME IS SET UP.



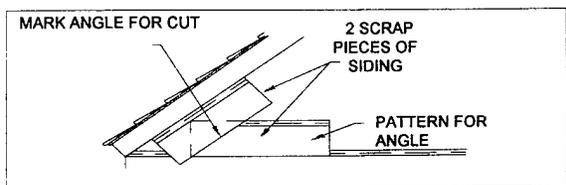
DETAIL A



DETAIL D



DETAIL B



DETAIL C

VINYL LAP SIDING

Apply a 2" wide strip of duct tape at the marriage joint of the endwalls for the entire height of the walls. Apply the duct trap directly over the sheathing.

The siding panels should be attached using 7/16" x 1 1/2" x 16 ga. Staples. (6d galvanized nails may also be used). Staples should be driven so that there is a 1/32" clearance between the siding and staple crown to allow some lateral movement. Fasten every 16" to each stud. See Detail "A" for proper fastening.

Snap the bottom course of siding into the starter strip and fasten to the wall. Leave a 1/4" space at corner

posts and trim around window and door openings to allow for expansion. Do not fasten within 4" of an accessory. Vertical butt joints in panels should overlap 1". Do not fasten the panel within 4" of the joint. Apply caulk around siding and light trim, water faucets, or other small penetrations.

Install successive courses similarly to the first. Butt joints in adjacent courses should be offset by at least 24". Joints in alternate courses should be aligned vertically. (see Detail B).

Panels will have to be cut at headers and sills. A single panel should extend without joints across the width of the opening. When cutting a panel at a sill, measure the distance between the bottom of the

opening and the top lock of the lower course, then deduct 1/4" (see Detail D).

Measure and cut the header panel in the same manner as indicated above.

The top sections at the gable will need to be angle cut. Use two scrap pieces of siding to make a pattern (see Detail C). Interlock one piece with the siding panel below. Hold the other piece on top against the gable. Mark a line on the bottom piece and cut. Use this piece as a pattern for cutting gable pieces. Install the gable pieces by interlocking with the lower course, sliding into the gable "J" rail and fastening.

5.5 Tie Down Requirements for Single and Multisection Homes

5.5.1 Anchoring Instructions

After blocking and leveling, the installer shall secure the home against the wind loads. The type of installation determines how this should be done as follows:

CAUTION: In order to avoid electrocution and the possibility of damage to underground services, prior to digging for the purpose of securing anchors, make sure that the location of underground electrical cables, gas lines, sewer lines and water lines are clearly marked above ground.

5.5.1.1 Number and Location of Anchors

Select the number of straps and anchors from the charts and diagrams on Pages I-25.1 and I-25.2 for wind zone 1 and Pages I-B-1 and I-B-1.1 for wind zones 2 and 3. Only listed and approved ground anchors capable of resisting a minimum ultimate load of 4725 pounds and a working load of 3150 pounds.

5.5.1.2 Installation of Anchors

Install the anchors at the locations selected from the appropriate charts and diagrams as described in 5.5.1.1 following the manufacturer's instructions. Install double-head anchors at all over-the-roof-tie or vertical tie locations. Installation of anchors (angle, stabilizer plates, type of soil, etc.) shall be per anchor's installation instructions.



5.5.1.3 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 re-tensioning of the straps must be performed.

5.5.1.4 Strap Protection

Protection shall be provided at sharp corners such as I-beam flange, crossmembers, angle brackets, etc. at point of load on strap by placing an additional layer of strapping 2" long (when possible) approximately centered between the strap and the sharp corner.

5.5.1.5 Optional Over-the-Roof Straps

Optional over-the-straps may be used to provide additional stability for single-section homes, above and beyond that from the mandatory frame tie-downs. Locations are to be as close to the ends as possible, but not greater than 8'-0". Strap material must be of the same material as the required tie-down straps. Optional over-the-roof tie-down straps and required tie-down straps can attach to the same anchor provided the anchor is designed to withstand the combined forces and installed in a manner that the design requires.

5.5.2 Severe Conditions

5.5.2.1 Freezing Climates

Be sure anchor augers are installed below the frost line.

5.5.2.2 Wind, Thermal, & Roof Load Zones

Legacy Housing and federal regulations require installing the home only in areas for which the home has been designed and built. See the Data Plate on the home for the acceptable wind, thermal, and roof load zones for which the home was designed. The home may be installed in areas where the wind, thermal, and roof load zones are less than the home was designed to withstand.

5.5.2.3 Flood-Prone Areas

Legacy Housing does not recommend installation of our homes in flood-prone areas. Foundation considerations are discussed in section 4.3.1 and the FEMA document referenced in paragraph 4.4.2. Unconventional anchorage and tie-downs 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.

5.6 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.

5.6.1 Attached Garages

Attached garages must be installed according 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.

5.6.2 Porches

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

5.6.3 Steps, Stairways and Landings

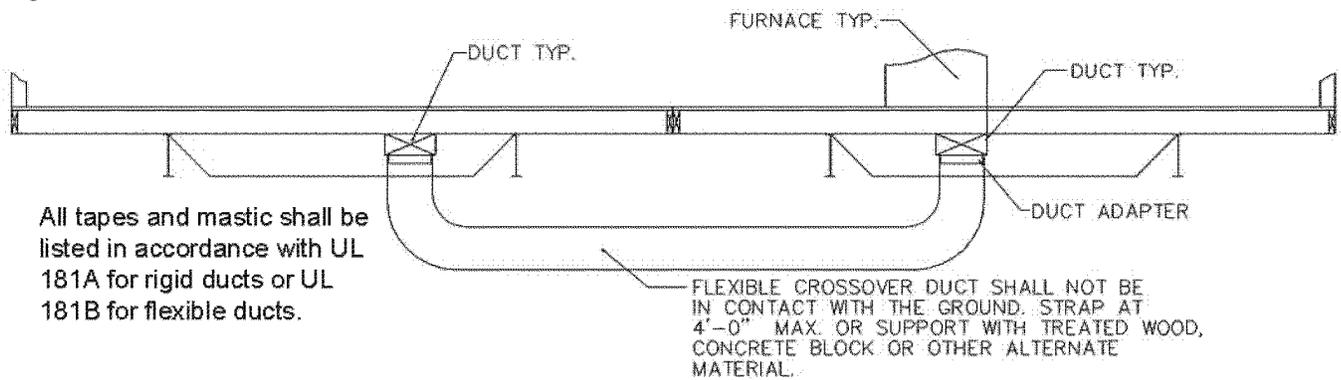
Steps, stairways and landings must be constructed and inspected according to applicable local building codes.

5.6.4 Skirting

Skirting installed around the home must have non-closing vents located at or near each corner and as high as possible to cross-ventilate the entire space under the home. Open vent area must be equal to at least one square foot for every 150 square feet of the home's floor area and this area must be further increased when insect screens, slats, etc. are used over the open vent area. When a 6 mil plastic vapor retarder is installed under the home, the ventilation requirement may be reduced to one square foot of ventilation per every 1500 square feet of floor area. In freezing climates, install skirting so as to accommodate 1-2 inches of frost heave uplift to prevent buckling of floors. Take care to insure that rainwater cannot be channeled or trapped between the skirting and siding. Skirting is to be installed in such a manner that the vinyl siding (when installed) will be allowed to slide (expand and contract). Install per vinyl skirting manufacturer installation instructions.



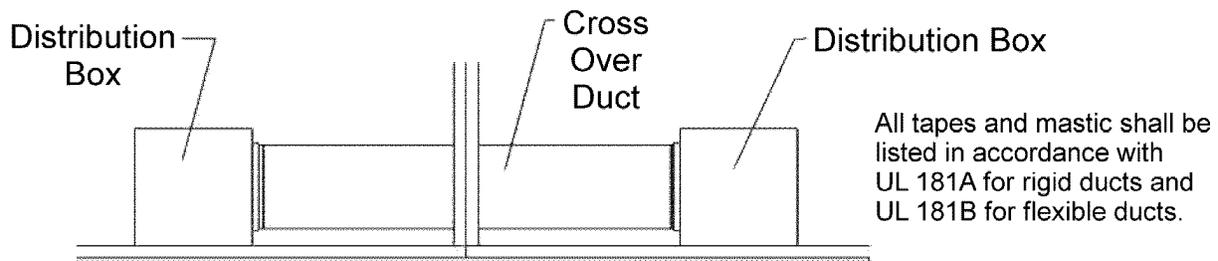
Figure 5.7 – CROSS OVER DUCT INSTALLATION



All tapes and mastic shall be listed in accordance with UL 181A for rigid ducts or UL 181B for flexible ducts.

The flexible crossover duct is shipped loose inside the home, remove duct tape and protective cover from start collar. Clamp the duct to the duct drop-outs with a metal clamp or use a plastic tie wrap and seal the duct to the Drop out with several wraps of duct tape. Strap the crossover duct to the underside of the home or support the duct with treated, wood, concrete block, or other alternate material to prevent the duct from coming in contact with the ground. This will result in longer duct life. All duct joints must be sealed with duct tape to prevent air leaks.

Figure 5.8 - OVERHEAD DUCT INSTALLATION



PROPER OVERHEAD CROSSOVER DUCT INSTALLATION

The ducts should be as straight as possible and not be kinked or pinched. The inner lining must be connected and then sealed using the plastic tie straps provided. The insulation surrounding the ducts must be pulled to full length of the duct and cover all of the inner lining as well as the entire metal attachment ring or tap out on the distribution box or insert one duct liner into the other duct about 3". To complete the installation, the outer cover of the duct(s) must be stretched over the insulation and secured into place with the plastic tie straps provided.

The cross over duct may be shipped in one of two ways.

- (1) The duct may be attached to the distribution box on only one unit and must be attached to the distribution box on the opposite unit on site. In this case, while setting the units together, temporarily leave a gap of the smallest space necessary between the units to connect the ducts. When the connections have been made properly as described above and the ducts are completely sealed, complete the process of setting the units together.
- (2) The duct may be attached to both distribution boxes and the ducts must be attached together on site with a collar. Homes with overhead ducts may be equipped with an access panel in the ceiling near the crossover. In this case, when the units are mated together in the field, enter the ceiling cavity through the access and locate the crossover duct. Stretch the duct across to the distribution box in the roof cavity of the opposite section or stretch the two ducts until they mate together. Connect the ducts together as described above and verify they are completely sealed.

Chapter 6 - Installation of Optional Features

6.1 Awnings and Carports

Choose free-standing products with columns to support their weight.

6.2 Miscellaneous Lights and Fixtures

NOTE: Circuits must be turned off to eliminate the risk of electrical shock.

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 plywood, install a non-combustible 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 re-install the outlet box and proceed as for other fixtures.

6.3.1 Exterior Lights

Remove the junction box cover 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 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 Fan

Follow the manufacturer's installation instructions. To reduce the risk of injury, install ceiling fans with the trailing edges of the blades at least 6'-4" above the floor. If no instructions are available, connect the wiring as shown in Figure 6.1(b). Maximum ceiling fan weight is to be 35#.

6.3.3 Whole House Ventilation

Your home is equipped with one of the following systems to introduce outdoor air to the interior environment to provide air changes as required by the Federal Standards:

1. Ventline Model V2262-75 or equivalent located in a hallway or utility room. The fan is manually controlled by a wall mounted switch located near the fan with an identifying label stating "WHOLE HOUSE VENTILATION".

OR

2. VentilAire III that works in conjunction with the furnace blower and duct system and is controlled by a switch on the thermostat labeled "WHOLE HOUSE VENTILATION". For additional information on settings, see the thermostat installation instructions included in the homeowner's package in the home.

Occupants are encouraged to operate this system whenever the home is occupied. This system also helps to reduce excessive moisture in the home.

NOTE: It is recommended that the system be inspected annually by a qualified service technician for proper operation.

6.4 Telephone and Cable TV

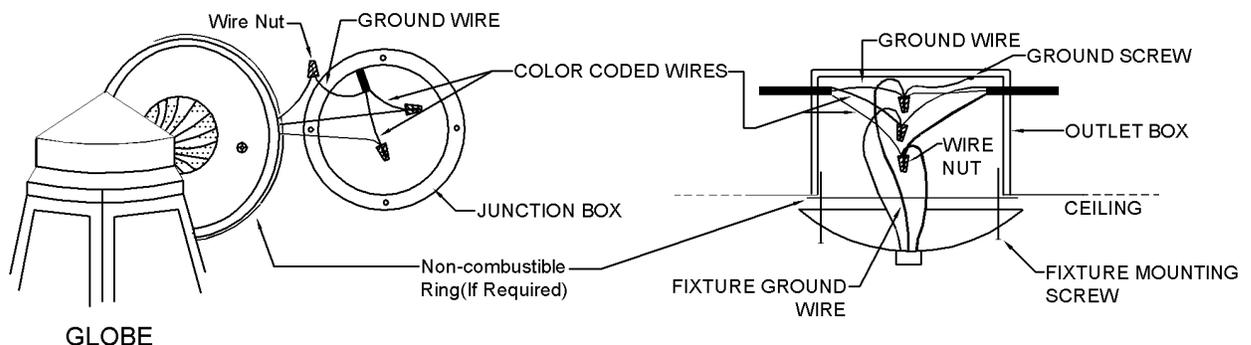
CARELESS INSTALLATION OF THE TELEPHONE AND CABLE TELEVISION LINES MAY BE HAZARDOUS.

The walls, floors and ceiling cavity 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 perform such work.

FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

Figure 6.2 on I-22 shows one procedure for telephone crossover connections in multi-section homes.

FIGURE 6.1 - INSTALLATION OF EXTERIOR LIGHTS



(a) EXTERIOR LIGHT FIXTURE

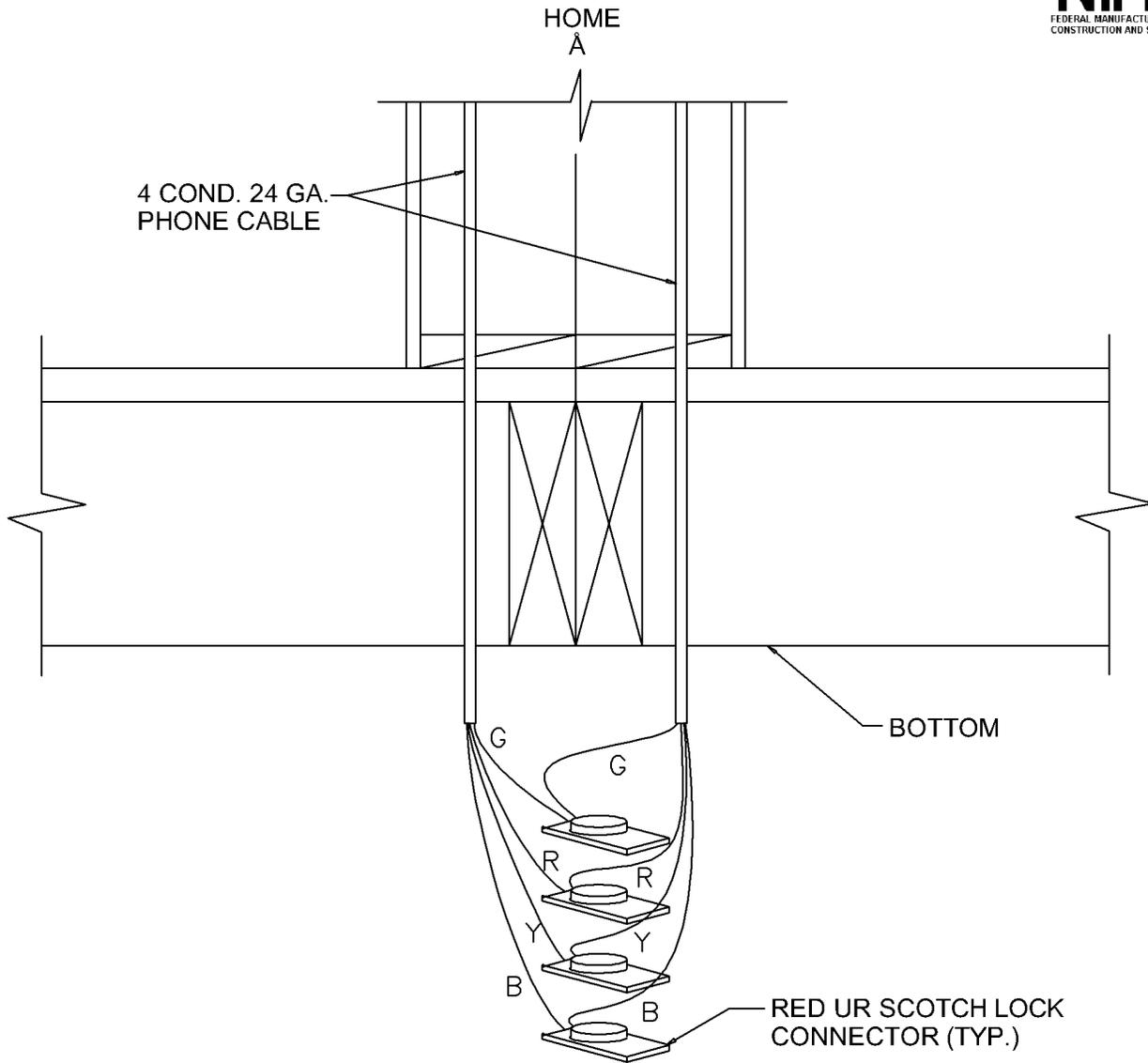
(b) CHAIN HUNG FIXTURE OR CEILING FAN (35# MAX.)

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FIGURE 6.2 - TELEPHONE WIRING FOR MULTI-SECTION HOMES

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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 position to make the connection.

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 OR IN THE FLOOR WHERE EXCESS MOISTURE OR FLAMMABLE MATERIAL CAN ACCUMULATE.** If your duct system is not installed at the manufacturing plant, a metallic duct system must be installed after the home is set up at the site. The access for the dryer vent is located under the home in bottom board at the dryer location (bottom board is taped and marked with a label that reads DRYER VENT ROUGH OPENING). Hold the duct in place with metal straps spaced 2' on center secured to the bottom of the floor joists or frame. 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 for 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 joist) to allow for gas dryer installation is not permissible. Home manufacturer 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 Whole House Ventilation

The whole house ventilation is **NOT** part of the mini-split units, but a separate system. The whole house ventilation operates by a system and switch independent of the mini-split unit.

7.2.2 Air Conditioners

The air distribution system of this home has been designed for a central air conditioning system. The BTU rating of the AC Equipment installed must not exceed the BTU capacity of the duct system shown on the home's compliance certificate. Information to assist in calculating the size air conditioning needed is included on this certificate.

The air conditioning evaporator may be installed either inside the furnace cabinet on homes with furnaces listed for this modification, or exterior of the home and ducted into the home air supply duct system. In either case, a heat/cooling thermostat must be installed to control both heat and cooling with a single device.

When an air conditioning evaporator is installed in the furnace it shall be listed for installation on the specific model of furnace already in the home.

If a remote (self-contained, package) 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 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-Value) no less than 4, 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. Return air and supply ducts are sized to fit between floor joists. Replace insulation removed during the installation, and seal the bottom board around the duct connection.

Direct all condensation runoff away from the home by connecting a hose to the equipment runoff outlet or other means specified by the equipment manufacturer. When AC systems are installed at the factory, there will be a condensation line run through the belly. Install a condensation trap on the condensation line and be sure to run the line outside of the skirting and outside the perimeter of the home. Do not let condensate line terminate under the home. (see detail on page I-24.1)

7.2.3 Heat Pumps

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

7.3 Fireplace, Chimneys, And Air Inlets

Fireplaces 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 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 if Figure 7.3.

7.3.3 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 crawlspace. These added ducts are not supplied. The fireplace manufacturer's instructions for installing combustion air ducts are in the fireplace 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.

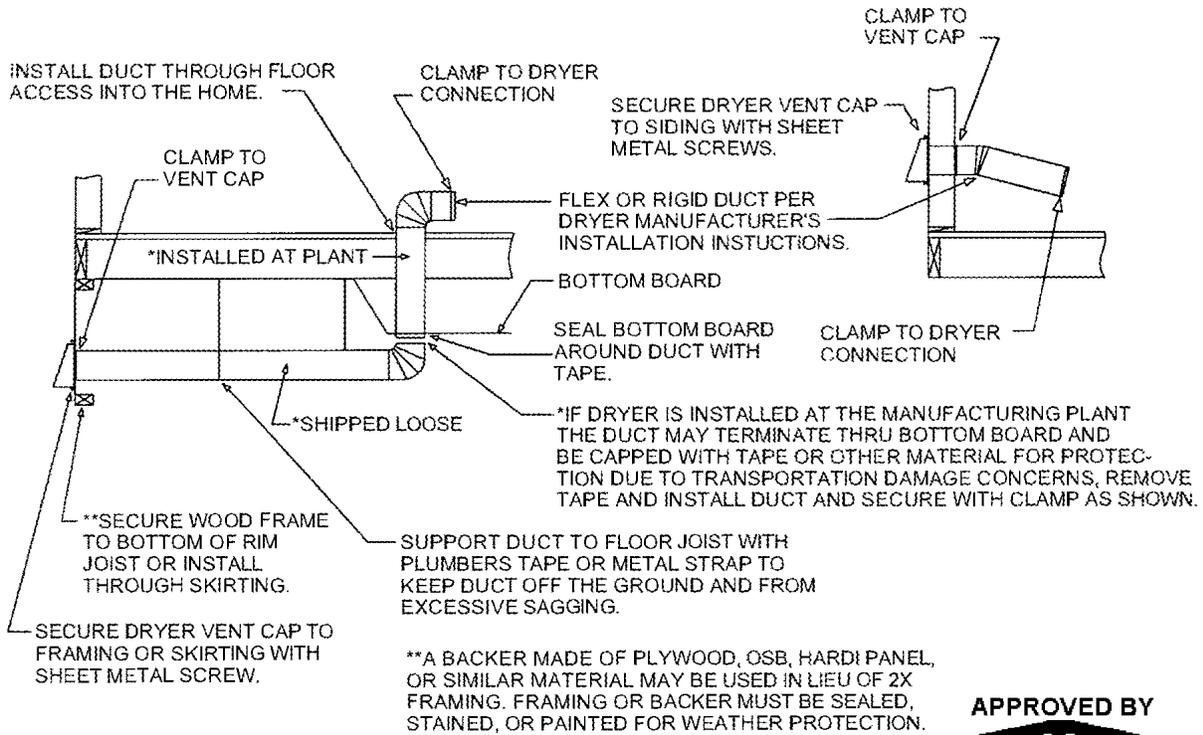
7.4 Range, Cook Top And Oven Venting

If your home is equipped with a venthood or above range microwave oven, check the exhaust hood at the exterior wall to ensure that the damper is not locked with the tabs at each side and is free to open and close before operation for proper ventilation.

If your home is equipped with a combination range (cooktop) grill or oven that contains its own exhaust system, route the exhaust so that it does not exhaust 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 If your home has a seal combustion gas water heater and is installed over a basement or crawlspace, combustion air must be supplied from outside the home. The combustion air intake piping can be 3" PVC for 30 and 40 gallon models and 4" PVC for 50 gallon models. The air intake piping cannot exceed a total of 30 feet including vertical and horizontal runs and have no more than 3 elbows. All horizontal runs require adequate support at 3 1/2 feet intervals.

FIGURE 7.1 - DRYER EXHAUST SYSTEM



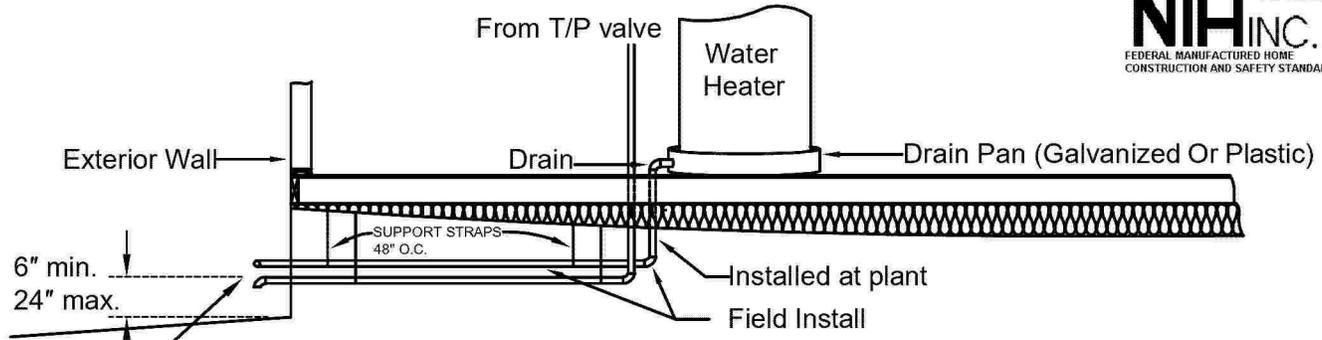
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Legacy Housing Corporation

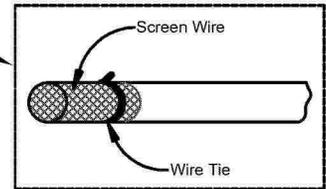
7.5.1 Water Heater Drain Pan & Temperature/Pressure Relief Valve

The water heater installed in your home has a plant installed drain pan and temperature / pressure relief valve. The drain lines for the drain pan and for the T/P relief valve are routed through the floor of the home and terminate underneath the home below the water heater. It is the dealer's responsibility to ensure that these drain lines are routed to the EXTERIOR of the home. The necessary pipe, fittings, all purpose cement, support straps, screws, screen wire, and wire ties to finish the installation of the drain are included with the ship loose materials. See Figure 7.5.1 below.

Figure 7.5.1- Typical Water Heater Drain Lines



End of drain pipes must be extended to the exterior of home and be made rodent proof by covering the end of drain with screen wire or other material that does not restrict the drainage and securing with a nylon wire tie or equivalent. The T/P relief drain shall be directed down and shall terminate between 6" and 24" above finished grade and must drain fully by gravity.



7.6.1 Condensate Drain Line and Trap Installation

When AC systems are installed at the factory, there will be a condensate line run through the belly and labeled as a condensation line. (one line per system) The following condensate system must be installed when the AC system is installed on site by others as well.

Install a condensation trap on the condensation line and be sure to run the line outside of the skirting. Support the condensate line at intervals of no more than 3' o.c. with a minimum downward slope of 1/8" per foot. Do not let the condensate line terminate under the home. Make sure the home lot has the proper grade so that the condensate water cannot flow to a point below the home.

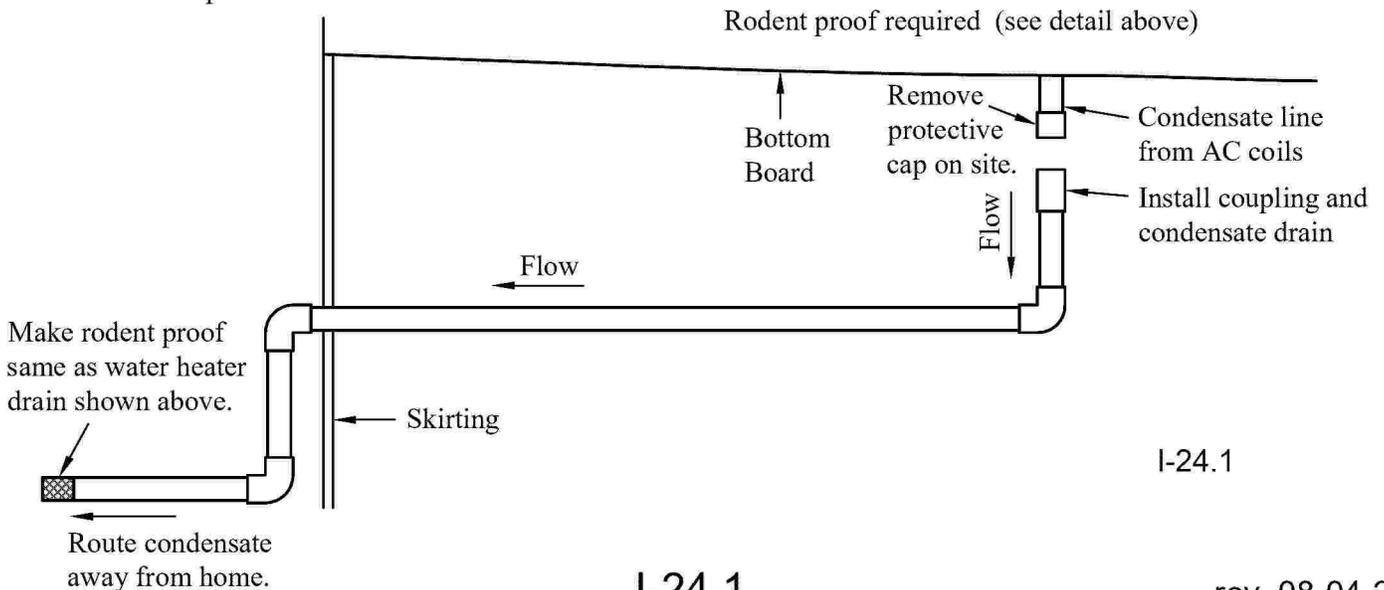
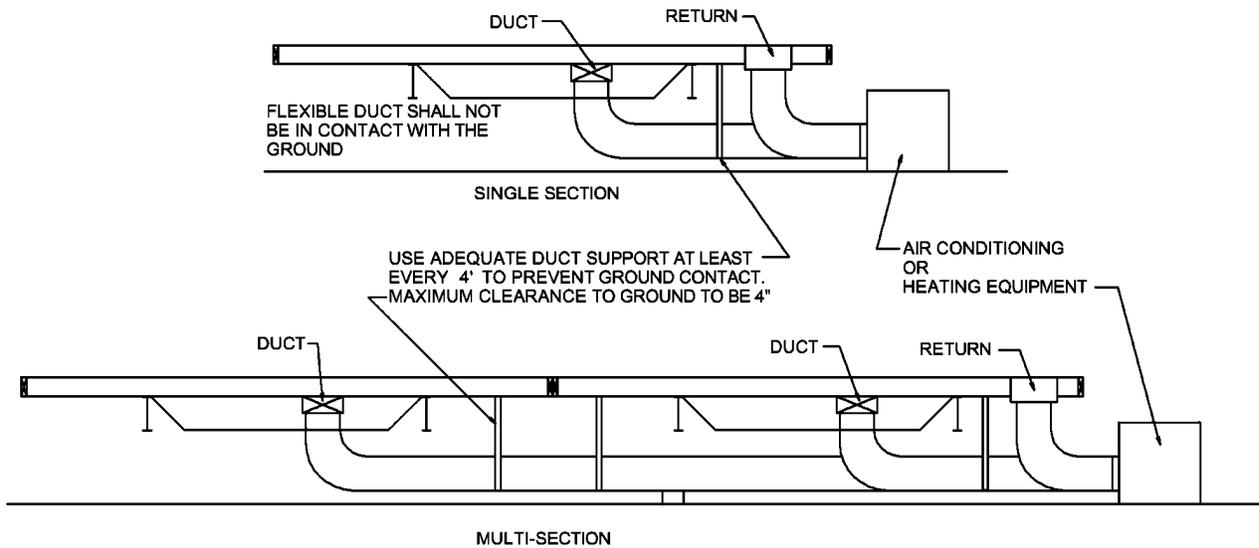


FIGURE 7.2 - TYPICAL INSTALLATION OF SELF-CONTAINED HEATING OR AIR CONDITIONING EQUIPMENT

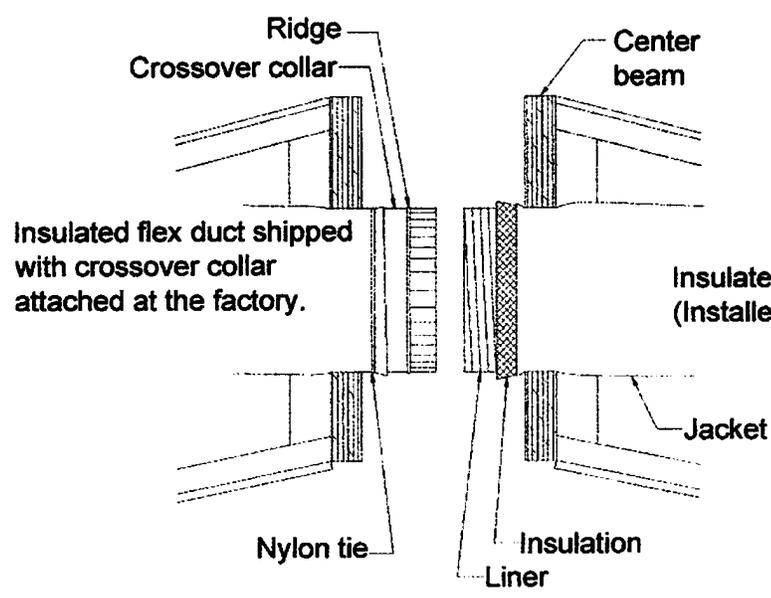


NOTE: Electrical connections made to energize air-conditioning equipment should be made only by qualified personnel. The completed installation must conform to Article 440 of the National Electric Code and applicable local codes. When the electrical connection is made at the junction box, the field installation wiring beyond the junction box must incorporate a disconnect (sized on accordance with NEC Article 440) located within sight of the condensing unit.

The acceptability of the air-conditioning equipment and its installation are to be determined by the local inspection authorities.

To complete the crossover duct connection for overhead systems in the roof:

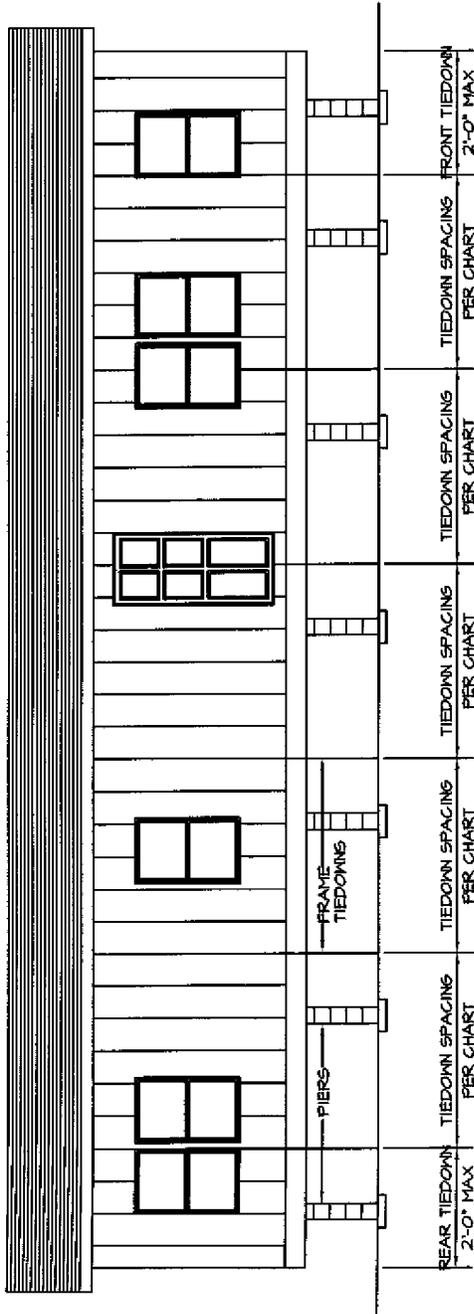
1. **Never cut a hole in the ridge beam over a clear span or column support.**
2. Pull the insulation and jacket back from the end to be connected. This will expose the inside liner.
3. Insert the collar about 3” into the duct liner.
4. Apply U.L. listed duct tape (U-181) around the liner at the collar.
5. Pull insulation and jacket to cover the entire crossover and tape the 2 jackets together.
6. Secure jacket behind crossover collar with a nylon tie.



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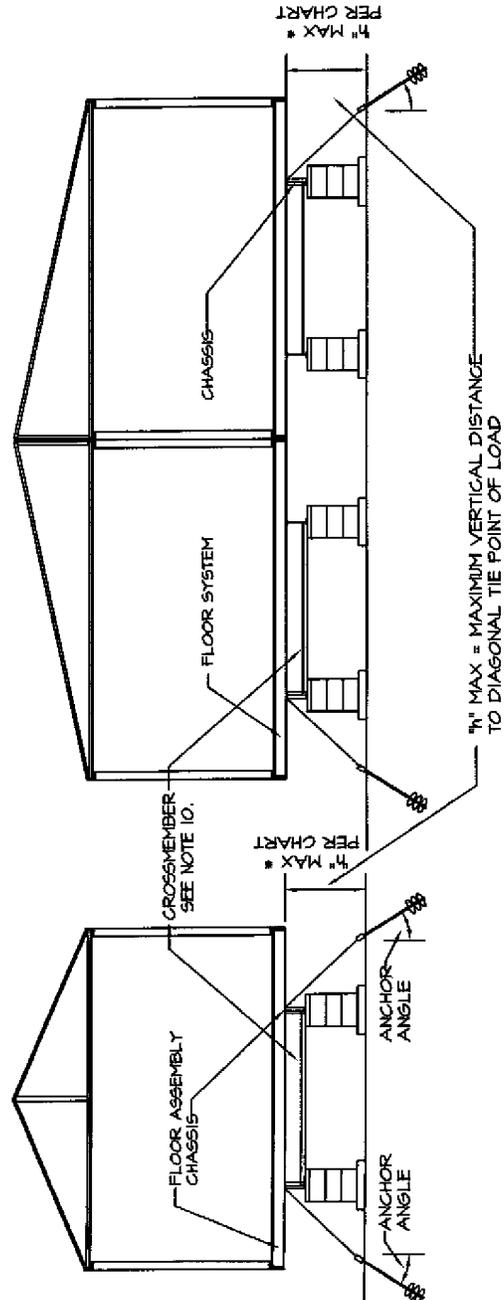
Overhead duct crossover detail

LEGACY HOUSING
RECOMMENDED TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

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CONSTRUCTION AND SAFETY STANDARDS

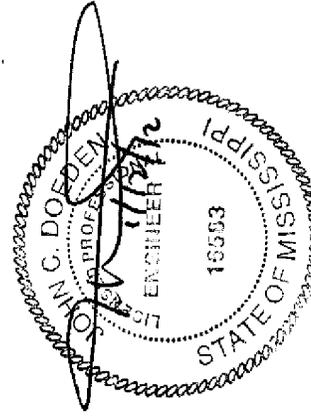


TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

* 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 LEGACY HOUSING.
5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY LEGACY HOUSING. 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 SIDENALL 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 SIDENALL HEIGHT OF 7'-0".
10. ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
11. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND 12" GROUND ANCHORS SHALL BE INSTALLED TO THEIR FULL DEPTH AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
12. 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 D3949-91.
13. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
14. STRAPPING TO BE TYPE I, FINISH B, GRADE I STEEL STRAPPING, 1-1/4" WIDE AND .095 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953-91, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".



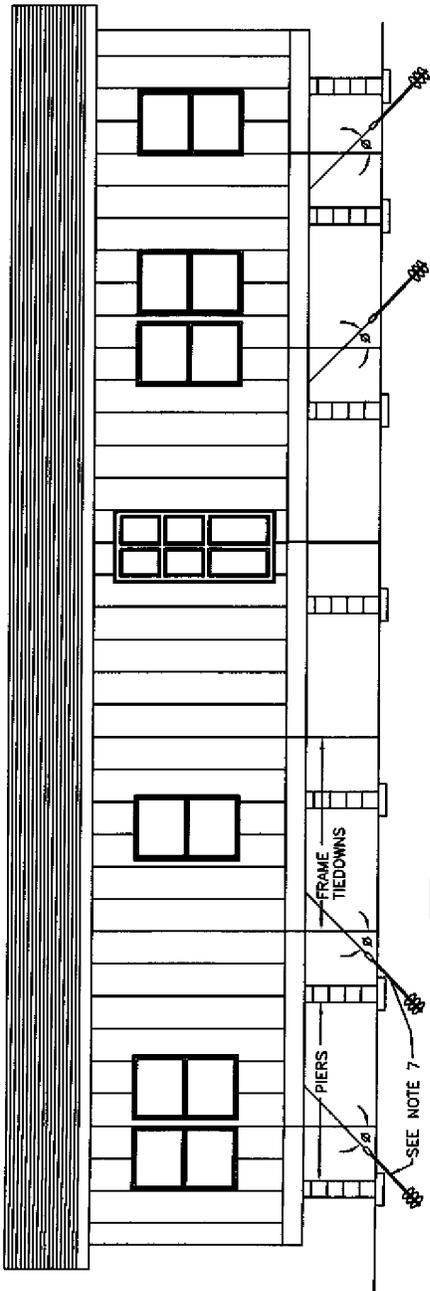
ROOF SLOPES OF A MAXIMUM OF 20 DEGREES

FRAME TIEDOWN SPACING CHART

FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX * PIER HEIGHT
15'-4" SINGLE	12" MAX	10'-0"	54"
15'-4" SINGLE	12" MAX	8'-10"	64"
30'-8" DOUBLE	12" MAX	10'-0"	54"
35'-0" DOUBLE	8" MAX	10'-0"	72"
17'-6" SINGLE	6" MAX	10'-0"	67"

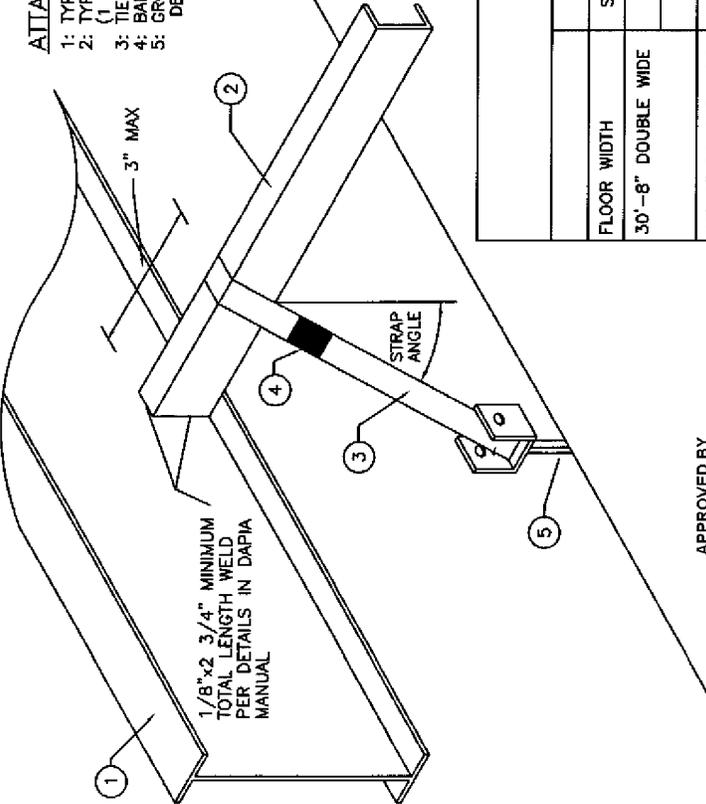
LEGACY HOMES
WIND ZONE 1 (15 PSF LATERAL)
TIEDOWN SYSTEM
LONGITUDINAL TIEDOWN REQUIREMENTS

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

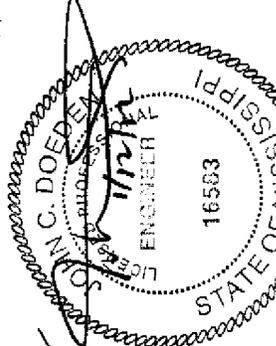


ATTACHMENT DETAIL

- 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 LEGACY HOUSING.
 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 7'-0".
 7. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 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 STANDARD SPECIFICATION D3593-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
 12. 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 D3593-91, "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 OR ALTERNATIVELY CAN BE ATTACHED TO APPROVED I-BEAM CLAMPS PER MANUFACTURER'S INSTRUCTIONS.

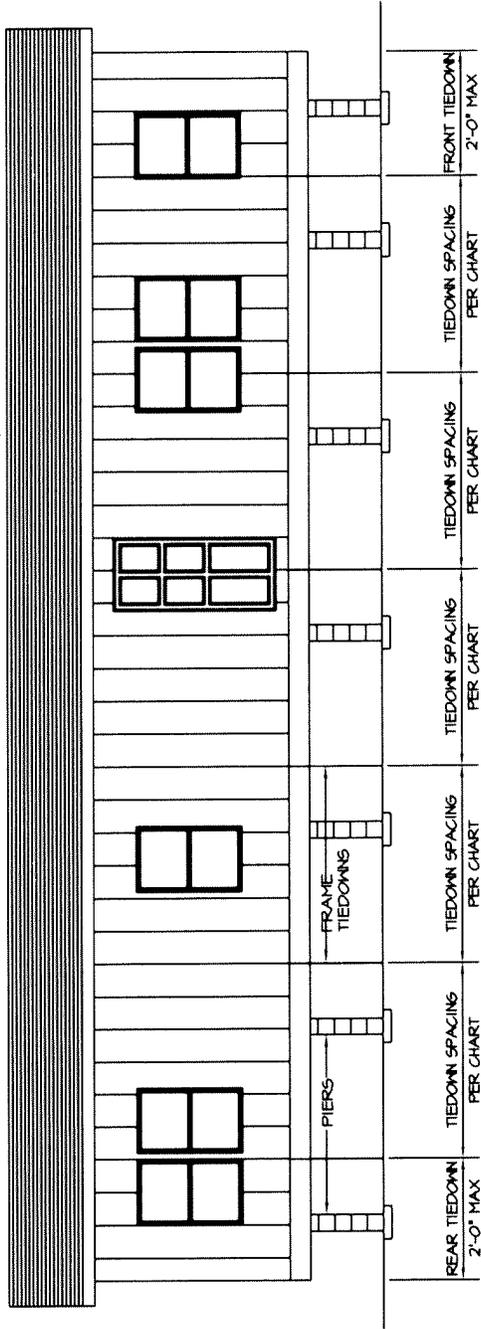


ROOF SLOPE NOT EXCEEDING 20 DEGREES (ALTERNATE WITH BLOCK PIERS*)		NUMBER OF LONGITUDINAL TIES (TOTAL EACH END)	ROOF SLOPE NOT EXCEEDING 20 DEGREES NO RESTRICTION AS TO PIER TYPE OR HEIGHT (EXCEPT AS LIMITED BY OTHER DETAILS)	
FLOOR WIDTH	MINIMUM UNIT LENGTH		FLOOR WIDTH	MINIMUM QUANTITY EACH END OF EACH SECTION
30'-8" DOUBLE WIDE	SINGLE STACK 54'-0" DOUBLE STACK 54'-0"	0	184" DOUBLE WIDE*	2
35'-0" DOUBLE WIDE	59'-0"	0	184" DOUBLE WIDE*	2
15'-4" SINGLE WIDE	70'-0"	0	184" SINGLE WIDE*	2
17'-8" SINGLE WIDE	76'-0"	0	210" SINGLE WIDE*	2

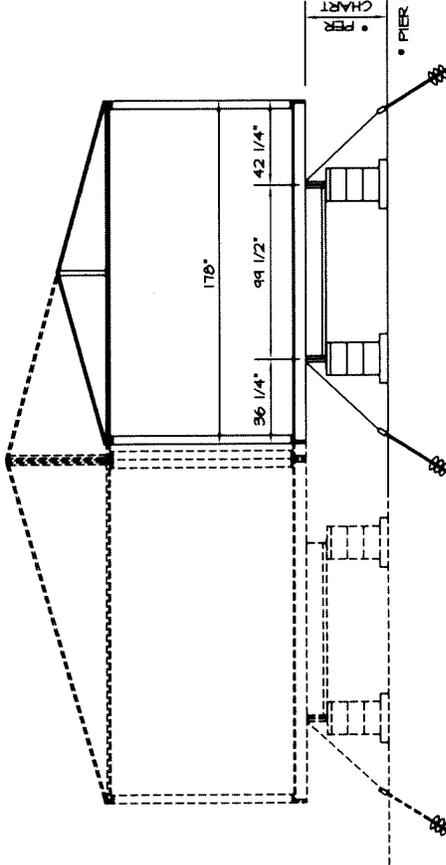
* FOR USE IN ABOVE TABLE:
SINGLE STACK BLOCK PIERS = 24" MAXIMUM HEIGHT
DOUBLE STACK BLOCK PIERS = 55" MAXIMUM HEIGHT
MINIMUM ANGLE OF STRAP = 40 DEGREES.

APPROVED BY
Revised
Jan 20, 2012
NIA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)



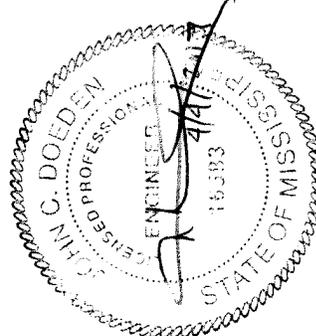
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

THIS DESIGN FOR THE SINGLE WIDE EXTENSION FROM THE MAIN DOUBLE WIDE UNIT. TIEDOWN REQUIREMENTS ARE FOR THAT SECTION ONLY. FOR DOUBLE WIDE TIEDOWNS SEE OTHER TIEDOWN CHARTS/DETAILS.

- NOTES:
1. FRAME TIE-DOWNS SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
 2. RESERVED.
 3. RESERVED.
 4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOUSING.
 5. RESERVED.
 6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING A TENSILE LOAD OF 4725 POUNDS AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
 7. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
 8. RESERVED.
 9. DESIGN BASED ON 49 1/2" BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-0".
 10. ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
 11. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND 12. GROUND ANCHORS SHALL BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES SHALL 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 D3453-97, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
 14. STRAPPING TO BE 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 D3453-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

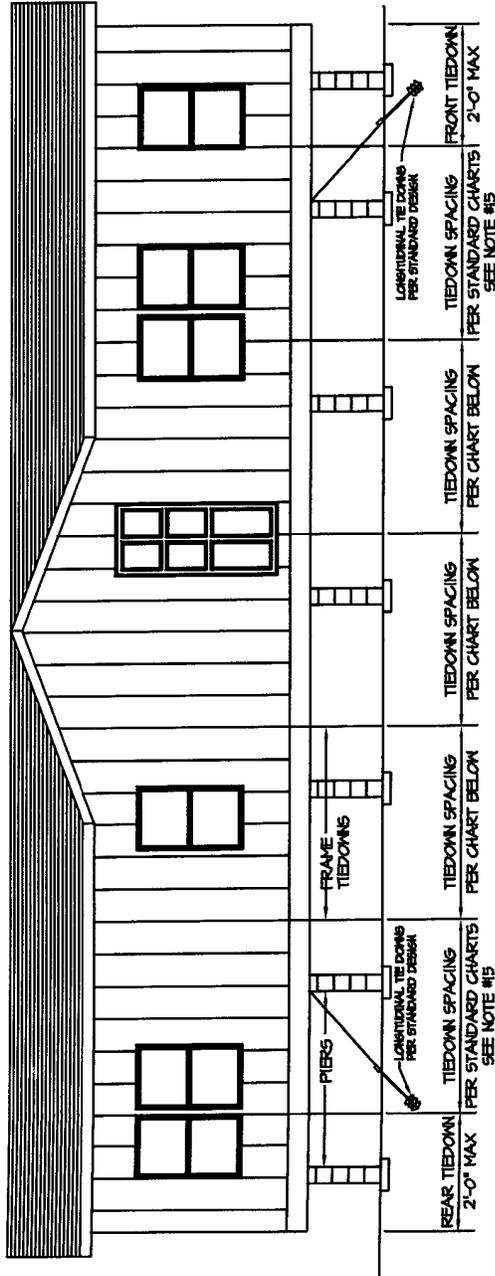


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4/7/2017
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CONSTRUCTION AND SAFETY STANDARDS

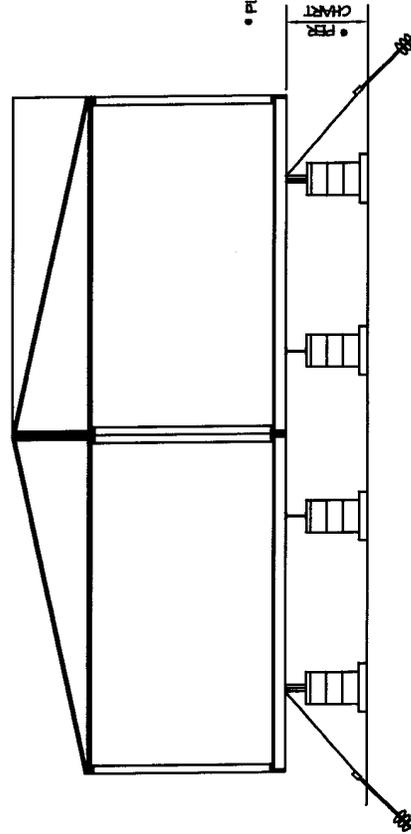
MAXIMUM ROOF SLOPE = 4.3 ON 12 (20 DEGREES)

FRAME TIEDOWN SPACING CHART			
FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX. PIER HEIGHT
14'-10" SINGLE	8" MAX	10'-0" 8'-0"	49" 66"

LEGACY HOUSING
PRISMATIC DORMER
TIEDOWN SYSTEM
WIND ZONE 1 (15 PSF LATERAL)

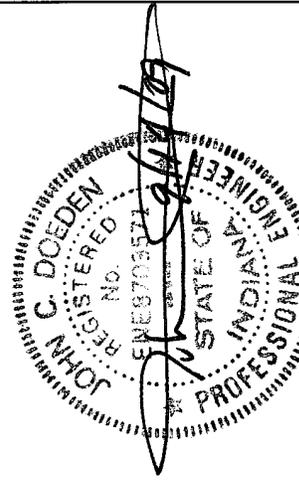


TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTION SHOWING TIEDOWNS

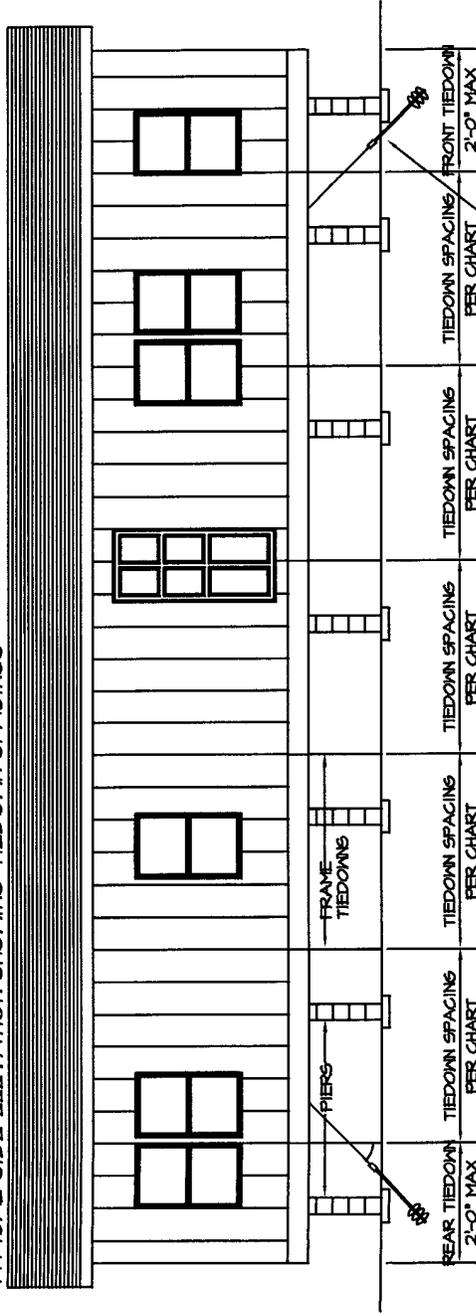
- NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
 2. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS. HOWEVER, IF OVER-THE-ROOF TIEDOWNS ARE REQUIRED BY THE LOCAL JURISDICTION, THEY MAY BE INSTALLED.
 3. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
 4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOUSING.
 5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY LEGACY HOUSING. ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
 6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING A TENSILE LOAD OF 4725 POUNDS AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
 7. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
 8. RESERVED.
 9. DESIGN BASED ON 99 1/2" BEAM SPACING AND A MAXIMUM PRISMATIC WALL HEIGHT OF 9'-6" AT HIGHEST POINT. (1'-0" FOR NORMAL SIDEWALL = 30" PROJECTION)
 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 D3952-01.
 14. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS. STRAPPING TO BE BY TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING 1-1/4" WIDE AND .035 INCHES IN THICKNESS.
 15. CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3952-01. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
 16. THE CHART BELOW IS ONLY APPLICABLE TO THE PRISMATIC PORTION OF THE UNIT. FOR TIEDOWN SPACING AND PIER HEIGHTS BEYOND THIS PORTION REFER TO STANDARD TIEDOWN DESIGNS.



FRAME TIEDOWN SPACING CHART			
FLOOR WIDTH	LEAVE OVERHANG	TIEDOWN SPACING	MAX. PIER HEIGHT
30'-0" DOUBLE	8" MAX	8'-0" 9'-0" 10'-0"	40" 52" 24"

RECOMMENDED TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



FOR LONGITUDINAL TIEDOWNS
REQUIRED SEE FIGURE 5.7.

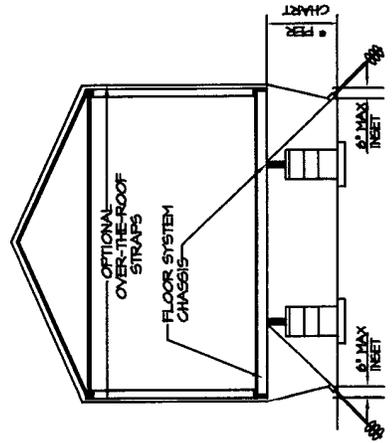
NOTES:

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 TIEDOWN.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOMES.
5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY LEGACY HOUSING. 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 4125 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 19 1/2" BEAM SPACING AND MAXIMUM SIDEWALL HEIGHT OF 1'-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 D2688-01.
14. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS. STRAPPING TO BE BY TYPE 1, FINISH B, GRADE 1 STEEL.
15. STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D2688-01. *STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS*.

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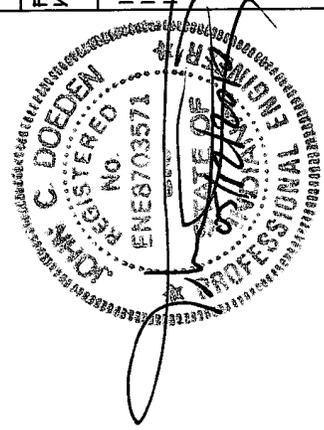


TYPICAL CROSS SECTION SHOWING TIEDOWNS



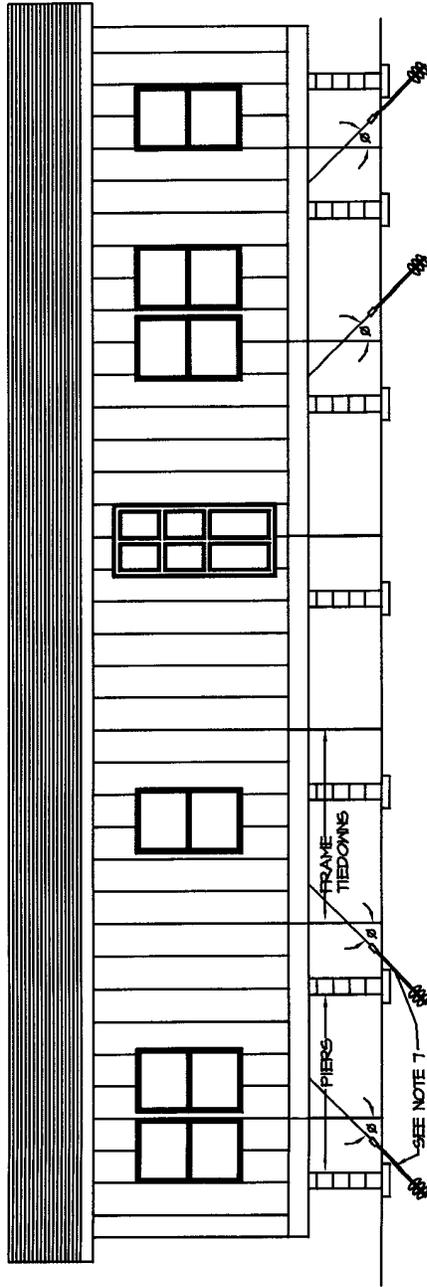
* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

FRAME TIEDOWN SPACING CHART				
FLOOR WIDTH	EAVE OVERHANG	ROOF SLOPE (MAXIMUM)	TIEDOWN SPACING	MAX * PIER HEIGHT
13'-0" SINGLE	3" MAX	4.3/12	12'-0"	40"
13'-0" SINGLE	3" MAX	4.3/12	10'-0"	54"
13'-0" SINGLE	3" MAX	4.3/12	8'-0"	70"



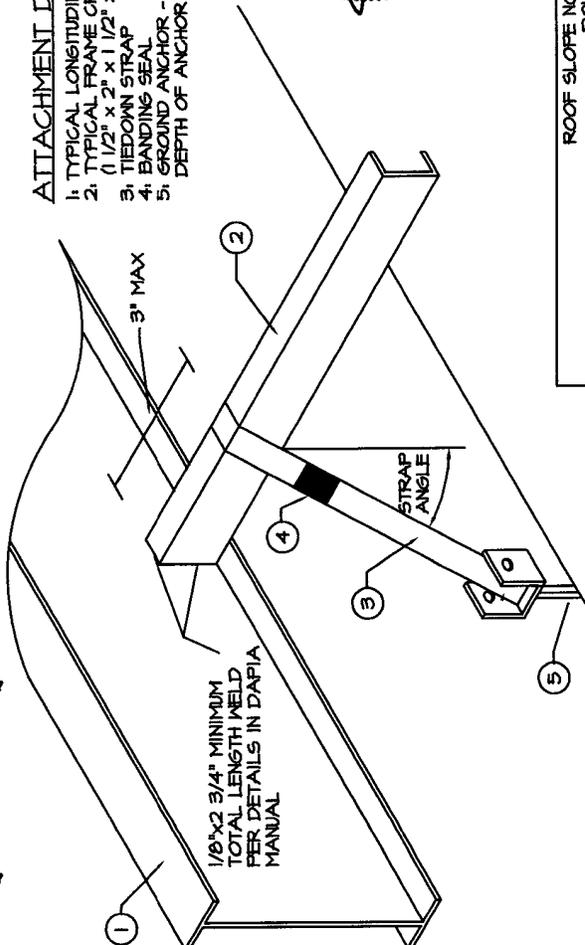
LEGACY HOMES
WIND ZONE I (15 PSF LATERAL)
TIEDOWN SYSTEM
LONGITUDINAL TIEDOWN REQUIREMENTS

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



ATTACHMENT DETAIL

- 1: TYPICAL LONGITUDINAL I-BEAM
- 2: TYPICAL FRAME CROSS-MEMBER (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 LEGACY HOUSING.
4. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4125# & 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 7'-0".
7. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSS-MEMBERS 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 STANDARD SPECIFICATION D3958-01.
12. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS, STRAPPING 1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3958-01, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
13. SELECT A CROSS-MEMBER WHERE PIERS DO NOT INTERFERE WITH THE REQUIRED ANGLE OF THE STRAP. INSTALL THE STRAP JUST INSIDE THE MAIN BEAMS LOADED AROUND THE CROSS-MEMBER 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 CROSS-MEMBERS AT EACH END AND CANNOT BE DOUBLED OR ALTERNATIVELY CAN BE ATTACHED TO APPROVED I-BEAM CLAMPS PER MANUFACTURER'S INSTRUCTIONS.

ROOF SLOPE NOT EXCEEDING 20 DEGREES
DOUBLE WIDE UNITS
(ALTERNATE WITH BLOCK PIERS*)

FLOOR WIDTH	MINIMUM UNIT LENGTH		NUMBER OF LONGITUDINAL TIES (TOTAL EACH END)	FLOOR WIDTH	MINIMUM QUANTITY EACH END OF EACH SECTION	MINIMUM STRAP ANGLE (DEGREES)
	SINGLE STACK	DOUBLE STACK				
13'-8" SINGLE WIDE	50'-0"	50'-0"	0	16'-4" SINGLE WIDE*	2	30

ROOF SLOPE NOT EXCEEDING 20 DEGREES
NO RESTRICTION AS TO PIER TYPE OR HEIGHT
(EXCEPT AS LIMITED BY OTHER DETAILS)

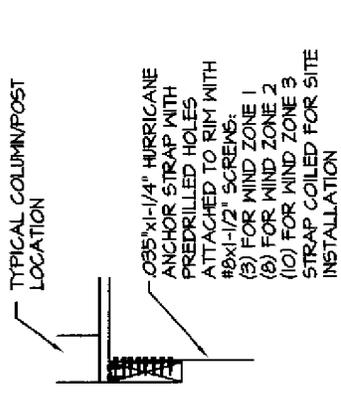
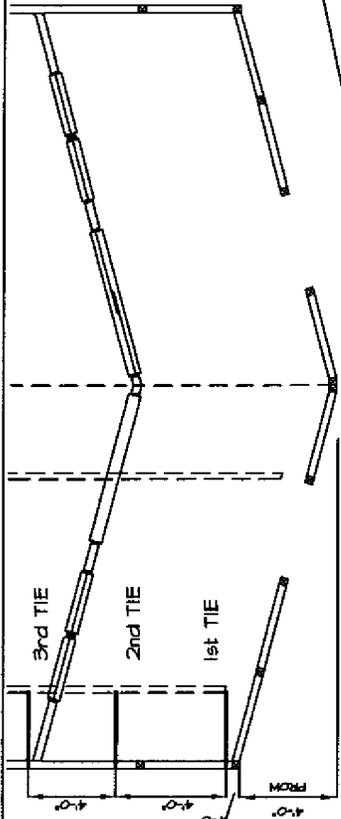
* FOR USE IN ABOVE TABLE:
SINGLE STACK BLOCK PIERS = 24" MAXIMUM HEIGHT
DOUBLE STACK BLOCK PIERS = 50" MAXIMUM HEIGHT
MINIMUM ANGLE OF STRAP = 40 DEGREES.

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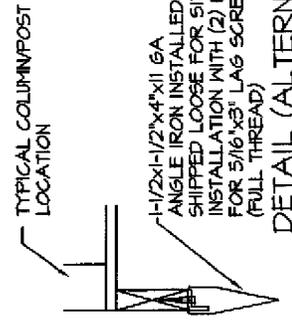


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NIA INC.
 FEDERAL MANUFACTURED HOUSING
 CONSTRUCTION AND SAFETY STANDARDS

May 09, 2011



DETAIL



OPPOSITE SIDE IN THIS AREA TO BE ANCHORED IN THE SAME MANNER.

POST AT END

STRAP CONNECTION AT POST PER EITHER ATTACHMENT DETAIL EACH SIDE OF CENTERLINE PER TABLE FOR CENTERLINE

TIEDOWNS MUST COINCIDE WITH POST LOCATIONS (WITHIN 12" OF POST CENTERLINE)

STRAP CONNECTION AT POST PER EITHER ATTACHMENT DETAIL EACH SIDE OF CENTERLINE.
 POST STRAP AT EACH SIDE OF CENTERLINE TO CONNECT TO DOUBLE HEAD ANCHOR WITH MINIMUM 3/50# DESIGN CAPACITY

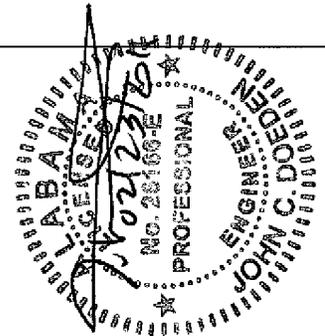
CENTERLINE TIES

PIER AS REQUIRED BY INSTALLATION INSTRUCTIONS MANUAL AT EACH COLUMN/POST LOCATION

DOUBLE HEAD ANCHOR INSTALLED PER INSTALLATION INSTRUCTIONS MANUAL FIRST ANCHOR INSTALLED 12" MAX FROM CORNER AND WITHIN 12" OF EACH 3-SIDED OPEN POST LOCATION 4'-0" OC AT WIND ZONE 1, 2 & 3

H MAX = 64

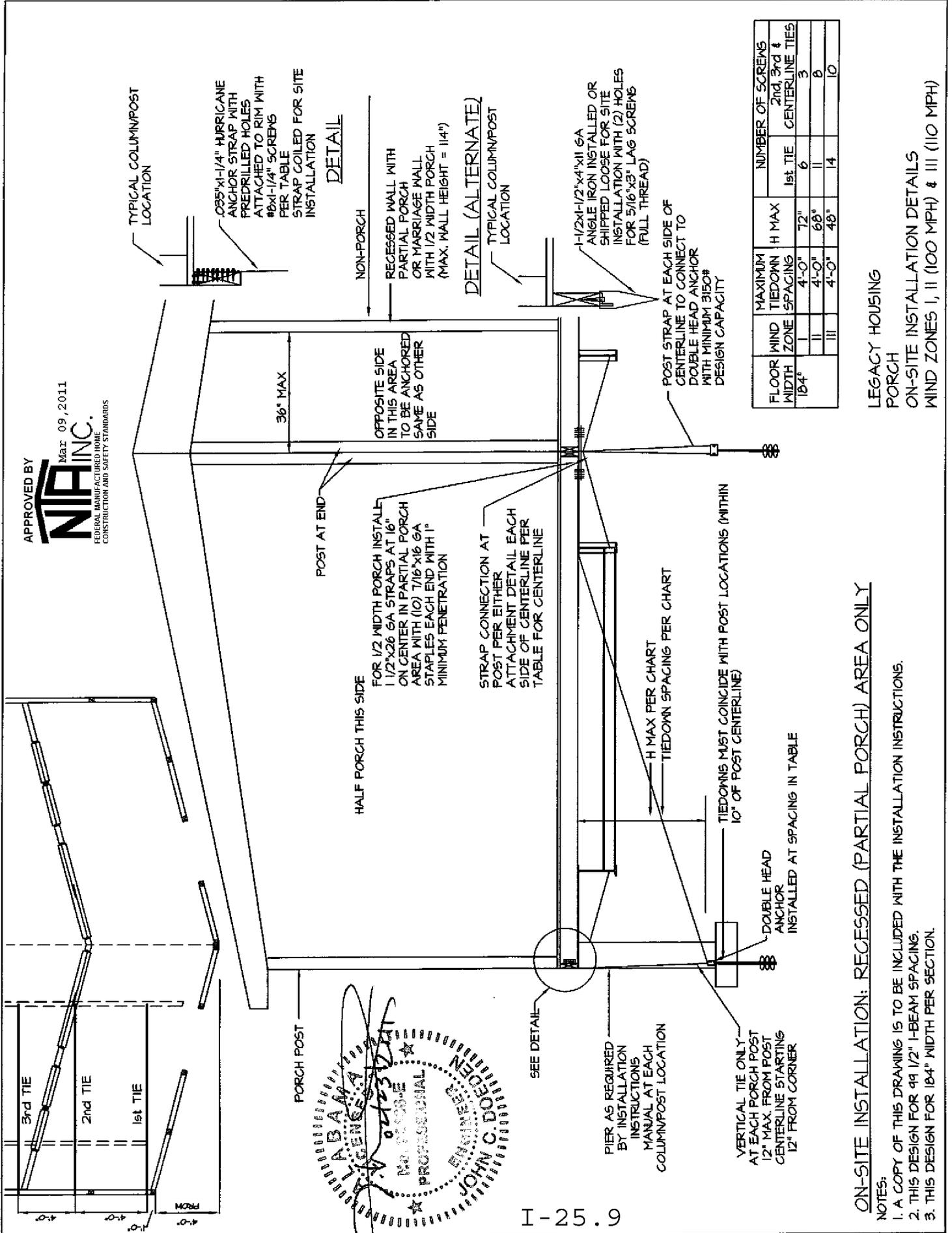
SEE DETAIL



ON-SITE INSTALLATION: FULL WIDTH (3 SIDED OPEN) 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 184" WIDTH PER SECTION

LEGACY HOUSING
 PORCH
 ON-SITE INSTALLATION DETAILS
 WIND ZONES I, II (100 MPH) & III (110 MPH)



FLOOR	WIND ZONE	MAXIMUM TIEDOWN SPACING	H MAX	NUMBER OF SCREENS	
				1st TIE	2nd, 3rd & CENTERLINE TIES
1B4	I	4'-0"	72"	6	3
	II	4'-0"	68"	6	3
	III	4'-0"	48"	14	10

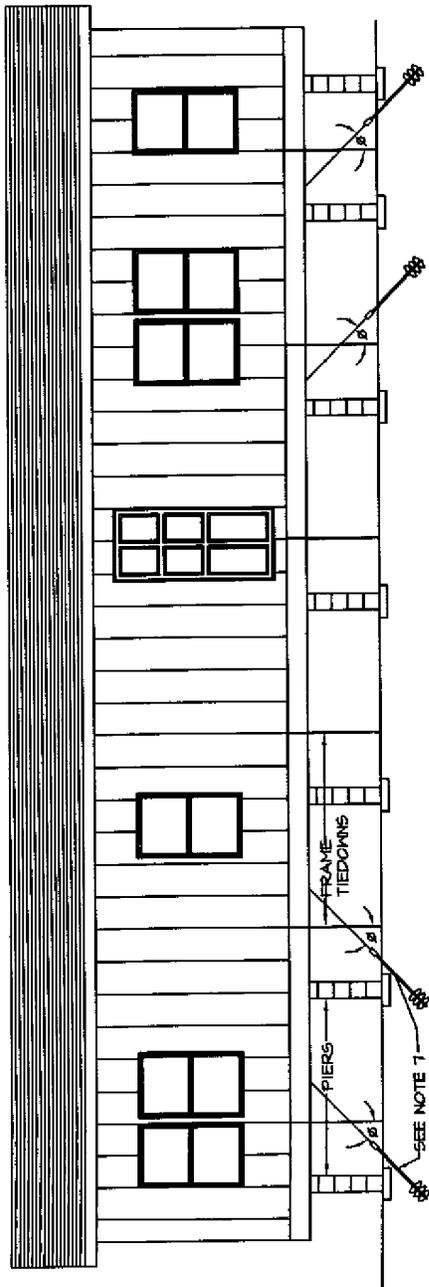
LEGACY HOUSING
 PORCH
 ON-SITE INSTALLATION DETAILS
 WIND ZONES I, II (100 MPH) & III (110 MPH)

ON-SITE INSTALLATION: RECESSED (PARTIAL PORCH) AREA ONLY

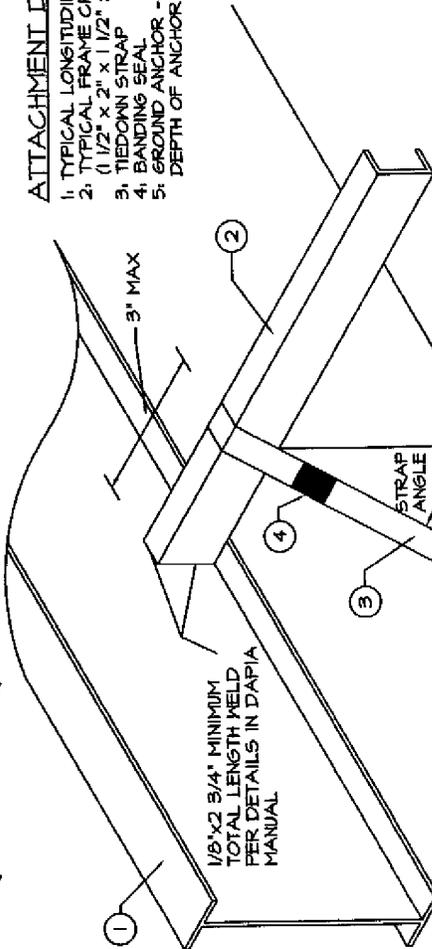
- NOTES:
1. A COPY OF THIS DRAWING IS TO BE INCLUDED WITH THE INSTALLATION INSTRUCTIONS.
 2. THIS DESIGN FOR 49 1/2" I-BEAM SPACING.
 3. THIS DESIGN FOR 184" WIDTH PER SECTION.

LEGACY HOUSING
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 @ MINIMUM)
 3. TIEDOWN STRAP
 4. BANDING SEAL
 5. GROUND ANCHOR - INSTALLED TO FULL DEPTH OF ANCHOR HEAD



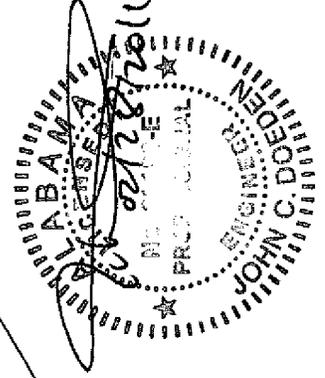
- NOTES:**
1. SEE OTHER DRAWINGS FOR FRAME TIEDOWN REQUIREMENTS. THIS DETAIL IS FOR LONGITUDINAL TIEDOWN DESIGN ONLY.
 2. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
 3. LONGITUDINAL TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOUSING.
 4. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4125# & 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 7'-6".
 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 STANDARD SPECIFICATION D3959-01.
 12. STRAPPING TO BE TYPE I, FINISH B, GRADE I STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS.
 13. CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3959-01, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
 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.

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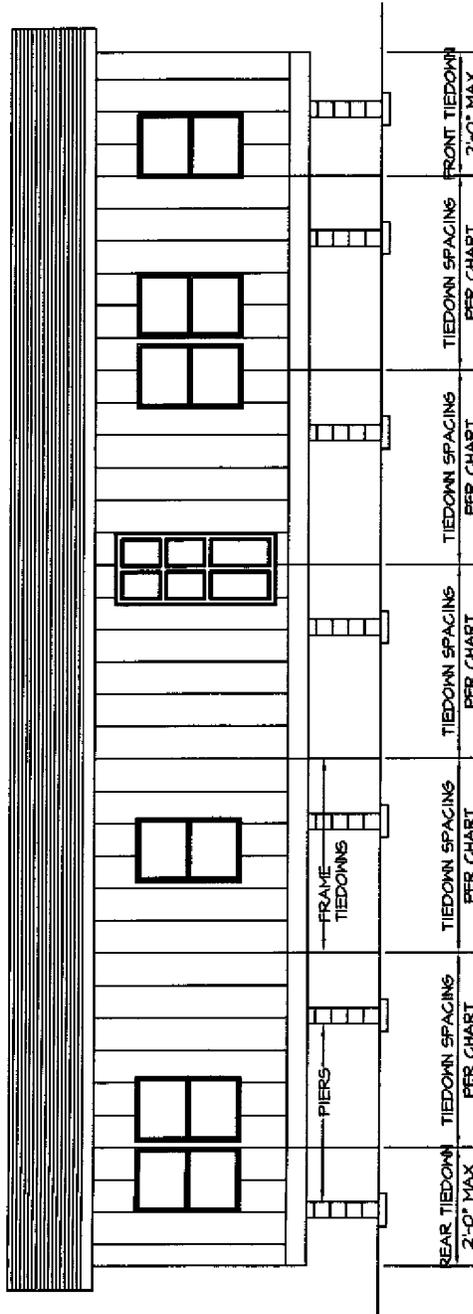


ROOF SLOPE NOT EXCEEDING 20 DEGREES (ALTERNATE WITH BLOCK PIERS*)		NUMBER OF LONGITUDINAL TIES (TOTAL EACH END)		ROOF SLOPE NOT EXCEEDING 20 DEGREES NO RESTRICTION AS TO PIER TYPE OR HEIGHT (EXCEPT AS LIMITED BY OTHER DETAILS)	
FLOOR WIDTH	MINIMUM UNIT LENGTH	SINGLE STACK	DOUBLE STACK	FLOOR WIDTH	MINIMUM QUANTITY EACH END OF EACH SECTION
50'-0"	58'-0"	0	0	184" SINGLE WIDER	2
50'-0" DOUBLE WIDE	58'-0"	0	0	184" DOUBLE WIDER	2
52'-0"	52'-0"	2	2		
52'-0" DOUBLE WIDE	52'-0"	2	2		
40'-0"	40'-0"	0	0		
40'-0" SINGLE WIDE	40'-0"	0	0		
27'-6"	27'-6"	2	2		
27'-6" TAGS	27'-6"	2	2		

* FOR USE IN ABOVE TABLE, SINGLE STACK BLOCK PIERS = 24" MAXIMUM HEIGHT, DOUBLE STACK BLOCK PIERS = 58" MAXIMUM HEIGHT, MINIMUM ANGLE OF STRAP = 40 DEGREES.



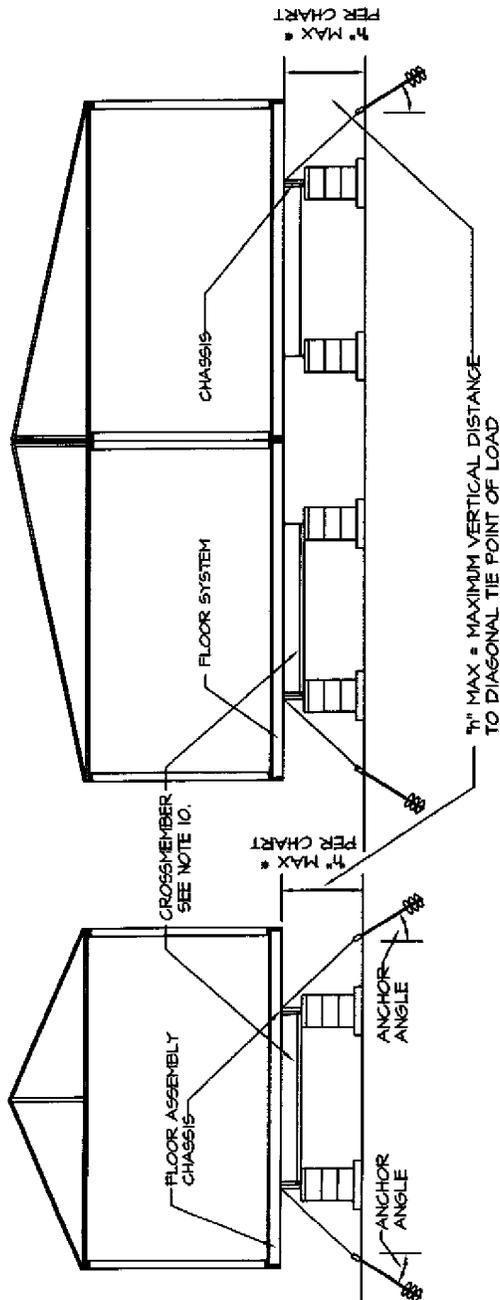
LEGACY HOUSING
RECOMMENDED TIEDOWN SYSTEM
WIND ZONE 1 (15 PSF LATERAL)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

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 Mar 23, 2011
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS

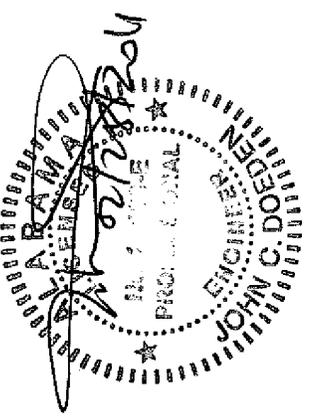


TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

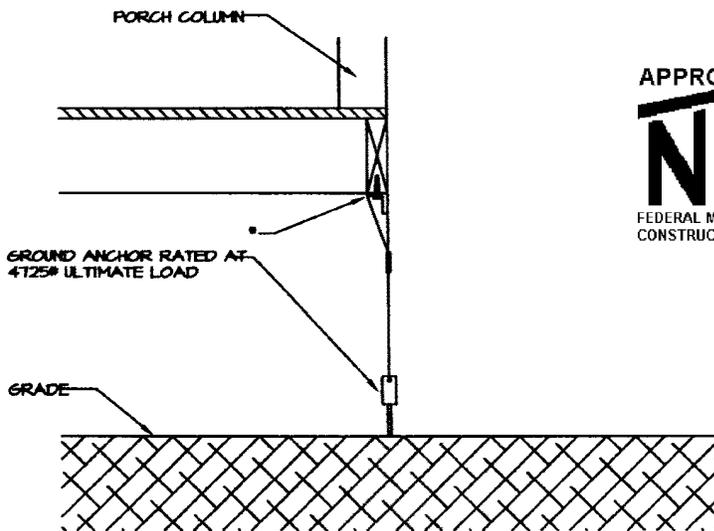
NOTES:

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 LEGACY HOUSING.
5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY LEGACY HOUSING. 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 1/2" BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-6"
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 DEPTH, AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
12. 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 D3948-91.
13. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
14. STRAPPING TO BE TYPE I, FINISH B, GRADE I STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS.
15. CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3948-91, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS."



ROOF SLOPES OF A MAXIMUM OF 20 DEGREES

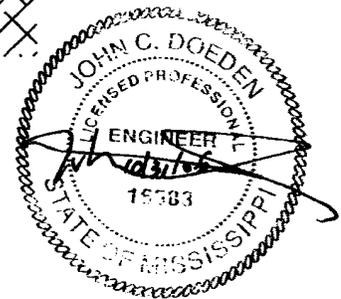
FRAME TIEDOWN SPACING CHART				
FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX # PIER HEIGHT	
15'-4" SINGLE	8" MAX	10'-0"	48"	
15'-4" SINGLE	8" MAX	8'-0"	66"	
30'-8" DOUBLE	8" MAX	10'-0"	48"	
30'-8" DOUBLE	8" MAX	8'-0"	66"	



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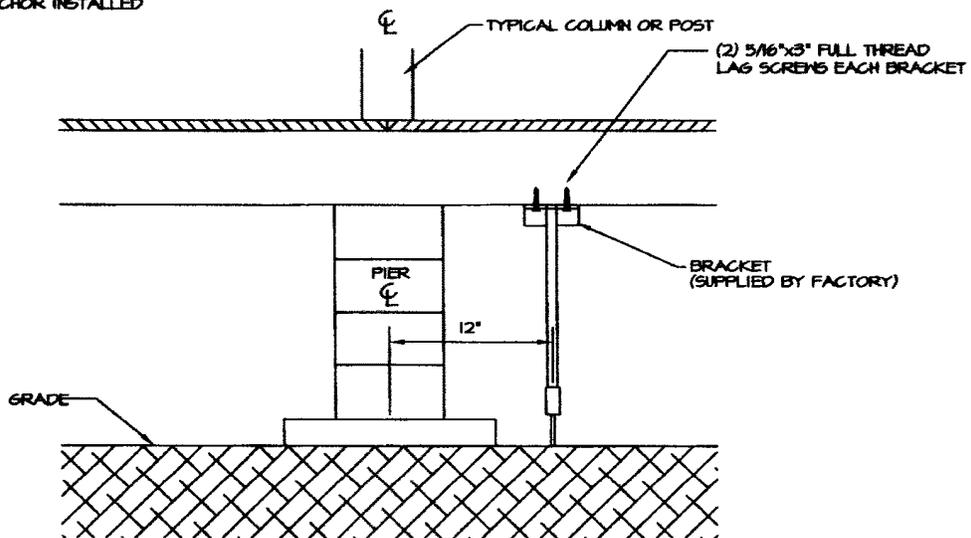
NIA INC. Apr 04, 2011
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS

END VIEW



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

INSTALL ANCHOR SO THAT IT IS A MINIMUM OF 48" FROM ANY OTHER ANCHOR INSTALLED PER TIEDOWN CHARTS.

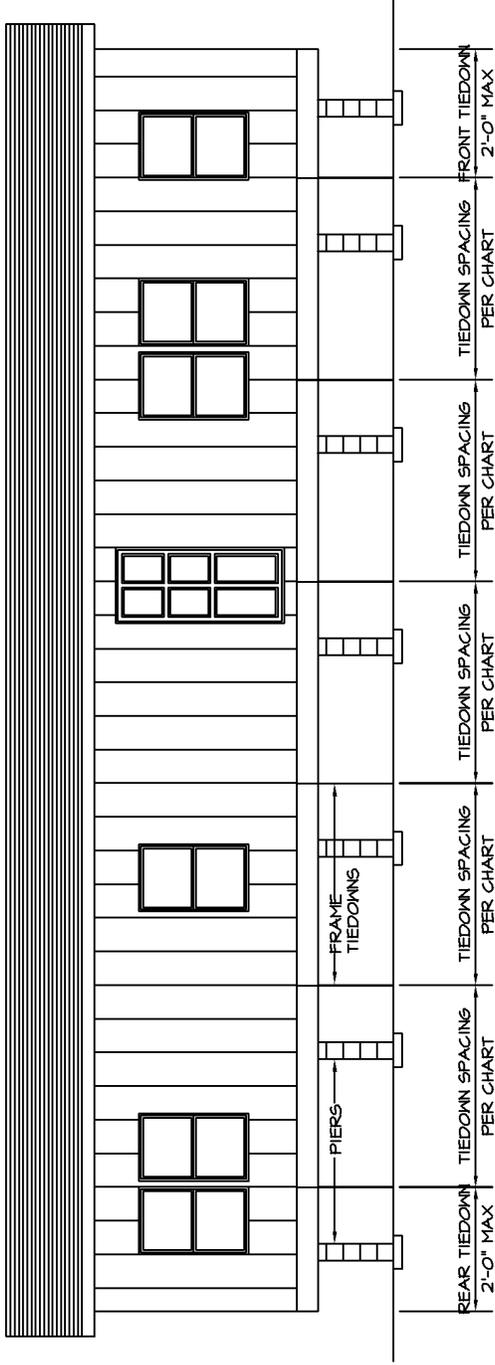


SIDE VIEW

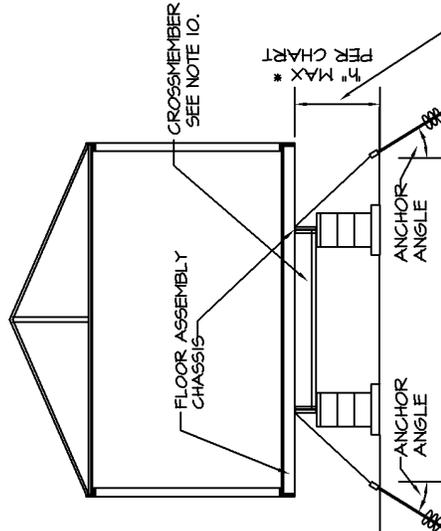
NOTE:
 BRACKETS AND LAGS IN CONTACT WITH PRESSURE TREATED (ACQ) LUMBER TO BE G105 GALVANIZED OR MEET ASTM A153 AND ASTM A653 OR BE STAINLESS STEEL.

PORCH TIEDOWN
 ON-SITE CONNECTION DETAILS

LEGACY HOUSING
RECOMMENDED TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



"h1" MAX = MAXIMUM VERTICAL DISTANCE TO DIAGONAL TIE POINT OF LOAD

I-25.13

TYPICAL CROSS SECTION SHOWING TIEDOWNS

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

NOTES:

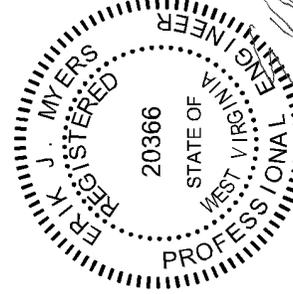
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS. HOWEVER, IF OVER-THE-ROOF TIEDOWNS ARE REQUIRED BY THE LOCAL JURISDICTION, THEY MAY BE INSTALLED.
3. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOUSING.
5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY LEGACY HOUSING. 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 SIDEMALL 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 SIDEMALL HEIGHT OF 7'-0".
10. ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
11. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND 12. GROUND ANCHORS SHALL BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
13. ANCHORING EQUIPMENT SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3948-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
14. 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 D3953-91, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

APPROVED BY



Jun 30, 2015

FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



Jun 16, 2015

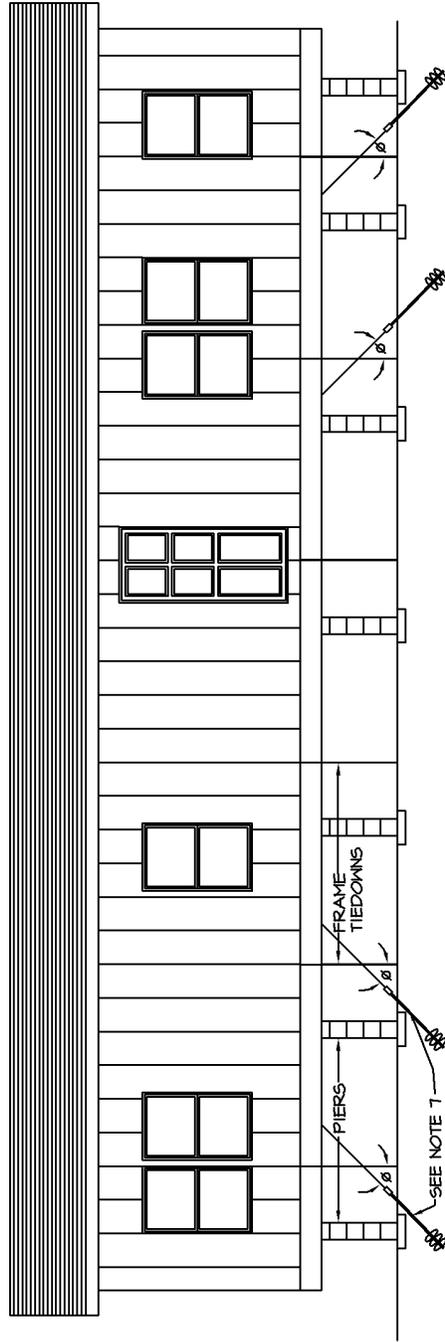
ROOF SLOPES OF A MAXIMUM OF 20 DEGREES

FRAME TIEDOWN SPACING CHART

FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX * PIER HEIGHT
15'-9" SINGLE	12" MAX	10'-0"	54"

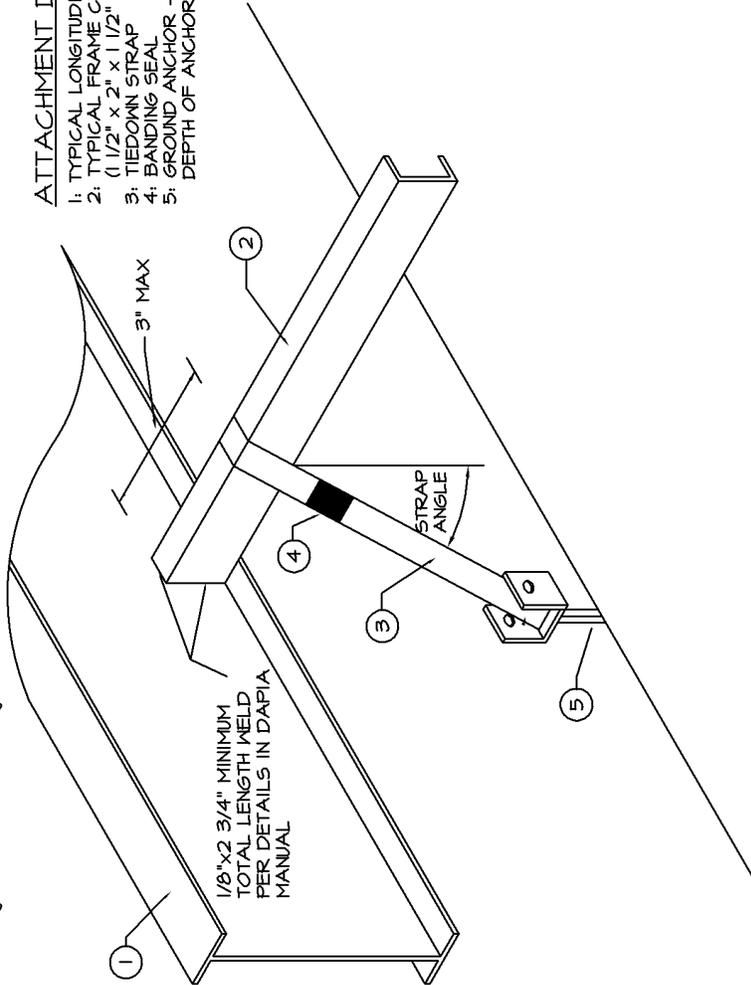
LEGACY HOMES
WIND ZONE I (15 PSF LATERAL)
TIEDOWN SYSTEM
LONGITUDINAL TIEDOWN REQUIREMENTS

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



ATTACHMENT DETAIL

- 1: TYPICAL LONGITUDINAL I-BEAM
(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

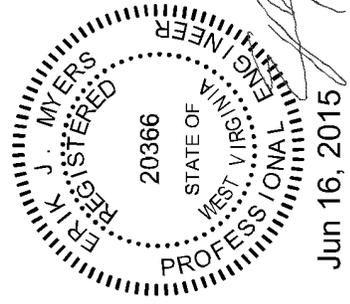


NOTES:

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 LEGACY HOUSING.
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 7'-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 STANDARD SPECIFICATION D3943-91.
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 STANDARD SPECIFICATION D3943-91, 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 OR ALTERNATIVELY CAN BE ATTACHED TO APPROVED I-BEAM CLAMPS PER MANUFACTURER'S INSTRUCTIONS. APPROVED BY



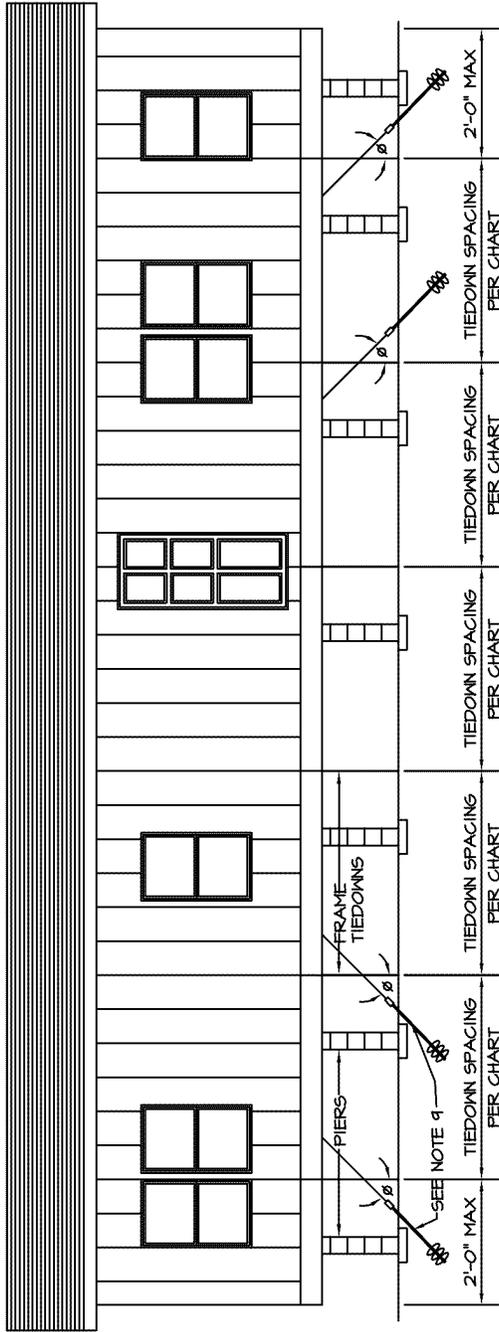
ROOF SLOPE NOT EXCEEDING 20 DEGREES NO RESTRICTION AS TO PIER TYPE OR HEIGHT (EXCEPT AS LIMITED BY OTHER DETAILS)		
FLOOR WIDTH	MINIMUM QUANTITY EACH END OF EACH I-BEAM	MINIMUM STRAP ANGLE (DEGREES)
10'9" SINGLE WIDE	1 STRAP	54.6 DEG. / 54" MAX. PIER HGT



Jun 16, 2015

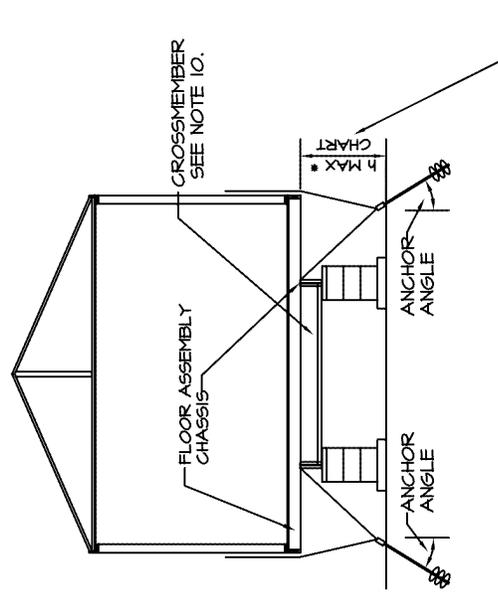
TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



APPROVED BY
MAINC.
4/7/2017
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



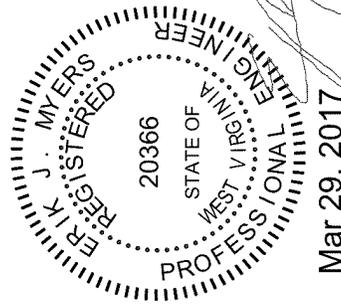
1" MAX = MAXIMUM VERTICAL DISTANCE TO DIAGONAL TIE POINT OF LOAD

NOTES:

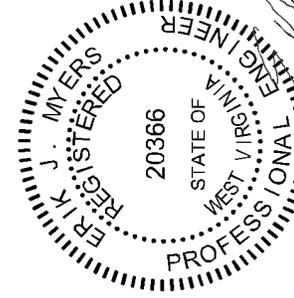
1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE TO A DOUBLE HEADED ANCHOR INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE OR AN APPROVED STABILIZER PLATE MUST BE INSTALLED ACCORDING TO THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOMES.
5. APPROVED BRACKETS FOR VERTICAL TIE ATTACHMENT ARE INSTALLED BY LEGACY HOMES. 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 1 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-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 D9453-97, 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".

20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)		
FLOOR WIDTH	EAVE OVERHANG	WIND ZONE 2
15'-4" SINGLE	12" MAX	SPACING 83" OC 101" OC
		" MAX ANCHOR ANGLE 48 DEG 34 DEG
LONGITUDINAL TIEDOWN QUANTITY CHART		
FLOOR WIDTH	QUANTITY (MIN) EACH I-BEAM	ANCHOR ANGLE
184" MAX SINGLE	2	48 DEG MAX
	3	60 DEG MAX

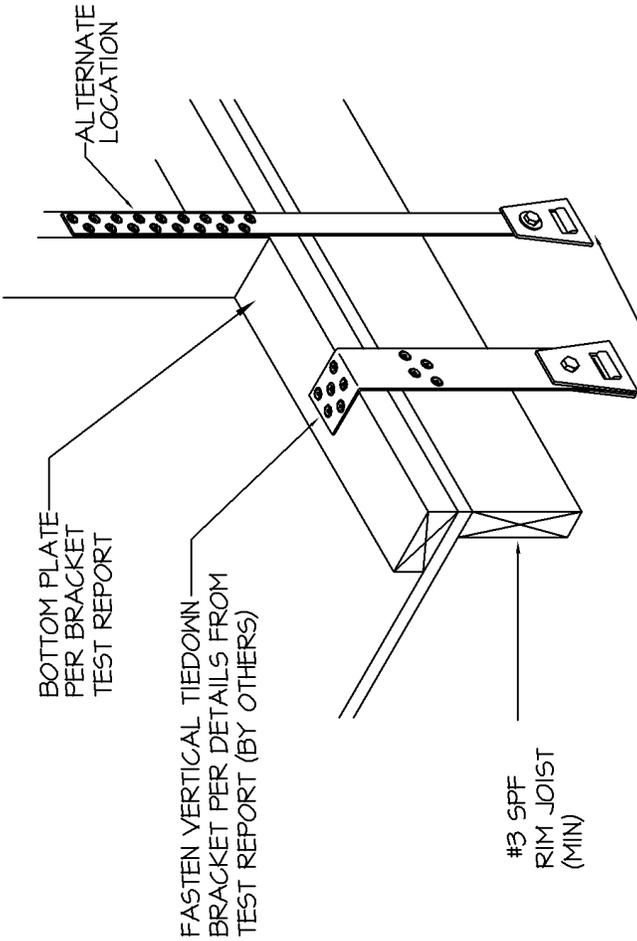


Mar 29, 2017

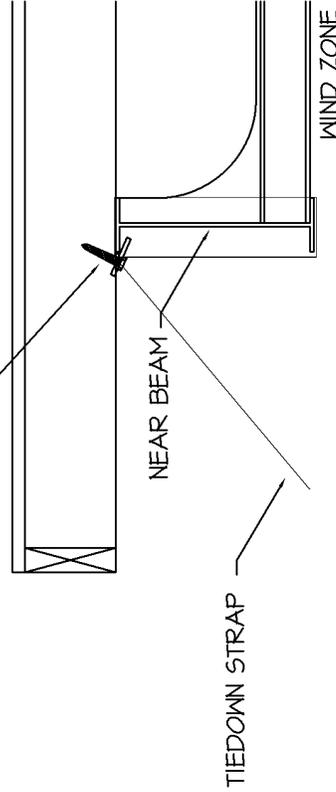


Jun 16, 2015

APPROVED BY
NIA INC.
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS
 Jun. 30, 2015



ALL FLOOR LAGS IN LOOSE WASHERS MUST BE INSTALLED ALONG OUTSIDE OF NEAR BEAM FOR WIND ZONE II (SEE NOTE #4)



UNIT WIDTH	SIDEWALL HEIGHT	ROOF SLOPE	WIND ZONE	SPACING	REQUIRED DESIGN CAPACITY	REQUIRED ULTIMATE LOAD CAPACITY
189"	84"	20 DEG MAX	II	83" OC	982#	1474#
				101" OC	1195#	1793#

LEGACY HOUSING
 FORT WORTH, TEXAS

- FOR USE IN WIND ZONE II OTHER BRACKET DESIGNS ARE ALSO ACCEPTABLE PROVIDED LISTED CAPACITY MEETS OR EXCEEDS THE MINIMUM VALUES SPECIFIED ON THIS SHEET. ALTERNATE BRACKETS TO BE INSTALLED PER MFG.'S INSTRUCTIONS.
- USE TIE DOWN ENGINEERING "SIDEWALL SWIVEL STRAP ASSEMBLY", PART NO. 59337A FOR UP TO 1810# DESIGN LOAD CAPACITY OR "SWIVEL L TIE PLATE ASSEMBLY", PART NO. 59339A FOR UP TO 2350# DESIGN CAPACITY.
- WHEN LAG WASHERS ARE WELDED TO I-BEAM FLANGE, LAGS MAY BE INSTALLED ON EITHER SIDE OF I-BEAM
- THIS DESIGN FOR THE PRISMATIC DORMER SECTION ONLY WITH A 34" MAXIMUM PROJECTION.

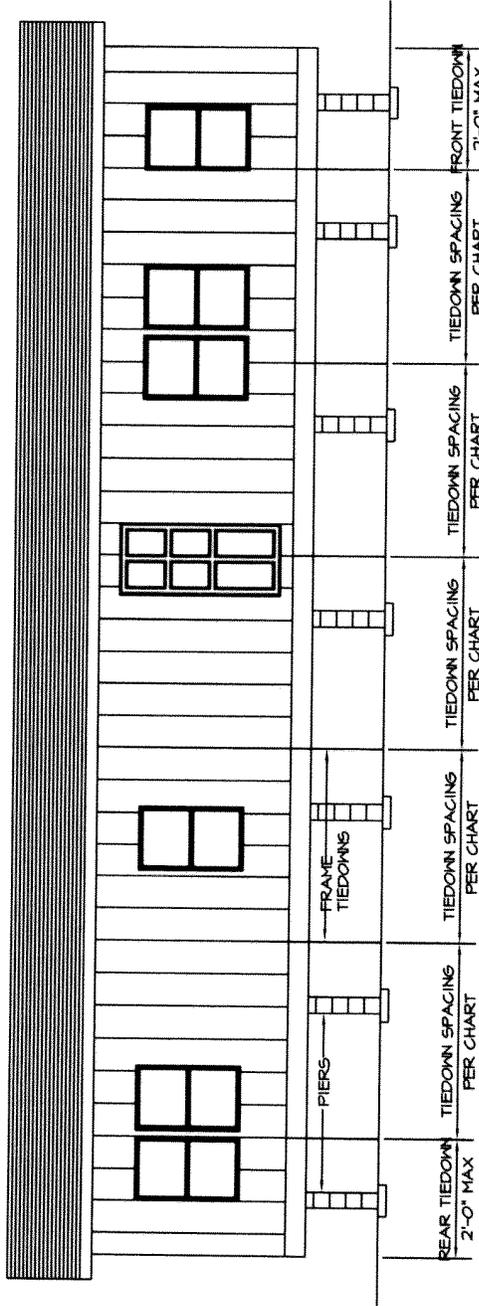
THIS DOCUMENT HAS BEEN PREPARED BY
HOUSING DESIGN GROUP
 5990 Northwood Drive
 Evergreen, CO 80439 (303)674-1713

NO	REVISIONS	DATE	DESCRIPTION

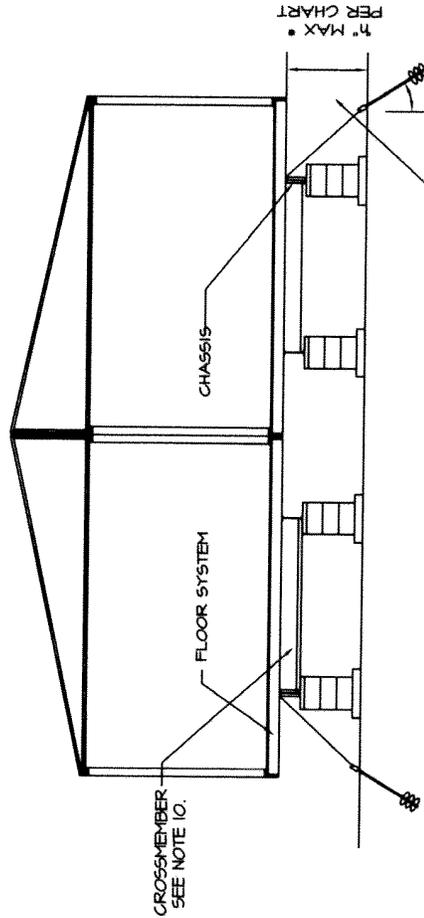
EXTERIOR WALLS
 VERTICAL TIEDOWNS
 DRAWN BY: R. ULLMAN 10/26/04
 CHECKED BY:

DRAWING NO.

LEGACY HOUSING
RECOMMENDED TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



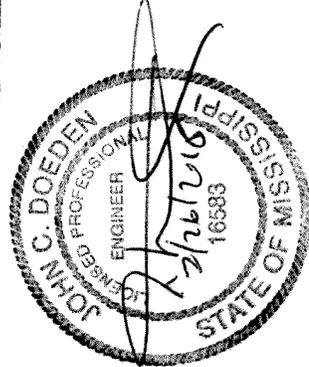
7" MAX = MAXIMUM VERTICAL DISTANCE TO DIAGONAL TIE POINT OF LOAD

TYPICAL CROSS SECTION 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 LEGACY HOUSING.
 5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY LEGACY HOUSING. 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 7'-6".
 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 D3453-97.
 14. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS. 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 D3453-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

APPROVED BY
NTA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS
Apr 27, 2016



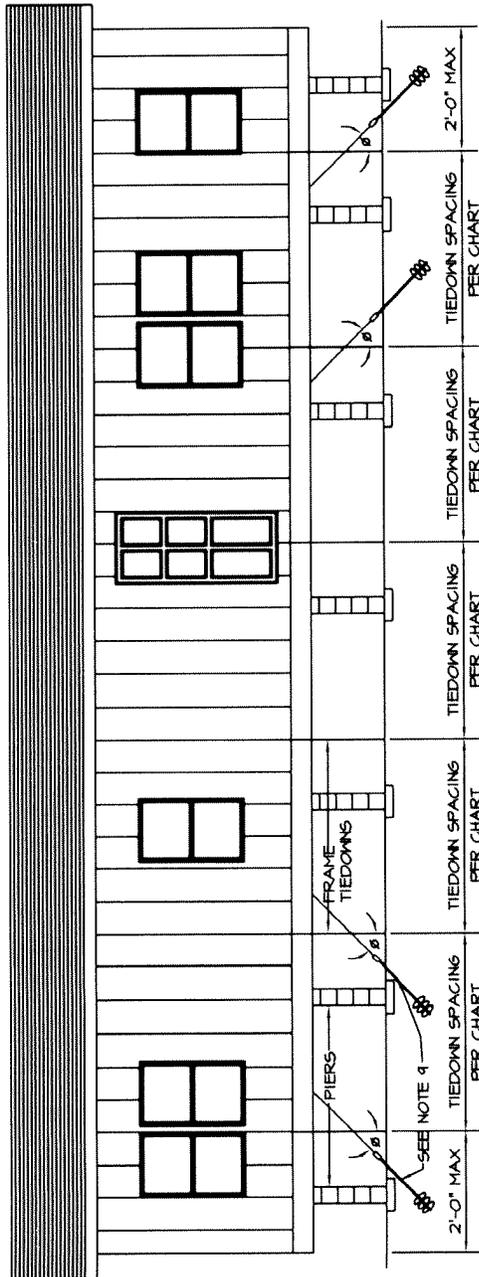
I-25.17

ROOF SLOPES OF A MAXIMUM OF 20 DEGREES

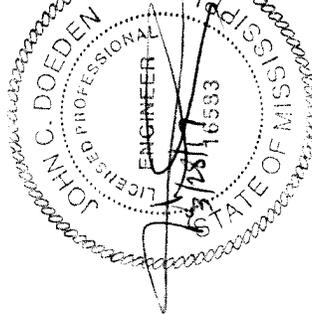
FRAME TIEDOWN SPACING CHART			
FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX * PIER HEIGHT
23'-4" DOUBLE	8" MAX	8'-0"	26"
		5'-0"	44"

LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE 3 (110 MPH)

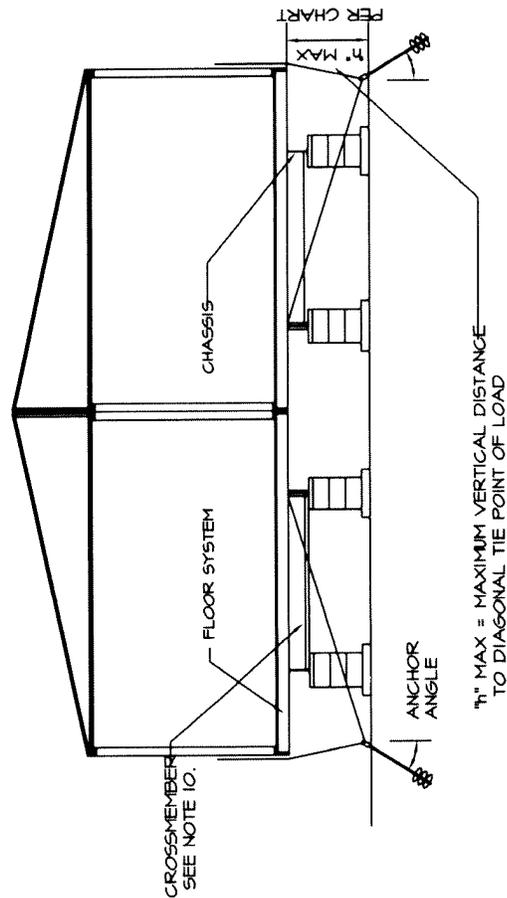
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



APPROVED BY
NTA INC.
4/7/2017
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



TYPICAL CROSS SECTION SHOWING TIEDOWNS



* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

NOTES:

1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE TO A DOUBLE HEADED ANCHOR INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE OR AN APPROVED STABILIZER PLATE MUST BE INSTALLED ACCORDING TO THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOUSING.
5. APPROVED BRACKETS FOR VERTICAL TIE ATTACHMENT ARE INSTALLED BY LEGACY HOMES. 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 SIDEMALL OF THE HOME.
7. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.50 OZ. OF ZINC PER SQUARE FOOT OF STEEL PER SIDE.
8. DESIGN BASED ON 94-1/2" I-BEAM SPACING AND A MAXIMUM SIDEMALL HEIGHT OF 7'-6".
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 D3959-97.
15. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
16. GROUND ANCHORS TO BE RATED FOR LOAD TABULATED IN CHARTS TIMES 1.5 SAFETY FACTOR OR ULTIMATE LOAD OF 4725# WHICHEVER IS GREATER.
17. STRAPPING TO BE TYPE I, FINISH B, GRADE I, 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 D3959-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)			
FLOOR WIDTH	EAVE OVERHANG	SPACING	WIND ZONE 3
140" MAX DOUBLE	8" MAX	5'-4"	62°
			40-45
LONGITUDINAL TIEDOWN QUANTITY CHART			
FLOOR WIDTH	QUANTITY (MIN EACH END OF EACH SECTION)	ANCHOR ANGLE (DEGREES)	
140" MAX DOUBLE	3	36-60	

LEGACY HOUSING
ON-SITE CONNECTION DETAILS
WIND ZONE I (15 PSF LATERAL)

MAX 140" FLOOR 24 WIDE 99 1/2" I-BEAM SPACING
90" MAX WALL HEIGHT
20 DEGREE MAX. ROOF SLOPE
(2.5 ON 12 MINIMUM SLOPE)

ENDWALL AT CENTERLINE
#8x3" SCREWS AT 6" OC
(MAX)(MAYBE "TOED")

16d (135"x3 1/2") NAILS
OR #8x4" SCREWS
LAGS SPACED PER CHART

RIDGE INTERCONNECTION PER CHART

ATTACH ROOF SHEATHING TO
TOP RAIL OR RIDGEBEAM WITH
7/16"x16 GA STAPLES WITH
1" PENETRATION SPACED PER
CHART

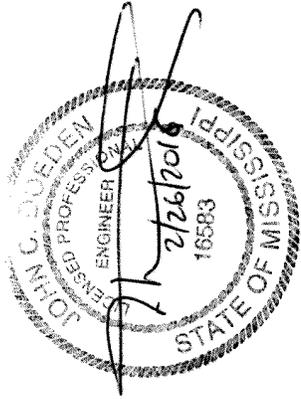
DOUBLE HEAD
ANCHOR

6" MAX
INSET

NOTES:
1. ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 3150* (4T25# ULTIMATE).

MAXIMUM FASTENER SPACING CHART		WIND ZONE
CONNECTION		I
SHEATHING TO TOP RAILS OR RIDGEBEAM	#8x4" SCREWS OR 3/8"x5" LAG SCREWS	5 1/2" O.C.
RIDGE INTERCONNECTION	#8x4" SCREWS OR 3/8"x5" LAG SCREWS	14" O.C. 15" O.C.
CENTERLINE STRAPS AT FLOOR	N/A	N/A
FLOOR FASTENING	NAILS SCREWS LAGS	24" O.C. 24" O.C. 28" O.C.

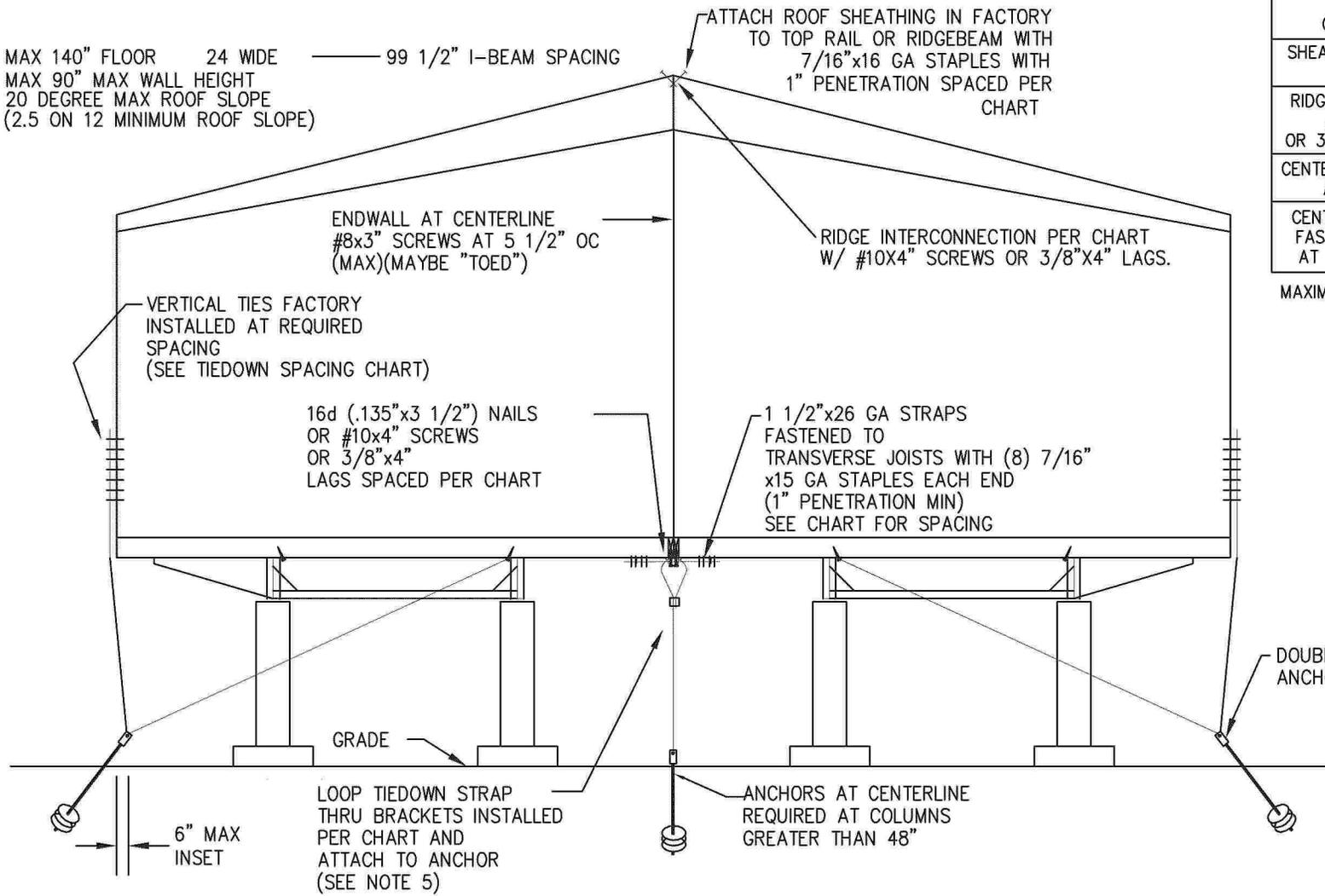
MAXIMUM UNIT LENGTH = 16'-0"



APPROVED BY
NIA INC.
Apr. 27, 2016
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

MAXIMUM FASTENER SPACING CHART (ALL VALUES ARE O.C.)				
CONNECTION		WIND ZONE 2		WIND ZONE 3
		SLOPE		SLOPE
		20DEG		20DEG
SHEATHING TO TOP RAILS OR RIDGEBEAM		2"		1 3/4"
RIDGEBEAM INTERCONNECTION				
		5"		5"
		6"		6"
CENTERLINE STRAPS AT FLOOR		96"		80"
CENTERLINE FASTENING AT FLOOR	NAILS	15"		12"
	SCREWS	14"		12"
	LAGS	17"		14"

MAXIMUM UNIT LENGTH = 76'-0"



APPROVED BY
NIA INC.
REVISOR
11/14/2025
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

NOTES:

- ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 3150# (4725# ULTIMATE).
- DOUBLE HEADED ANCHORS TO BE RATED FOR THE COMBINED LOAD AND SHOULD BE INSTALLED WITH STABILIZER PLATES.
- DIAGONAL TIES TO BE INSTALLED FROM I-BEAM AT SAME LOCATIONS AS VERTICAL TIES. REFER TO TABLES STARTING AT 24" FROM EACH END (MAX OPEN END SPACING).
- MARRIAGE WALL ANCHORS MAYBE SINGLE HEAD WITH A 3150# MIN CAPACITY (4725# ULTIMATE).
- 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.
FOR 24 WIDES, WIND ZONE 2: MAX. OPENING FOR (1) BRACKET = 24'-6" AND MAX. OPENING FOR (2) BRACKETS = 49'-0".
FOR 24 WIDES, WIND ZONE 3: MAX. OPENING FOR (1) BRACKET = 19'-3" AND MAX. OPENING FOR (2) BRACKETS = 38'-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.

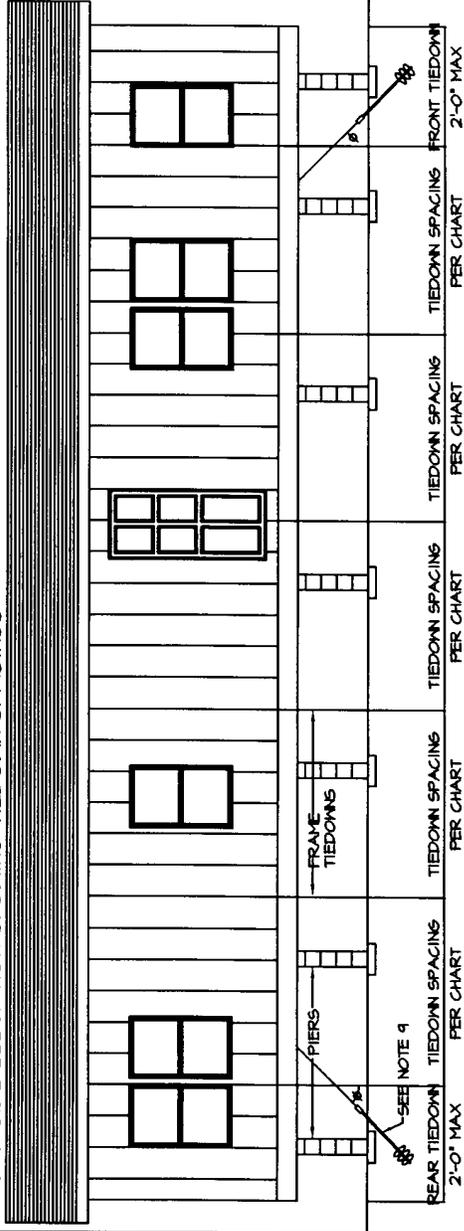


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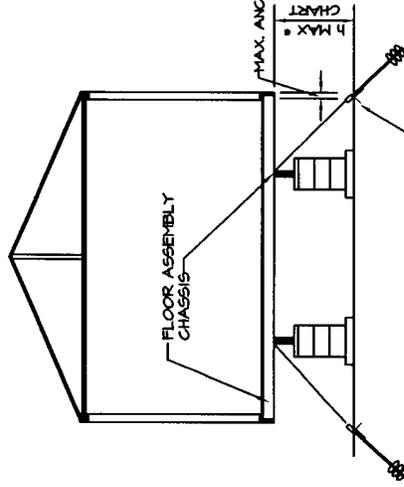
I-25.23
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LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

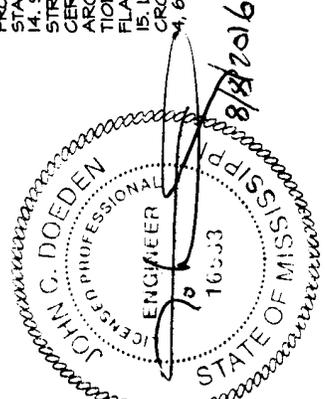


TYPICAL CROSS SECTION SHOWING TIEDOWNS



NOTES:

1. FRAME TIE-DOWNS SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. VERTICAL TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS.
3. VERTICAL TIES (WHEN INSTALLED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOUSING.
5. RESERVED.
6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING A TENSILE LOAD OF 4725 POUNDS AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
7. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
8. PLACEMENT OF FRAME TIEDOWN STRAPS AND ANCHORS MAY BE OFFSET UP TO 1/2 OF THE REQUIRED SPACING PROVIDED NO DECREASE IN THE TOTAL NUMBER OF FRAME TIEDOWNS RESULTS.
9. DESIGN BASED ON 99 1/2" BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT PER CHART.
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 SHALL 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 D3953-07.
14. 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 D3953-07, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
15. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, AND 7.



20 DEGREE MAX. ROOF SLOPE

FRAME TIEDOWN SPACING CHART				
FLOOR WIDTH	EAVE OVERHANG	SIDEWALL HEIGHT	WIND ZONE I	
			SPACING	T ₁ MAX
139 1/2" SINGLE	12" MAX	90"	1'-0"	30"
138" SINGLE	12" MAX	90"	5'-0"	44"
			1'-0"	28"
			5'-0"	41"

LONGITUDINAL TIEDOWN QUANTITY CHART			
WIND ZONE I			
FLOOR WIDTH	SIDEWALL HEIGHT	QUANTITY EACH END OF EACH SECTION	ANCHOR ANGLE
			MIN/MAX
139 1/2" SINGLE	90"	2	30-60
138" SINGLE	90"	2	30-60

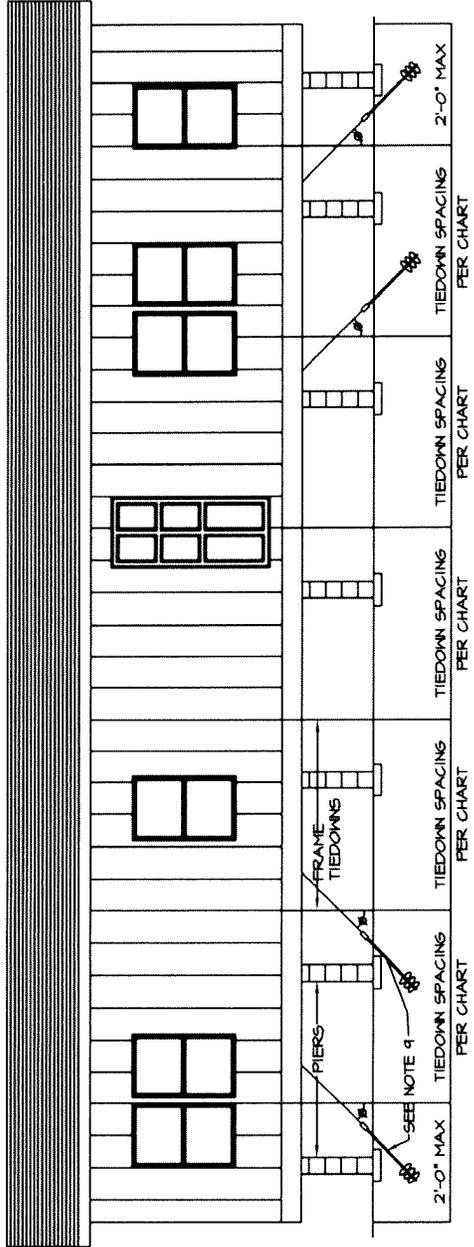
APPROVED BY

 Revised Aug 16, 2016
 MHC INC.
 FEDERAL REGULATORY AFFAIRS
 CONSTRUCTION AND SAFETY STANDARDS

TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

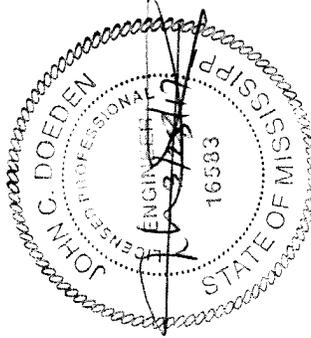
LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH) & WIND ZONE 3 (110 MPH)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

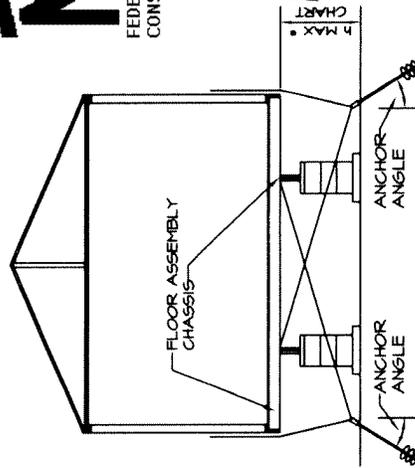


TYPICAL CROSS SECTION SHOWING TIEDOWNS

APPROVED BY
NTA INC.
REVISOR
4/7/2017
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



* T_n MAX = MAXIMUM VERTICAL DISTANCE
TO DIAGONAL TIE POINT OF LOAD



TYPICAL CROSS SECTION SHOWING TIEDOWNS

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

NOTES:

1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE TO A DOUBLE HEADED ANCHOR INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE OR AN APPROVED STABILIZER PLATE MUST BE INSTALLED ACCORDING TO THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOUSING.
5. APPROVED BRACKETS FOR VERTICAL TIE ATTACHMENT 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 94-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT PER CHART BELOW.
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 D3453-97, 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 D3453-97, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS*.

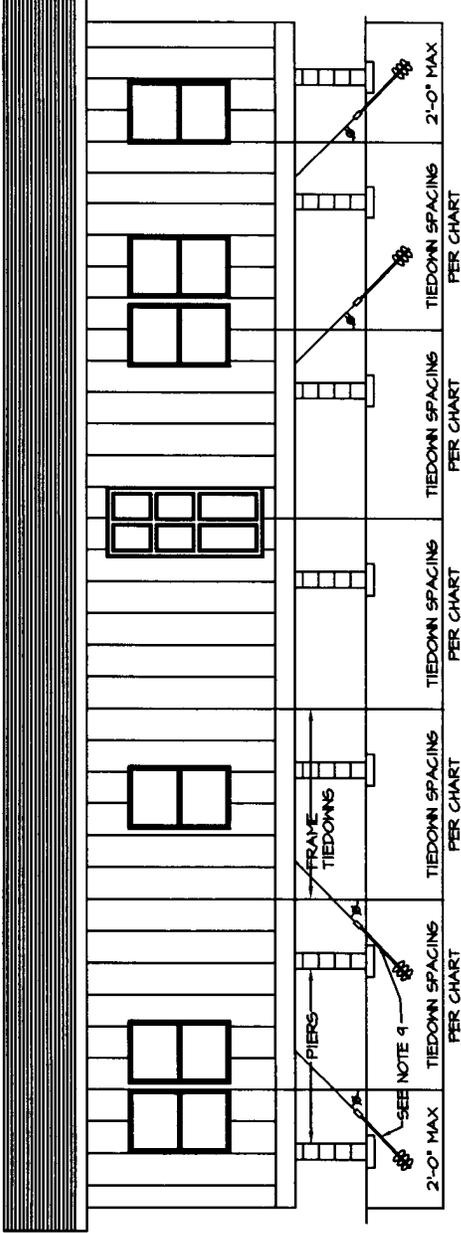
20 DEGREE MAX. ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)									
FLOOR WIDTH	EAVE OVERHANG	SIDEWALL HEIGHT	WIND ZONE 2			WIND ZONE 3			ANCHOR ANGLE
			SPACING	T _n MAX	ANCHOR ANGLE	SPACING	T _n MAX	ANCHOR ANGLE	
134 1/2" SINGLE	3" MAX	90"	8'-0"	36"	45-50	6'-8"	32"	45-50	
138" SINGLE	3" MAX	90"	8'-0"	35"	45-50	6'-8"	31"	45-50	

LONGITUDINAL TIEDOWN QUANTITY CHART									
FLOOR WIDTH	SIDEWALL HEIGHT	WIND ZONE 2		WIND ZONE 3		ANCHOR ANGLE (DEGREES)			
		QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE MIN/MAX	QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE				
134 1/2" MAX	90"	2	41-60	3	30-60				
138" MAX	90"	2	42-60	3	30-60				

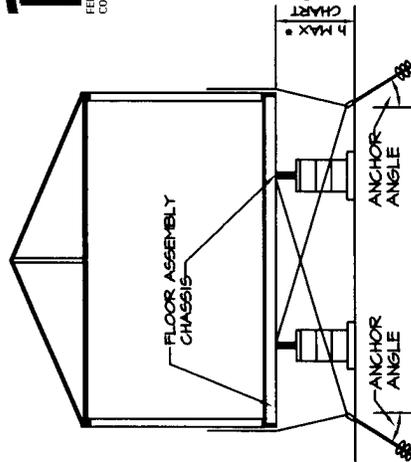
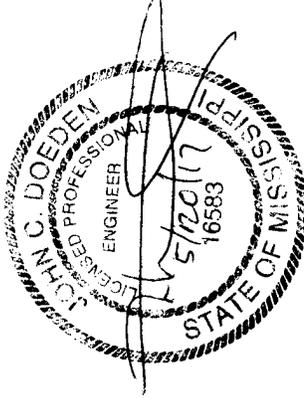
LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH) & WIND ZONE 3 (110 MPH)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTION SHOWING TIEDOWNS

APPROVED BY
5/30/2017
NTA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



TYPICAL CROSS SECTION SHOWING TIEDOWNS

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

NOTES:

1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE TO A DOUBLE HEADED ANCHOR INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE OR AN APPROVED STABILIZER PLATE MUST BE INSTALLED ACCORDING TO THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOUSING.
5. APPROVED BRACKETS FOR VERTICAL TIE ATTACHMENT ARE INSTALLED BY LEGACY HOMES. 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 74-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT PER CHART BELOW.
9. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSS-MEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, AND 7.
10. FRAME TIEDOWNS ARE POSITIONED AT CROSS-MEMBER 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 D3953-01, 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 D3953-01, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.

20 DEGREE MAX. ROOF SLOPE

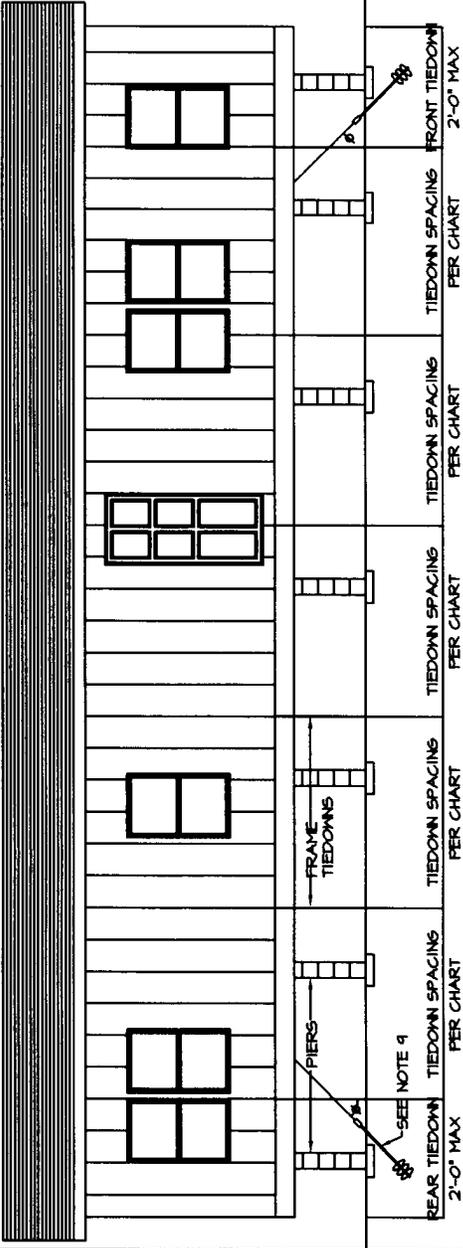
FRAME TIEDOWN SPACING CHART				(SEE NOTE 10)				
FLOOR WIDTH	EAVE OVERHANG	SIDEWALL HEIGHT	WIND ZONE 2		WIND ZONE 3			
			SPACING	h ¹ MAX ANCHOR ANGLE	SPACING	h ¹ MAX ANCHOR ANGLE		
138" SINGLE	3" MAX	90°	8'-0"	34°	45-50	6'-8"	32°	40-50

LONGITUDINAL TIEDOWN QUANTITY CHART					
FLOOR WIDTH	SIDEWALL HEIGHT	WIND ZONE 2		WIND ZONE 3	
		QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE MIN/MAX	QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE (DEGREES)
138" MAX	90°	2	40-60	2	51-60

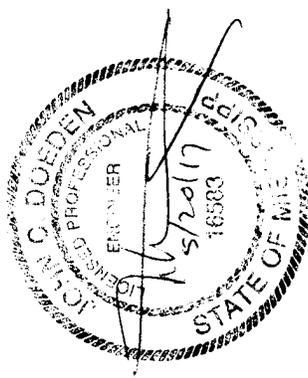
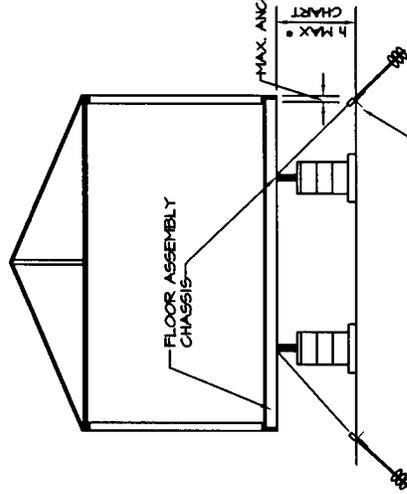
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LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTION SHOWING TIEDOWNS



APPROVED BY
NTA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS
5/30/2017

20 DEGREE MAX. ROOF SLOPE

FRAME TIEDOWN SPACING CHART				
FLOOR WIDTH	EAVE OVERHANG	SIDEWALL HEIGHT	WIND ZONE I	
			SPACING	MIN. MAX
198" SINGLE	3" MAX	40"	10'-0"	33°
			6'-0"	45°
LONGITUDINAL TIEDOWN QUANTITY CHART				
		WIND ZONE I		
FLOOR WIDTH	SIDEWALL HEIGHT	QUANTITY (MIN EACH END OF EACH SECTION)	ANCHOR ANGLE MIN/MAX	
198" SINGLE	40"	2	30-60	

TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

I-25.26.3

- NOTES:
1. FRAME TIE-DOWNS SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
 2. VERTICAL TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS.
 3. VERTICAL TIES (WHEN INSTALLED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
 4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOUSING.
 5. RESERVED.
 6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING A TENSILE LOAD OF 4725 POUNDS AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
 7. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
 8. PLACEMENT OF FRAME TIEDOWN STRAPS AND ANCHORS MAY BE OFFSET UP TO 1/2 OF THE REQUIRED SPACING PROVIDED NO DECREASE IN THE TOTAL NUMBER OF FRAME TIEDOWNS RESULTS.
 9. DESIGN BASED ON 7/4 1/2" BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT PER CHART.
 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 SHALL 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 D3453-97.
 14. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS. STRAPPING: 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3453-97, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS."
 15. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, AND 7.

APPROVED BY
NTA INC.
 Nov 07, 2016
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS

THIS DOCUMENT HAS BEEN PREPARED BY
HOUSING DESIGN GROUP
 5940 Northwood Drive
 Evergreen, CO 80424 (303)674-1178

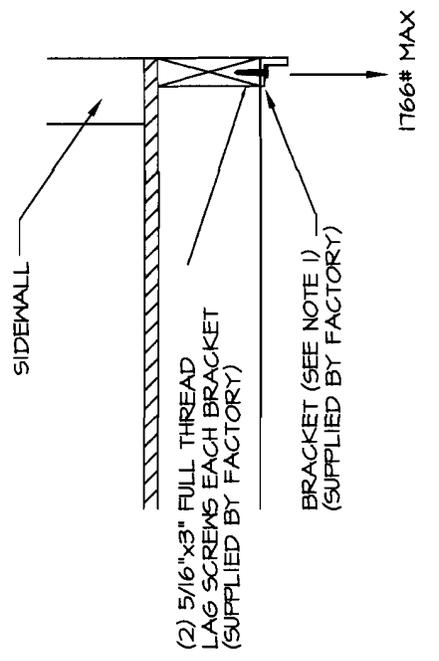
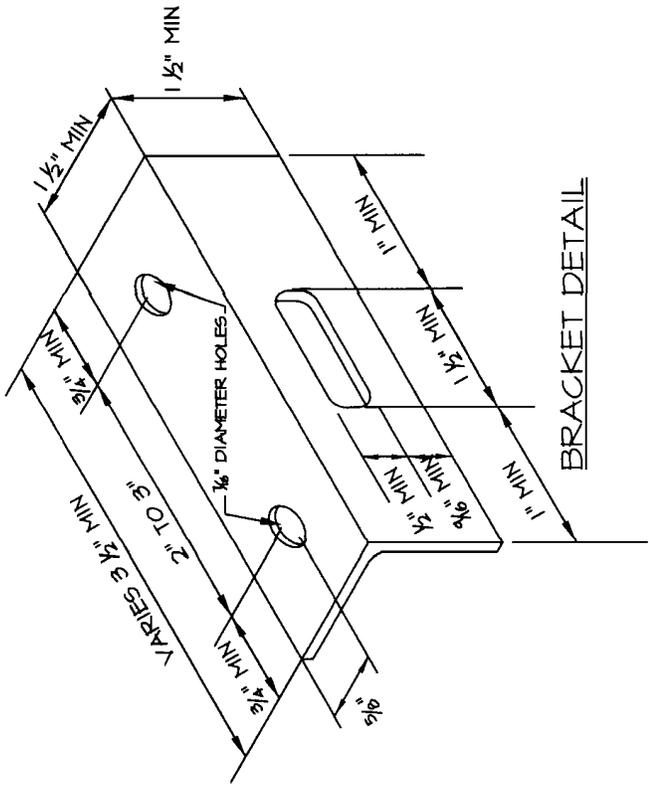
NO	REVISOR	DATE	DESCRIPTION

ALTERNATE VERTICAL
 TIEDOWN BRACKET
 DRAWN BY: R. ULLMAN 11/02/16
 CHECKED BY:
 DRAWING NO. I-25.27

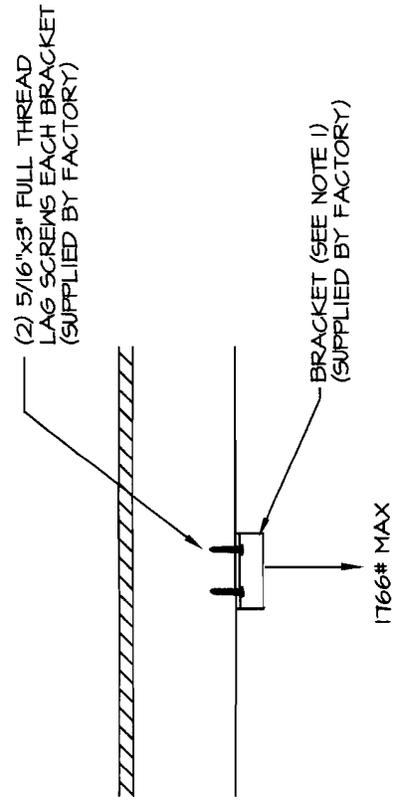
- NOTES:
- BRACKETS ARE 1/2"x1 1/2"x11 GA. MINIMUM STEEL ANGLE WITH (2) 1/16" DIAMETER HOLES 3/4" MINIMUM FROM EACH END AND 2" TO 3" IN BETWEEN HOLE CENTERS. BRACKET IS LAGGED TO THE RIM JOIST WITH (2) 5/16"x3" FULL THREADED LAG SCREWS MINIMUM.
 - BRACKET HAS A DESIGN CAPACITY OF 1766# AND MAYBE USED FOR THE VERTICAL TIEDOWN BRACKET PROVIDED THE DESIGN CAPACITY EXCEEDS THAT WHICH IS REQUIRED FOR THE DESIGN CAPACITY ON THE APPLICABLE VERTICAL TIEDOWN CAPACITY DRAWING.
 - PROTECTION SHALL BE PROVIDED AT SHARP CORNERS AT POINT OF LOAD ON STRAP.
 - ALTERNATE LAG MAY BE 9mm x 76mm FASTEC OR EQUAL.

5. These brackets are used for tie downs on pages such as I-B-14, I-25.20, I-25.26, and similar pages.

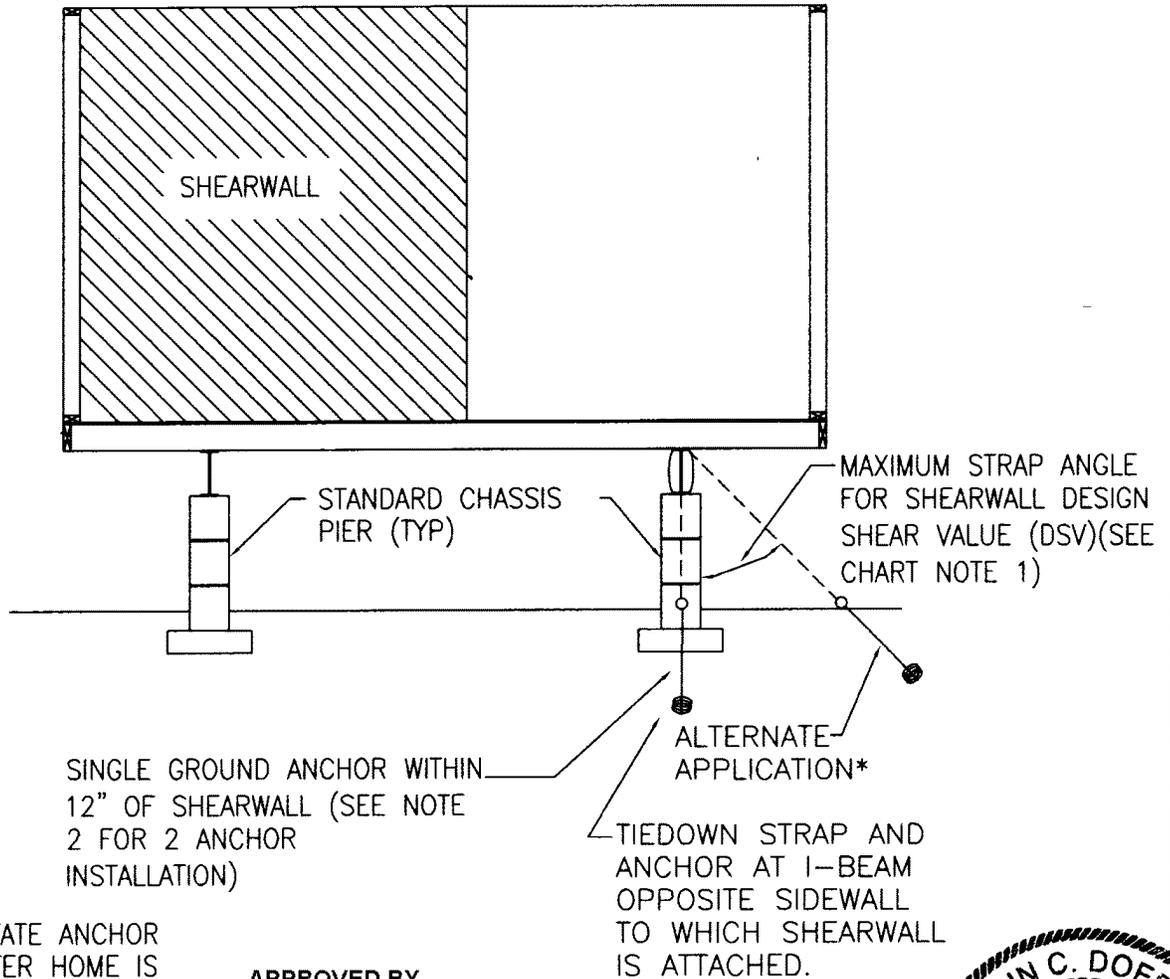
Patrick M. O'Toole, P.E.
K2 Engineering, Inc.
Patrick M. O'Toole
 11/13/16



END VIEW

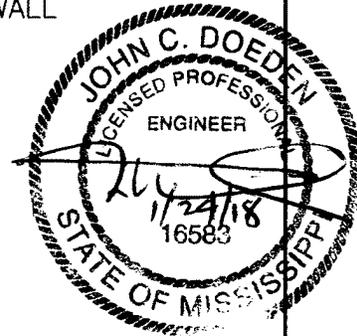


SIDE VIEW



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.

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 CONSTRUCTION AND SAFETY STANDARDS



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.

MAXIMUM SHEARWALL DSV FOR VARIOUS STRAP ANGLES FROM VERTICAL				TYPICAL CHART ON FLOOR PLAN PROVIDED WITH HOME					
MAX. ANGLE	MAX. SIDEWALL HEIGHT			SHEARWALL DATA WIND ZONE 3					
	84"	90"	96"	SHEARWALL NUMBER	1	2	3	4	5
0 DEG	450 PLF	420 PLF	394 PLF	TRIBUTARY SPAN	10'-8"	13'-0"	13'-0"	12'-0"	27'-4"
15 DEG.	435 PLF	406 PLF	380 PLF	LENGTH	52"	60"	60"	100"	112"
25 DEG.	408 PLF	381 PLF	357 PLF	PLF	419	440	440	250	492
35 DEG.	369 PLF	344 PLF	322 PLF	NUMBER OF JOISTS	*1	6	6	2	*1
45 DEG.	318 PLF	297 PLF	278 PLF	DIAPHRAGM	ROOF DECKING				

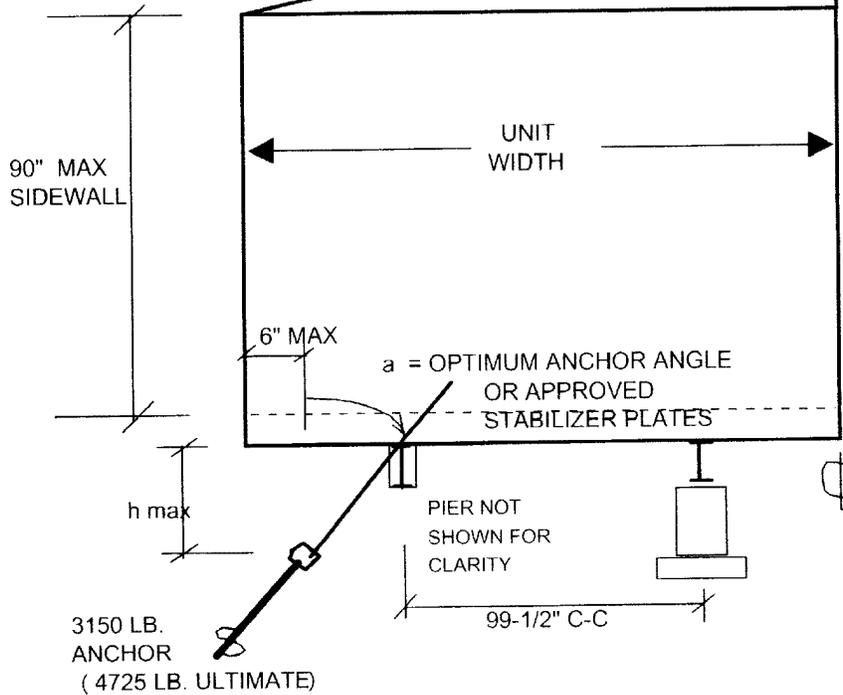
NOTE: THE TABULATED MAX. PLF VALUES ABOVE MAY BE MULTIPLIED BY 2 WHEN TWO ANCHORS ARE INSTALLED. SEE NOTE 2.

- 2. WHEN TWO ANCHORS AND STRAPS ARE REQUIRED INSTALL ONE EACH SIDE OF SHEARWALL LOCATION 2'-0" MINIMUM AND 3'-0" MAXIMUM FROM SHEARWALL CENTERLINE.
- 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.

TYPICAL SHEARWALL TIEDOWN INSTALLATION
 ALL WIND ZONES

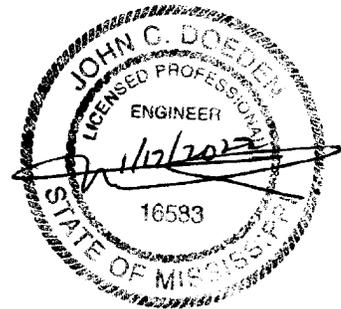
I-25.28

20 DEG MAX ROOF PITCH



DESIGN IS APPLICABLE TO DOUBLEWIDES WITH 2 SECTIONS HAVING THE SAME WIDTH

NOTE: DIAGONAL TIE LOOPED OR ATTACHED WITH APPROVED BRACKET AT TOP OF NEAR BEAM



UNIT WIDTH	WIND ZONE	MAX. EAVE	ANCHOR SPACING	h max in.	a DEG.
160 "	I	6" 6"	8' - 0" 10' - 0"	47" 35 "	25 - 30 30 - 40

- NOTES:
- 1) THIS CHAR' NOT APPLICABLE TO 'SLIP-SIDE' UNITS (i.e. OFFSET HALVES)
 - 2) LONGITUDINAL TIES REQUIRED ARE 2 PER SECTION AT A 30 - 60 DEGREE ANGLE FROM VERTICAL. INSTALL PER THE METHOD IN THE INSTALLATION MANUAL.
 - 3) SEE NOTES TO OTHER ZONE 1 TIEDOWNS FOR ADDITIONAL REQUIREMENTS.
 - 4) MAX. DISTANCE TO FIRST TIEDOWN EACH END IS 2'- 0"
 - 5) WHEN ANCHOR ANGLE SPECIFIED CANNOT BE ACHIEVED, INSTALL APPROVED STABILIZER PLATES.
 - 7) CONNECTIONS BETWEEN SECTIONS ARE AS FOLLOWS
 - a. FLOOR - CENTERLINE JOISTS FASTENED TOGETHER WITH #10 x 4-1/2" SCREWS AT 32" o/c (PEN= 1-1/2")
 - b. ROOF PEAK 2x4 RAIL CONNECTION- THRU SHEATHING WITH #10 x 4-1/2" SCREWS AT 24" o/c (PEN= 1-1/2")
 - c. ROOF SHEATHING FASTENED TO 2x4 RAIL AT PEAK WITH 7/16x 16 GA. STAPLES AT 6" o/c MAX. (FACTORY INSTALLED)

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Legacy Housing

Fort Worth, TX

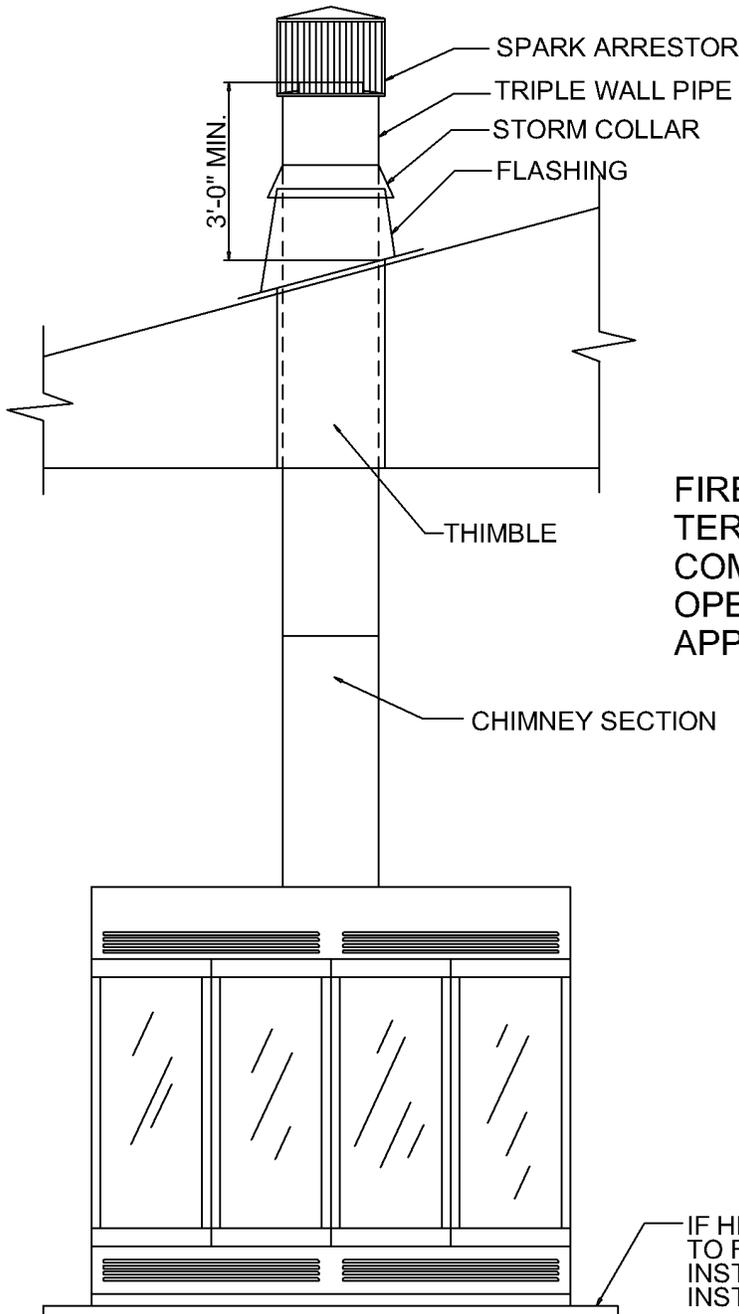
TITLE: TIEDOWNS FOR 3150 # ANCHORS - PER BEAM
ADDENDUM TO SET-UP MANUAL
WIND ZONE 1
99-1/2" I-BEAM SPACING

DATE:
01 / 17 / 2022

PAGE No.
I-25.28.1

FIGURE 7.3 - FIREPLACE CHIMNEY INSTALLATION

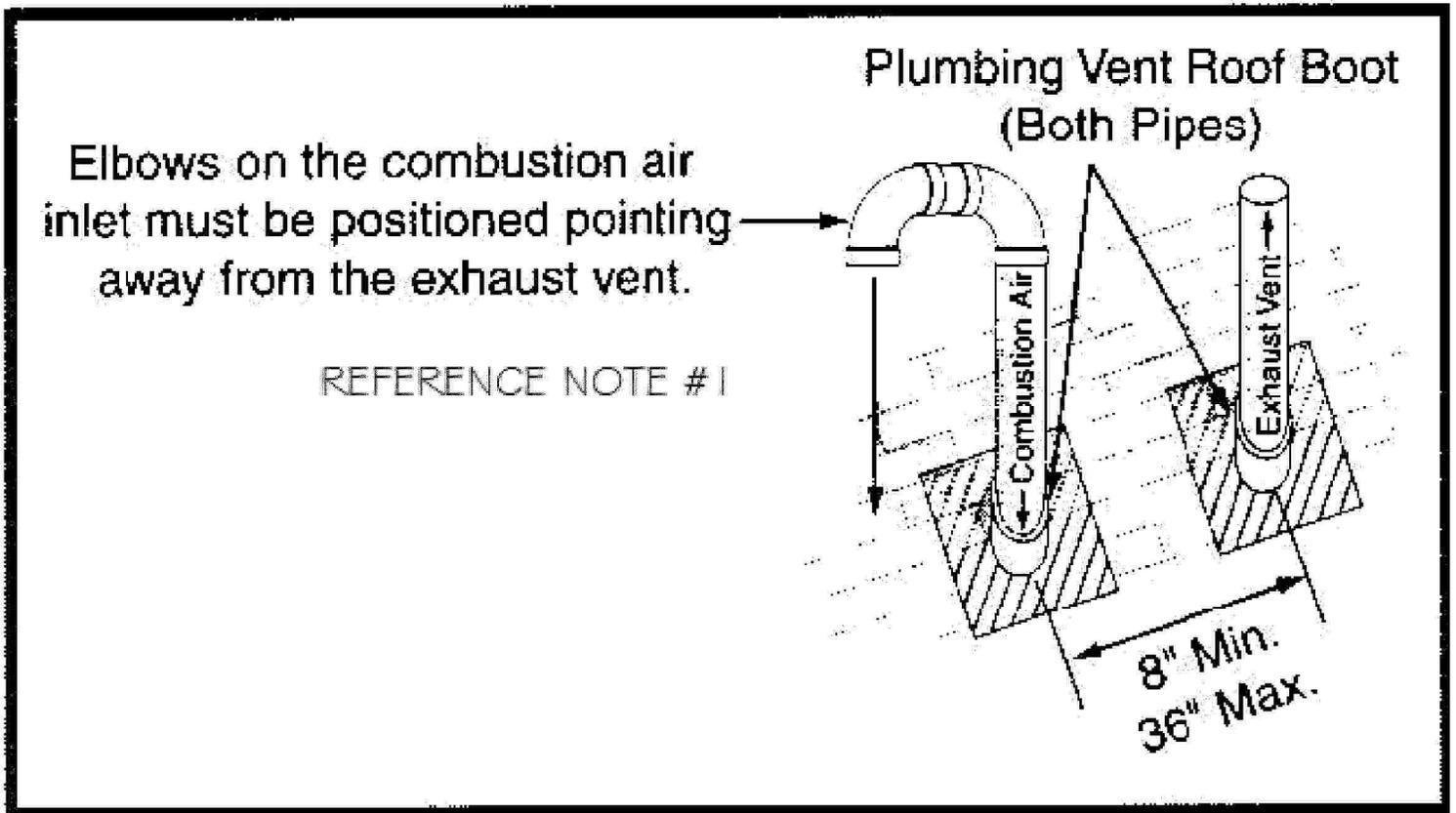
NOTE: Refer to the manufacturer's installation instructions before starting installation and follow all instructions carefully throughout the procedure.



WARNING!
FIREPLACE CHIMNEY AND
TERMINATIONS MUST BE
COMPLETE PRIOR TO THE
OPERATION OF THE
APPLIANCE.

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IF HEARTH IS SHIPPED LOOSE BE SURE
TO FOLLOW MANUFACTURER'S INSTALLATION
INSTRUCTIONS CAREFULLY FOR CORRECT
INSTALLATION PROCEDURE.



NOTE: 1. BOTH PIPES SHOWN WILL BE 15" TALL WITH ELBOWS INSTALLED AT THE PLANT. IT WILL BE THE INSTALLER'S RESPONSIBILITY TO DETERMINE MAXIMUM EXPECTED SNOW LEVELS. ONCE THAT IS DETERMINED THEN THESE PIPES MAY HAVE TO BE EXTENDED SO THAT THE BOTTOM OF THE ELBOW IS MIN. 12" ABOVE THAT GRADE. BOTH PIPES MUST BE THE SAME DIMENSION.

2. EXTENSIONS MAY BE MADE BY CUTTING PIPE AND ADDING A COUPLER WITH LENGTH OF PIPE REQUIRED. " couplers and extra length of pipe are provided by Legacy

3. COMBUSTION AIR INLET AND EXHAUST VENT INSTALLATION MUST COMPLY WITH THE FURNACE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

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I-26.1

Chapter 8 - Utility System Connection and Testing

8.1 Proper Procedures

Consult local, country 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 Mains

Connect the home's water system to the water source through the inlet located under the house, usually below the water heater compartment. A tag on the side of the home marks its location. The connection is via a single 3/4 inch inlet beneath the home. A master shut-off full flow valve must be installed in the water supply line adjacent to the home; this valve should be a full port gate or ball valve with threaded or solder joints. After removing the aerators from all the faucets, open all the faucet valves and allow the water to run for 15 minutes. This should remove any foreign particles left in the line that might cause an unpleasant taste or become lodged at faucet washers and cause dripping faucets.

8.2.2.2 Remove the shipping caps from the crossover water line connectors, provided with the home, and install as shown (see Figure 8.2).

8.2.3 Freezing Protection

8.2.3.1 Necessity

In areas subject to subfreezing temperatures, protect exposed sections of water supply

pipng, 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 INSTRUCTION. Plug the 3-wire, grounded cordset of the heat tape into the outlet under the home near the water supply (Figure 8.1).

WARNING! THE HEAT TAPE RECEPTACLE IS GFCI PROTECTED. DO NOT USE THIS OUTLET FOR ANY CONNECTION EXCEPT THE 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 the following procedure:

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 a leak is found, the joint must be cut off and discarded. A new section can be installed using couplings.

FIGURE 8.1 - TYPICAL WATER CONNECTION

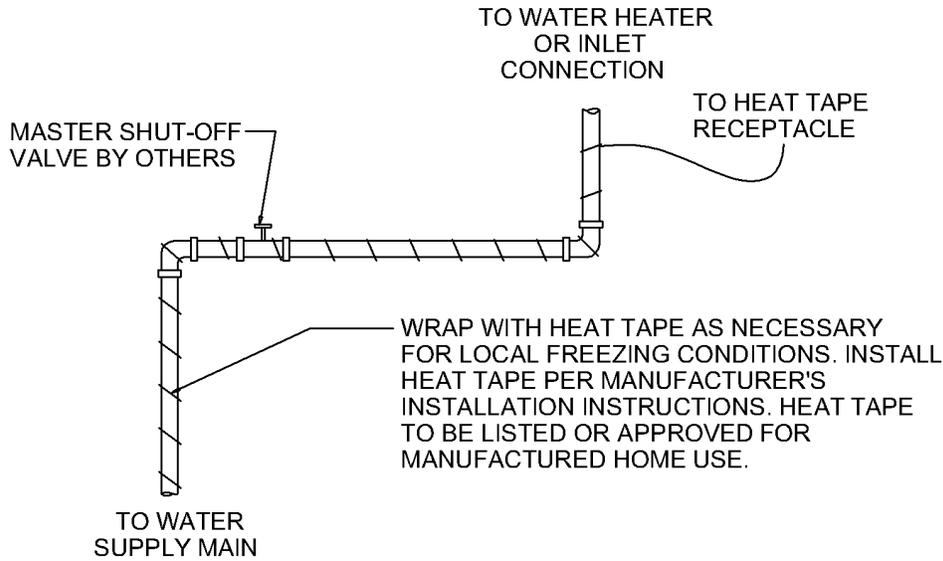
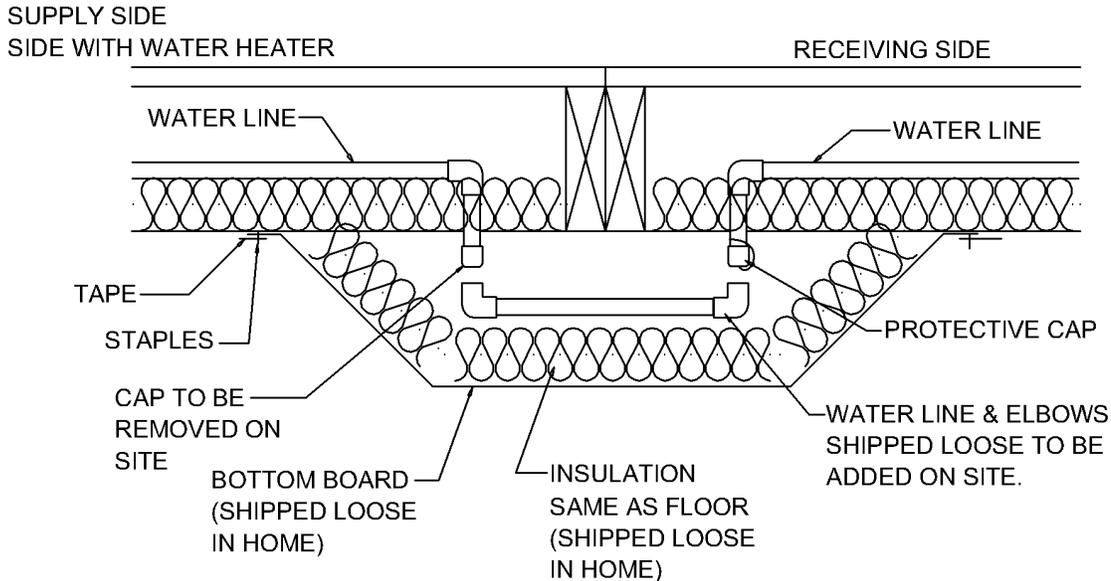
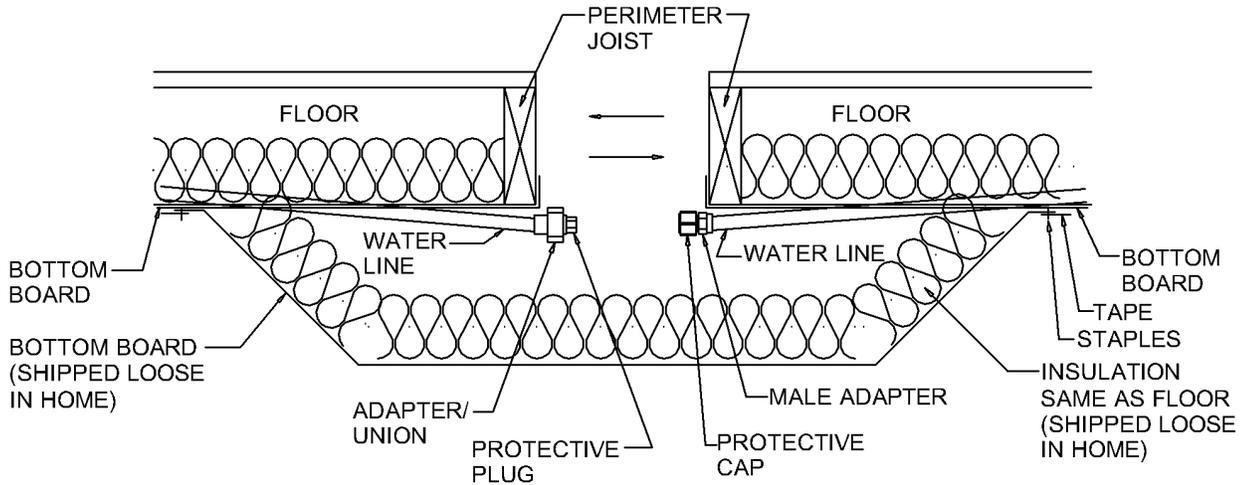


FIGURE 8.2 - TYPICAL WATER LINE CROSSOVER



1. REMOVE THE PROTECTIVE CAP FROM THE RECEIVING SIDE.
2. CUT (REMOVE) THE PROTECTIVE CAP FROM THE SUPPLY SIDE, CLEAN AND REAM CUT ENDS OF WATER LINE.
3. CEMENT ELBOWS TO WATER LINE, WATER LINES, ELBOWS AND CEMENT TO BE SHIPPED WITH HOME.
4. CHECK WATER LINES FOR LEAKS, SEE PAGE 29 FOR ADDITIONAL INFORMATION.
5. ADD INSULATION AND BOTTOM BOARD SHIPPED LOOSE IN HOME, TAPE BOTTOM BOARD AS SHOWN ABOVE AND STAPLE WITH 7/16" X 1/2" STAPLES AT 4" O.C. AROUND BOTTOM BOARD USING A TACKER 694 OF EQUIV.

FIGURE 8.2.1 - TYPICAL WATER LINE CROSSOVER CONT.



1. REMOVE PROTECTIVE PLUG AND CAP.
2. CONNECT ADAPTER/UNION TO MALE ADAPTER.
3. CHECK WATER LINES FOR LEAKS.
4. CHECK BOTTOM BOARD AND REPAIR IF NEEDED.
5. ADD INSULATION AND BOTTOM BOARD SHIPPED LOOSE IN HOME, TAPE BOTTOM BOARD AS SHOWN ABOVE AND STAPLE WITH 7/16" X 1/2" STAPLES AT 4" O.C. AROUND BOTTOM BOARD USING A TACKER 694 OR EQUIV.

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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 these specific instructions and diagrams. 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 Slope 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 (Figure 8.5).

8.3.3 Crossovers

Connect multi-section home drain line crossover as shown in Figure 8.6 or per drain line drawing shipped with your home.

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.

8.3.5 Protection from Freezing

Fittings in the drainage system subject to freezing, such as P-traps in the floor have been insulated. 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.

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 through a higher fixture. Release all trapped air. Allow the system to stand 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 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 gas. If LP gas is to be used as the gas supply instead, a qualified service person must convert the appliances to LP 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 7" and 8" of water column. For LP gas 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 SUPPLIES.

8.4.4 Crossovers
Install the gas line crossover in multi-section homes as shown in Figure 8.7 before performing any system tests or connecting the system to the gas supply. All crossovers and fittings must be listed for manufactured housing exterior use and be the same size as the main unit pipe. Flex connector with shut off valve when used must be listed for outside use. Shut off valve (non-displaceable rotor type) must conform to ANSI Z.21.15 - 1992.

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 re-checked for leaks at the site. DO NOT APPLY PRESSURE IN EXCESS OF THOSE SPECIFIED BELOW OR YOU MAY DAMAGE GAS VALVES AND/OR PRESSURE REGULATORS. Conduct the following test prior to any gas line connection to main supply hook-up.

8.4.5.1 Test Of Gas Appliance Connections
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 3 PSI ± 0.2 PSI. 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 Start Up 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 IT'S PILOT Check the operation of the furnace and water heater thermostats and set them to the desired temperatures.

8.5 Heating Oil System
Homes equipped with oil burning furnaces must have their oil supply tankage and piping installed on site. These items are not supplied with your home. 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.

8.6 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 on the electrical distribution panel.

All electrical work **must** be done in accordance with the 2014 NEC, it is advisable to have only a qualified electrician work on the electrical system of your home. For the protection of its occupants, it is vital that the manufactured home is properly grounded whenever it is connected to a source of electrical power. The manufactured home has the protection of a "grounding type" wiring system. The main panel box is wired with the grounding system insulated from the neutral system. Manufactured home feeder conductors shall consist of a permanently installed feeder consisting of four, insulated, color-coded conductors that shall be identified by field marking of the conductors in compliance with the 2005 National Electric Code. DO NOT USE A 3 WIRE FEEDER SYSTEM THAT DOES NOT CONNECT TO THE GROUND BAR. IT IS ILLEGAL AND

UNSAFE AND MAY CAUSE FIRE OR SERIOUS INJURY.

8.6.1 Description and Rating of Housing 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 requires feeder wiring at the site. The following paragraphs describe the wiring and grounding of electrical feeders.

8.6.1.1 Proper Feeder Wiring and Junction Box Material and Size

The main breaker and the label on the electrical distribution panel give the feeder current capacity and amperes. Using this information, determine the required feeder size from the tables at Figure 8.12. These sizes are based on an ambient temperature of 86° F and do not take voltage drop into consideration.

8.6.1.2 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 panel to a point under the floor. Install an approved conduit fitting or junction box at the termination point.

8.6.2 Grounding of Homes with Feeder Connections

8.6.2.1 Necessity

The home must be grounded properly to protect the occupants. The only safe and approved method to ground 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.

8.6.2.2 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 8.6.3.2 to achieve proper grounding.

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. Warning: If a range, dryer or other appliance is purchased by the home owner the bonding screw or strap that grounds the connector block (neutral) to the frame of the appliance must be removed and discarded before the appliance is used. Be sure to keep neutral and ground separate. Use only a four wire pigtail. On multi-sections the frame is required to be bonded/grounded together, locate the ground wire located on the outrigger at marriage line (See Figure 8.9) and install as shown. This bonding connection is made with a #8 AWG bare copper wire between parts, using approved grounding lugs with bolts, star washers and nuts, or self-tapping screws that are shipped with the home.

8.6.2.3 Unacceptable Methods of Grounding Homes

Grounding to 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.

8.6.3 Connection Methods

Connections should be made only by a qualified electrician. Connect homes equipped for 100 amp or greater service by the following method.

8.6.3.1 Underside Junction Box Feeder

A raceway from the main panel board 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 panel board. Refer to Figure 8.12 for conductors 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 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 Nation Electric Code. Use a moisture-proof bushing at the end of the conduit from which the buried cable emerges.

8.6.3.2 Service Equipment Meter Base

Either an overhead or underground entrance may be used. The exterior equipment and enclosure must be weatherproof, and conductors must be suitable for use in wet locations. When a meter is installed on the home, connect the neutral (white) conductor to the system neutral (white) conductor on the supply side of the main disconnect. Refer to Figure 8.14 for typical meter base installation and on method of grounding the service equipment. The homeowner must provide the grounding electrode conductor(s). The grounding electrode shall be an 8' length of 5/8" diameter 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 an additional bonding wire to underground metallic water pipes, ground rings, additional ground rods, etc. to prevent buildup of hazardous voltages.

8.6.4 Crossover Connections

Refer to Figure 8.10 for typical crossover wiring connections, for multi-section homes (located along the centerline between

sections). Crossover locations can be distinguished by metal junction boxes and/or plug-in connectors. The conductors and/or plug-in connectors will be marked with circuit numbers for easy identification. Do not interconnect circuits or cross conductors. All wire connections should be made inside the junction box(es) or with plug-in crossover connectors.

8.6.5 System Test Procedures and Equipment

8.6.5.1 Pre-Connection Tests

Conduct both of the following tests before any electrical power is supplied to the home.

8.6.5.1.1 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.

8.6.5.1.2 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); and the home's frame. On multi-section 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.**

8.6.5.2 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.**

8.6.5.2. 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.

8.6.5.2.2 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 all receptacles requiring GFCI protection has been interrupted, and follow the manufacturer' s instructions. Replace any GFCI that does not operate properly.

8.6.5.2.3 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 re-testing.

8.6.5.2.4 Smoke & Carbon Monoxide Alarms

INTERCONNECTED TESTING, only the red LED of the alarm which senses the smoke or is being tested (originating unit) will flash rapidly. All other units in the interconnect system will sound an alarm but their red LED'S will not flash rapidly.

TESTING: Test by pushing the test button on the cover and hold for a minimum of 2 seconds. This will sound the alarm if all the electronic circuitry, horn and battery are working. If no alarm sounds, check the fuse or circuit breaker supplying power to the

alarm circuit. If the alarm still does not sound, the unit has defective batteries or other failure. DO NOT use an open flame to test your alarm, you could damage the alarm or ignite combustible materials and start a structure fire.

8.7.1 Bottom Board Patching

Below are listed three different patching methods which, depending on such factors as size and/or location of tear, type of tear, location of home, etc. offer the manufacturer, dealer, or home owner, a reasonable means of resealing the bottom board. The patch should be 3" larger on each side of the tear, cut, hole etc.

8.7.1.1 Using 3M double face tape #F950, patches may be constructed of any shape and size utilizing scrap pieces of bottom board or other suitable material . The tacky side of the tape is affixed to the patch material and when ready for positioning, the release sheet is removed thereby exposing the other tacky side. The patch should be applied to the damaged area taking care to exert pressure on taped surfaces. Standard stocking size is 3" x 60 yards. It is available in inch increments up to 48" on special order.

8.7.1.1 A 2" pressure sensitive tape, Tuck #91B or equivalent is available for patching the occasional small tears and cuts which may occur during set up.

8.7.1.2 Outward Flare Tacker, An air operated tool Model LN3045 manufactured by Senco Products, Inc. suitable for either transverse of longitudinal floor construction. It may be used either in the plant or on erection site. The patch should first be affixed to the bottom using Tuck #91B or equivalent, (described in method #8.7.1.1) to secure the perimeter and then fastened on the perimeter at 3" intervals. Use the staples described in Senco Bulletin M-100.

8.8.1.1 Inspection Panels

The bottom board material shall be cut at the factory for the purpose of drain line P-trap or clean out inspection panels, then

patched as above and marked with a red "X". A patch that has been removed must be replaced with one of the above procedures, or a plywood patch that has been painted or sealed to resist moisture and fastened to floor joist with 4 screws. (Please remember to remark the access cover with a red "X" once finished so that the cover can be located again.)

8.8.1.2 If the above materials are not available, plywood that has been painted or sealed to resist moisture may be used for the inspection panel. The plywood panel must be large enough to cover the opening and fastened to the adjacent floor joist with 4 screws.

8.8.1.3 Site installer shall run the relief valve outlet to the exterior of the home, between six and twenty-four inches above the finished grade, and face down at termination. It shall not terminate underneath the home. Materials, supports, adhesive and components have been provided by the manufacturer.

8.9.1 **Optional Tape and Textured Walls**

Complete installation of all unfinished gypsum board walls and/or ceilings as follows:

1. Install panels.

Install ship loose gypsum panels using a 1/4 inch diameter bead of adhesive on all framing members and minimum 1-1/2 inch long drywall screws, nails, or staples at six inches o.c. along panel edges and 12 inches o.c. in the field into framing members.

2. Mud seams.

Mud and tape all seams and corners, filling all fastener depressions. Follow mud manufacturer's directions.

3. Texture.

Apply desired texture pattern using typical tools of the trade.

4. Paint.

When the final coat of texture is dry, prime and paint all unfinished gypsum board to preferred paint color.

5. Install trim and molding materials after painting.



FIGURE 8.3 - DRAINPIPE SUPPORT METHODS

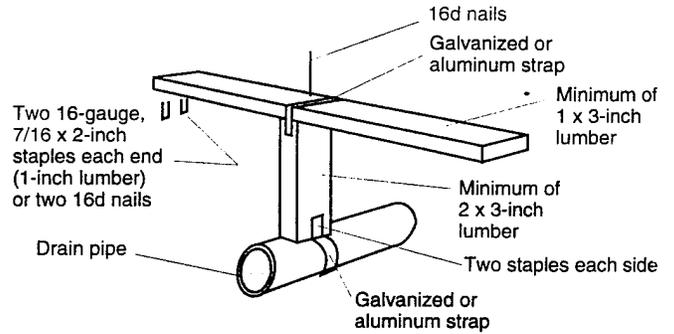
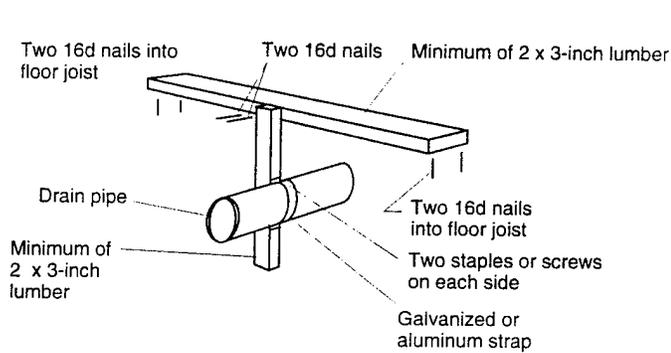
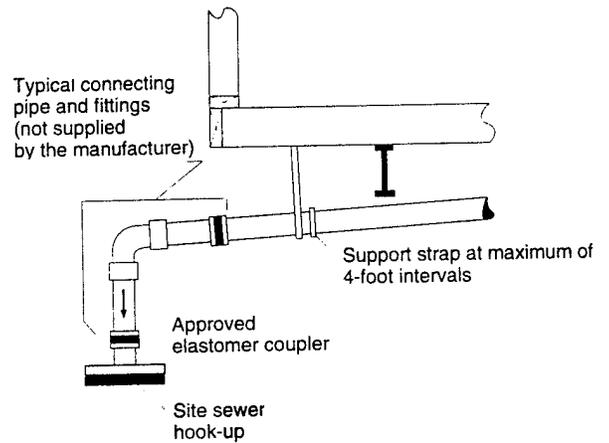
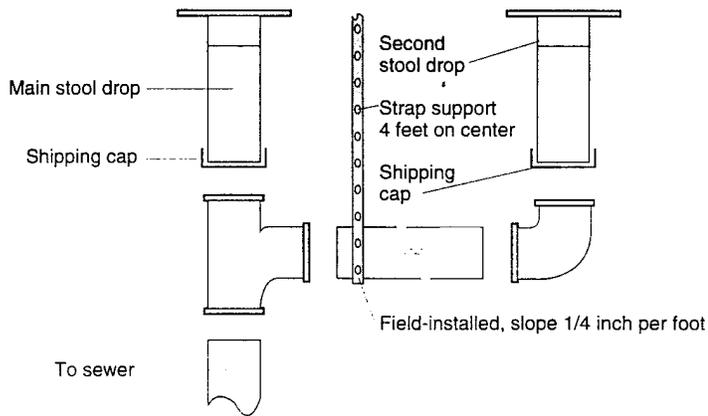


FIGURE 8.4 - DRAINAGE SLOPE & CONNECTIONS

FIGURE 8.5 CONNECTION TO SITE SEWER



Note: Fittings in the drainage system that are subject to freezing, such as P-traps in the floor, have been protected with insulation by the manufacturer. Insulation must be replaced if it is removed to gain access to the P-trap. All exposed drain line shall be protected from freezing with a min. R-4 insulation. All of the necessary material for the proper connection i.e. piping, fittings, cement, straps and fasteners and a copy of the drain line drawing will be found inside the home.

FIGURE 8.6 DRAIN LINE CROSSOVER CONNECTION

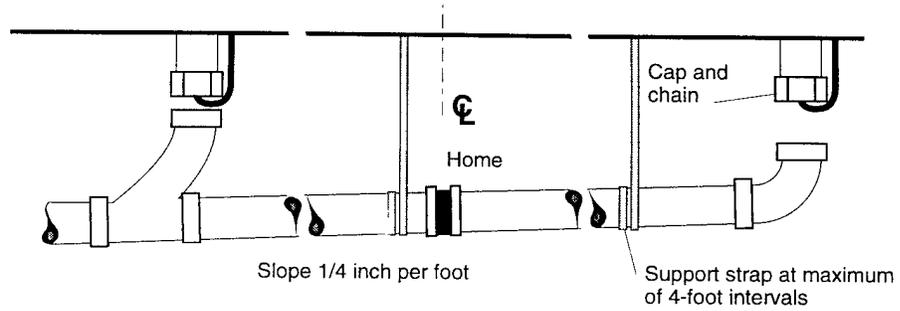
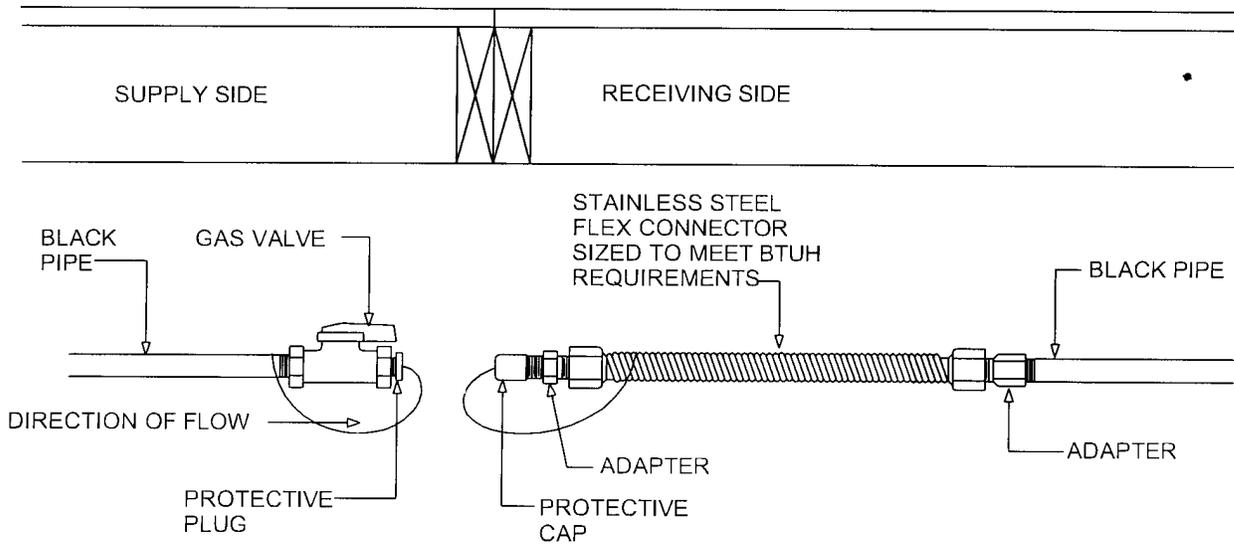
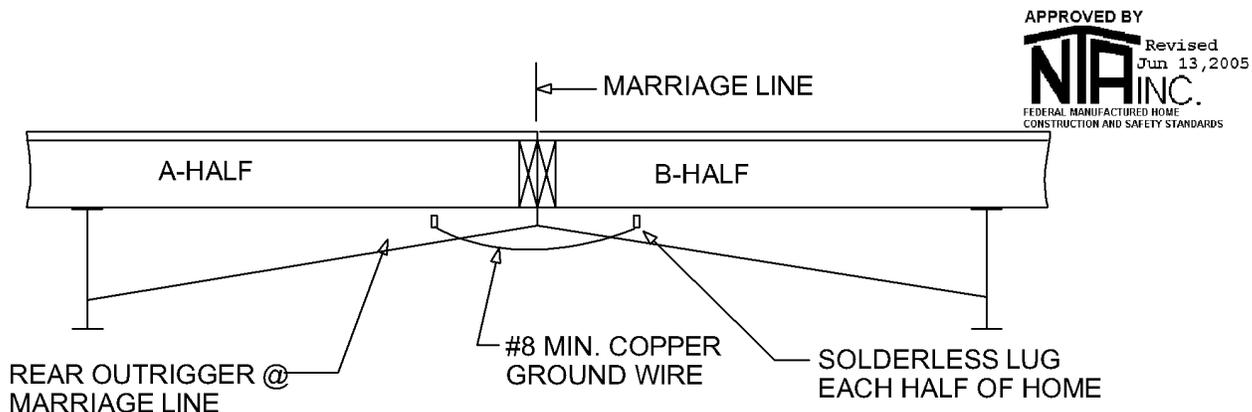


FIGURE 8.7 TYPICAL GAS LINE CROSSOVER



PROCEDURE:
 REMOVE PROTECTIVE PLUG AND CAP.
 CONNECT ADAPTER TO GAS VALVE.
 TEST GAS LINE BEFORE CONNECTING THE GAS SUPPLY LINE.

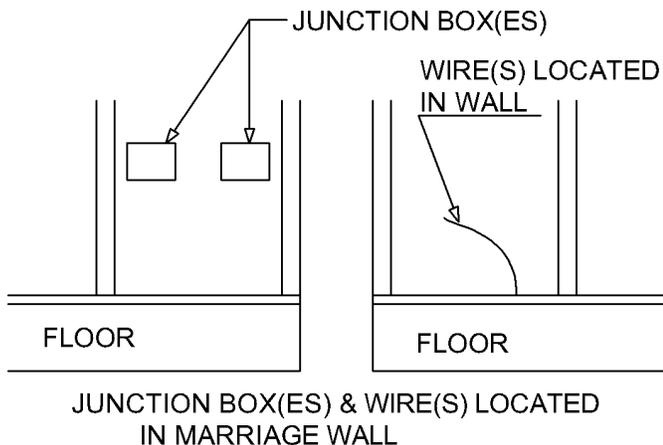
FIGURE 8.9 MULTI-SECTION FRAME BONDING



PROCEDURE:

1. UNCOIL AND TAKE LOOSE END OF GROUND WIRE AND SECURE TO SOLDERLESS LUG ON ADJOINING SECTION OF HOME.
2. MAKE SURE SCREW IN SOLDERLESS LUG IS TIGHT AGAINST GROUND WIRE.
3. LOCATE AGAINST OUTRIGGER FOR PROTECTION.

FIGURE 8.10 ELECTRICAL CROSSOVER AT MARRIAGE WALL



PROCEDURE:

1. LOCATE WIRE(S) IN MARRIAGE WALL WITH APPROVED WIRE NUTS ATTACHED.
2. REMOVE BLANK COVERS FROM JUNCTION BOX(ES) EXPOSING WIRING WITH APPROVED WIRE NUTS ATTACHED.
3. WIRING ON BOTH SECTIONS HAVE IDENTIFI-ABLE MARKING (CIRCUIT #) FOR CORRECT CONNECTIONS OF CIRCUITS.
4. REMOVE THE WIRE NUTS FROM THE WIRING IN THE JUNCTION BOX(ES) AND IN THE OTHER SECTION OF HOME AND CONNECT THE SAME IDENTIFIED CIRCUITS TOGETHER. USE KNOCK OUTS AND APPROVED CLAMPS TO ENTER BOX(ES) AND SECURE WIRES WITH APPROVED WIRE NUTS. SECURE WIRING ENTERING THE BOX(ES) WITH- IN 8" OF THE BOX(ES) WITH ROMEX STAPLES.

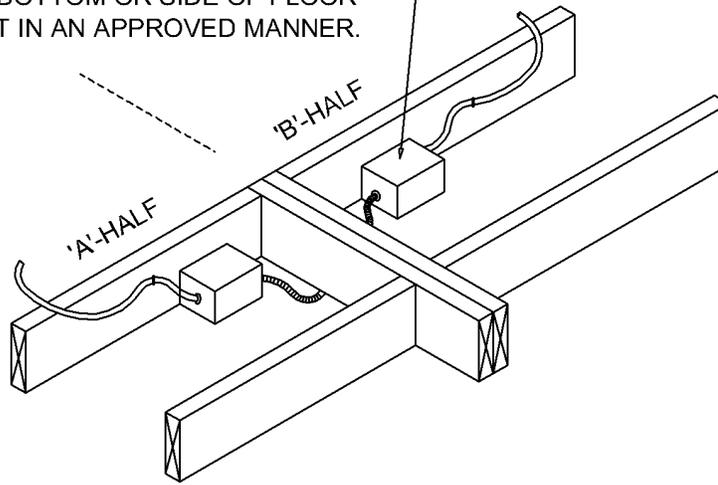
NOTE:

SOME HOMES MAY HAVE MORE THAN ONE CROSSOVER. CHECK ALONG MARRIAGE LINE FOR ADDITIONAL CROSSOVERS.

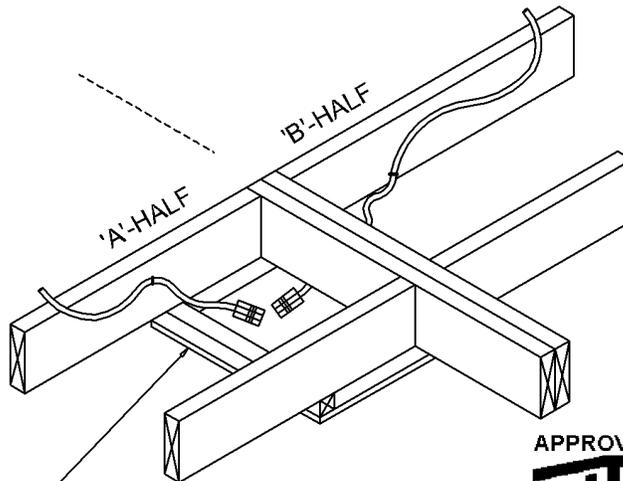
ALTERNATIVE: USE OF A LISTED QUICK CONNECT DEVICE IS ACCEPTABLE FOR 12-2 WIRE OR LESS.

FIGURE 8.10 - ELECTRICAL CROSSOVER (CONTINUED)

TYPICAL JUNCTION BOX ON EACH SIDE OF THE UNIT. SECURE TO THE BOTTOM OR SIDE OF FLOOR JOIST IN AN APPROVED MANNER.



METHOD 'A'



BOX OR COVER TO BE WATERPROOFED WITH PAINT OR EQUIVALENT. FASTENING IS NOT CRITICAL. IF THIS METHOD IS USED, THE BOX OR COVER IS TO BE SHIPPED WITH THE HOME.

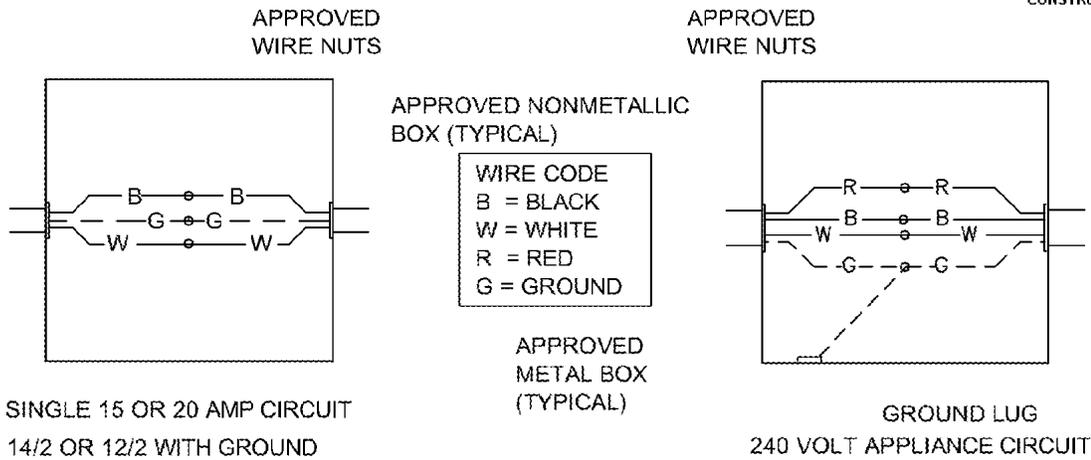
METHOD 'B'

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IF MORE THAN (1) WIRE IS USED FOR CROSSOVERS, THEY SHALL BE COLOR CODED WITH TAPE, PERMANENT MARKERS, PAINT ETC. CROSSOVER WIRES TO BE PROTECTED WITH FLEX CONDUIT IF THE WIRE IS EXPOSED BELOW THE FLOOR. IF AMP CONNECTORS OR EQUIVALENT ARE USED, THE FLEX CONDUIT MAY BE OMITTED IF A BOTTOM BOARD PATCH, BOX, COVER, ETC. IS USED TO COVER THE WIRES TO PROTECT THEM FROM THE ELEMENTS.

FIGURE 8.10 ELECTRICAL CROSSOVER (CONTINUED)



CAUTION
 DO NOT INTERCONNECT CIRCUITS OR CROSS CONDUCTORS. ALL WIRE CONNECTIONS SHOULD BE MADE INSIDE THE JUNCTION BOX(ES) OR WITH PLUG-IN CROSSOVER CONNECTORS.

CAUTION
 VERIFY THAT ALL CROSSOVER CIRCUITS PROTECTED BY A GFCI DEVICE (GROUND FAULT INTERRUPTER) ARE CONNECTED TO THE PROPER CIRCUIT CONTINUATION BY IDENTIFYING THE CORRECTLY MARKED CIRCUIT WIRES.

NOTE:
 THIS HOME MAY BE SHIPPED WITH ONE OR MORE PLUG-IN CONNECTORS. THESE CONNECTORS ARE TO BE SNAPPED TOGETHER ON SET-UP. CONNECTORS WILL BE MARKED WITH CORRECT CIRCUIT NUMBER TO PREVENT MIXING OF CIRCUITS.

FIGURE 8.11 ELECTRICAL FEEDER & UTILITY SERVICE CONNECTION

WARNING
 MANUFACTURED HOME FEEDER CONDUCTORS SHALL CONSIST OF A PERMANENTLY INSTALLED FEEDER CONSISTING OF FOUR, INSULATED COLOR-CODED CONDUCTORS THAT SHALL BE IDENTIFIED BY THE FIELD MARKING OF THE CONDUCTORS IN COMPLIANCE WITH THE 2005 NATIONAL ELECTRIC CODE. DO NOT USE A 3 WIRE FEEDER SYSTEM THAT DOES NOT CONNECT TO THE GROUND BAR. IT IS ILLEGAL AND UNSAFE AND MAY CAUSE FIRE OR SERIOUS INJURY.

BE SURE TO KEEP NEUTRAL AND GROUND SEPARATE.

SEE TABLE BELOW FOR WIRE SIZES.

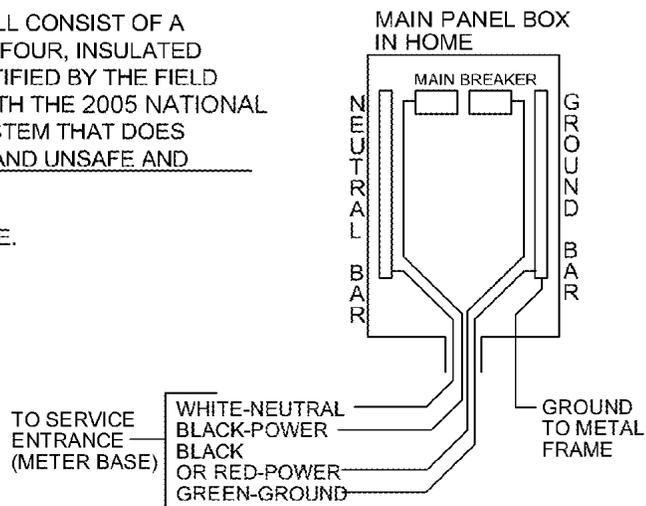


FIGURE 8.12 - ELECTRICAL FEEDER & EQUIPMENT SIZES

ELECTRICAL FEEDER AND EQUIPMENT SIZES

FEEDER SIZE (SEE MAIN BREAKER AND LABEL ON DIS- TRIBUTION PANEL) (AMPS)	JUNCTION BOX (IN.)	MINIMUM SIZES		FEEDER CONDUCTOR SIZES			
		CONDUIT (IN.)		COPPER CONDUCTORS (NOTE 1)	COPPER GROUND	ALUMINUM CONDUCTORS	ALUMINUM GROUND
		COPPER CONDUCTORS	ALUMINUM CONDUCTORS				
100	10X10X4	1 1/2	1 1/2	AWG 4	8	AWG 2	6
125	12X12X6	1 1/2	2	2	6	1/0	4
150	12X12X6	1 1/2	2	1	6	2/0	4
200	12X12X6	2	2	2/0	4	4/0	2

NOTE 1. FEEDER CONDUCTOR SIZES FOR 75°C INSULATION.

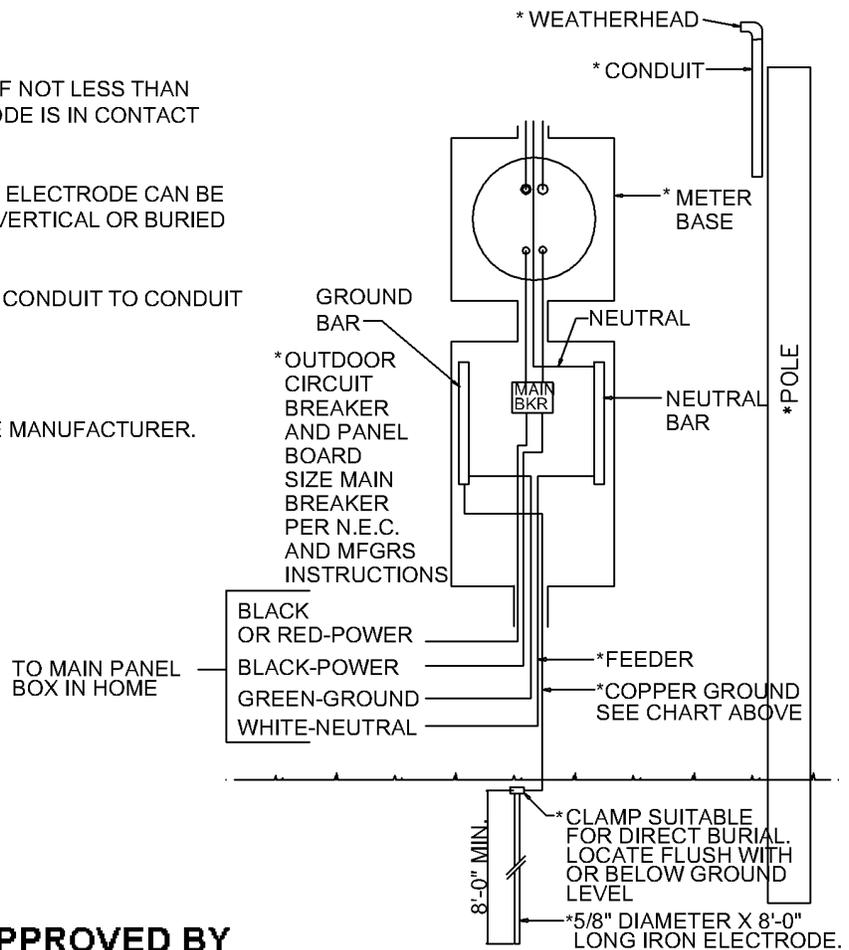
NOTE 2. CONDUCTOR TYPES RH-RHH-RHW-THHW-THW-THWN-THHN-XHHW-USE

ELECTRODE SHALL BE DRIVEN TO A DEPTH OF NOT LESS THAN 8'-0" SO THAT AT LEAST 8'-0" OF THE ELECTRODE IS IN CONTACT WITH THE SOIL.

WHEN ROCK BOTTOM IS ENCOUNTERED, THE ELECTRODE CAN BE DRIVEN NOT TO EXCEED 45 DEGREES FROM VERTICAL OR BURIED IN A TRENCH THAT IS AT LEAST 2'-6" DEEP.

FEEDER-RUN ALL FOUR INSULATED WIRES IN CONDUIT TO CONDUIT IN MAIN PANEL BOX IN HOME.

*NOT PROVIDED BY NOR INSTALLED BY HOME MANUFACTURER.



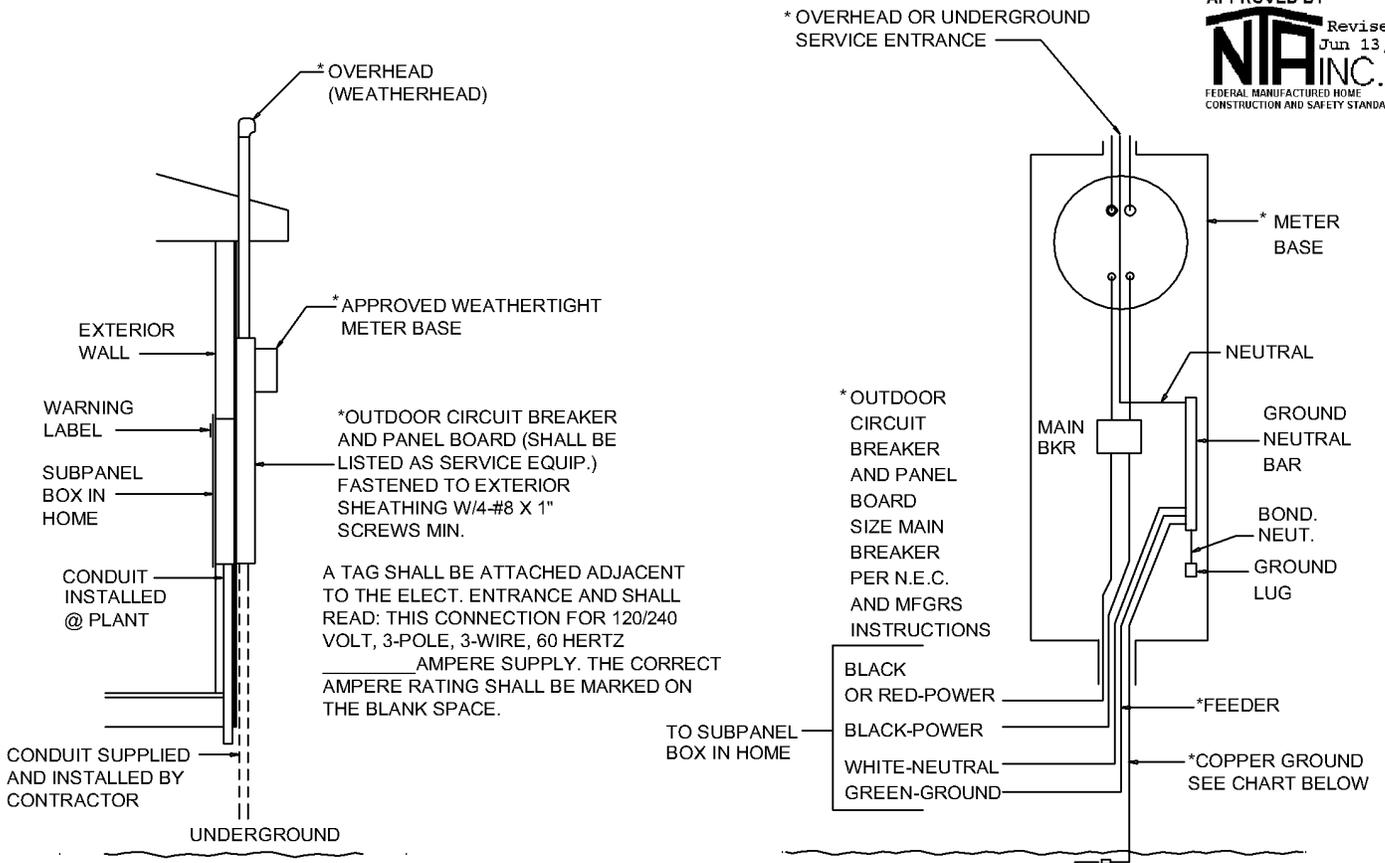
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FIGURE 8.14 - ON SITE METER BASE INSTALLATION AND GROUNDING

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*NOT PROVIDED BY NOR INSTALLED BY HOME MANUFACTURER.

1. A RED WARNING LABEL SHALL BE MOUNTED ON OR ADJACENT TO THE SERVICE EQUIPMENT. THE LABEL SHALL STATE: "WARNING DO NOT PROVIDE ELECTRICAL POWER UNTIL THE GROUNDING ELECTRODE IS INSTALLED AND CONNECTED. (SEE INSTALLATION INSTRUCTIONS).
2. THE METER BASE SHALL NOT BE USED TO SUPPORT THE CONDUIT. SUPPORT THE CONDUIT WITH STRAPS OR EQUIVALENT.
3. FOR UNDERGROUND AND OVERHEAD DISTRIBUTION SYSTEMS SEE THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. EXTERIOR EQUIPMENT AND ENCLOSURE MUST BE LISTED FOR EXTERIOR USE AND INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS.
5. CHECK WITH LOCAL CODES AND ELECTRICAL UTILITY COMPANY TO VERIFY METER BASE REQUIREMENTS AND REGARDING LOCATIONS AND DISTANCES FOR METER BASE AND CIRCUIT BREAKER AND PANEL BOARD.
6. ELECTRODE SHALL BE DRIVEN TO A DEPTH OF NOT LESS THAN 8'-0" SO THAT AT LEAST 8'-0" OF THE ELECTRODE IS IN CONTACT WITH THE SOIL.
7. WHEN ROCK BOTTOM IS ENCOUNTERED, THE ELECTRODE CAN BE DRIVEN NOT TO EXCEED 45 DEGREES FROM VERTICAL OR BURIED IN A TRENCH THAT IS AT LEAST 2'-6" DEEP.
8. FEEDER-RUN ALL FOUR INSULATED WIRES IN CONDUIT TO CONDUIT IN MAIN PANEL BOX IN HOME.

COPPER CONDUCTOR SIZE 75' WIRE

SERVICE (AMPS)	WIRE SIZE (AWG)			CONDUIT SIZE
	FEEDER	GROUND	NEUTRAL	
100	#4	#8	#8	1 1/4"
200	#2/0	#6	#1	2"

Chapter 9 - Final Inspection

Make a final inspection when the 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, Drain, & Gas Systems

Make sure all water, drain, and gas systems work properly and do not leak. The water system (supply) must be inspected and tested for leaks after completion at the site. The drainage piping must be inspected and tested for leaks after completion at the site. The gas line system must be inspected and tested for leaks after completion at the site. Any leak found in these systems must be repaired.

After repair, the system must be re-tested.

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 a 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

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.

9.9 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 Bottom Board

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.

9.12 Ground Cover

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

9.13 Anchor 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. The retailer's representative should inspect the home with the Homeowner's Manual and brief the homeowner about maintaining the home.

9.15 The electrical system

The electrical system must be inspected and tested. Operational, Continuity, and polarity tests must be performed. Any failure found in the electrical system must be repaired.

After repair, the system must be re-tested.

9.16 Gutters and Downspouts

This home is suitable for the installation of gutters and downspouts.

9.17 Chassis Modification

No field modification of the manufactured home chassis is allowed.

9.18 Verify Alternative Construction (AC) &/or Site Construction (SC) Inspection

If your home was built under either an AC or SC construction, the letters "AC" or "SC" will be in the serial number of the home, and an additional inspection is required. The serial number is stamped on the front header of the chassis and is also located on the data plate and the paperwork that came with your home. This inspection process is normally the responsibility of the retailer and manufacture; however, the installation of the home is not complete, and the home cannot be occupied until the alternative construction inspection or site construction inspection has been passed and documented. If the letters "AC" or "SC" are not in the serial number of your home, no additional inspections are required, and the home may be occupied.

9.19 Appliance Manuals

Operating instructions for each appliance must be provided with the homeowner's manual. An additional copy of the operating instructions must be provided with each appliance unless the appliance is affixed with a permanent Quick Response (QR) Code.



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 ENOUGH TEMPORARY WOOD BLOCKING IS USED, 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, you may be responsible for the cost for bringing the home into compliance with the new zone requirements. Check with home's plant of manufacturing, your 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 for more than 30 days or those on retail sales lots, must be blocked to prevent excessive deflection and possible damage. See page I-1.2 in this manual for guidelines.

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 Multi Section Homes

Reinstall temporary structural supports and bracing materials before moving the home. Cover open sides of sections with weatherproof material 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 12' on center.

10.1.8 Voiding Of Warranty

Relocating the home from it's original installation site voids the warranty.

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CONSTRUCTION AND SAFETY STANDARDS

LEGACY HOUSING

INSTALLATION ADDENDUM

THIS HOME IS EQUIPPED WITH ANTI-SCALD VALVES ON THE TUBS AND SHOWERS.

BECAUSE THE WATER TEMPERATURE AND PRESSURE VARIES AT EACH SITE YOU WILL HAVE TO ADJUST THE WATER TEMPERATURE. TO A MAXIMUM OF 120 DEGREES.

THE SHOWER AND TUB/SHOWER ANTI-SCALD VALVES ARE LOCATED BEHIND THE ON/OFF HANDLE. GARDEN TUB ANTI-SCALD VALVES ARE LOCATED INSIDE THE ADJACENT LAVY BASE CABINET.

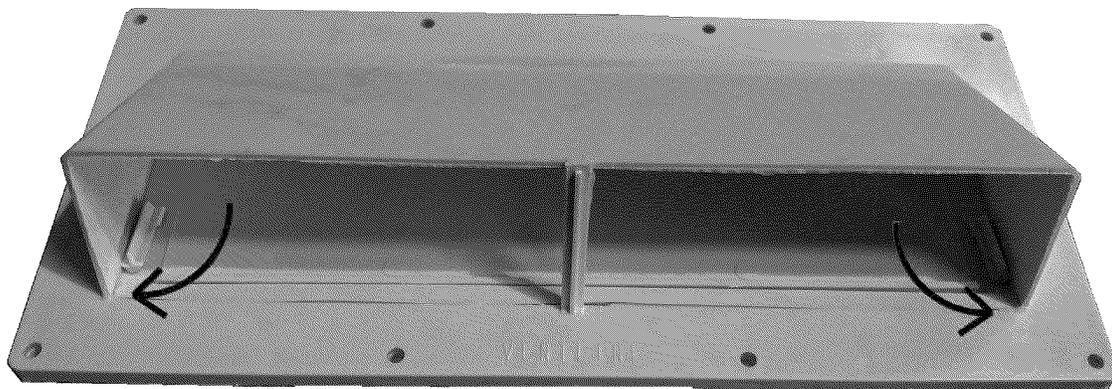
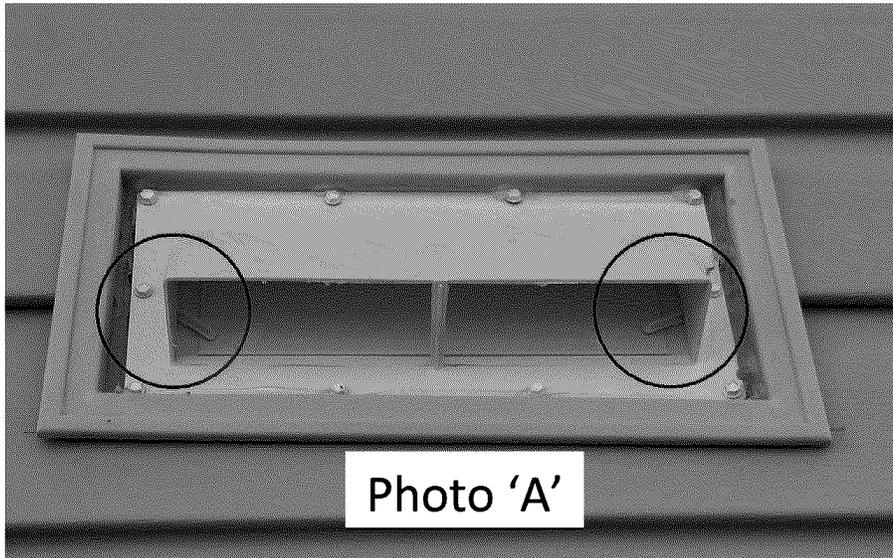
INSTRUCTIONS FOR ADJUSTING THE WATER TEMPERATURE LIMIT ON THE VALVES ARE ATTACHED

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Installation Manual Addendum

Some Legacy Housing homes are designed with the range located on an exterior wall. These homes may have the range vent hood or opt. microwave vented through an exterior wall. These vents have been locked in the closed position for transit. It is necessary to unlock the vent at the time of home installation so air will properly flow to the outside when the range vent is being used. To unlock the vent, locate the two locking tabs as shown in photo 'A'. Rotate the tabs downward as shown in photo 'B'. The vent flap will then be allowed to move properly.



CHAPTER 12
WIND ZONE II AND III
INSTALLATION INSTRUCTIONS

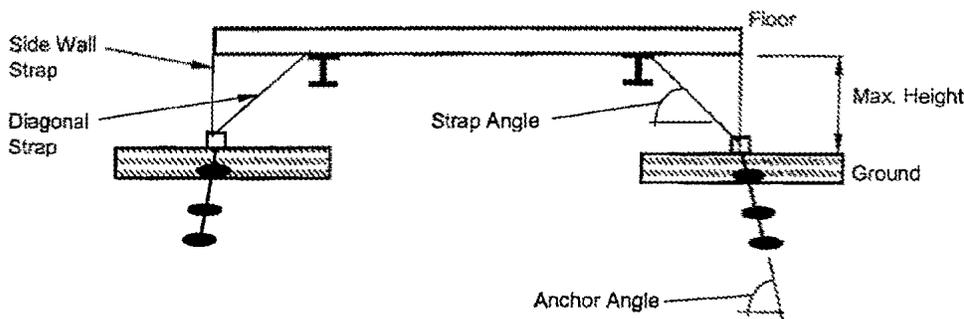
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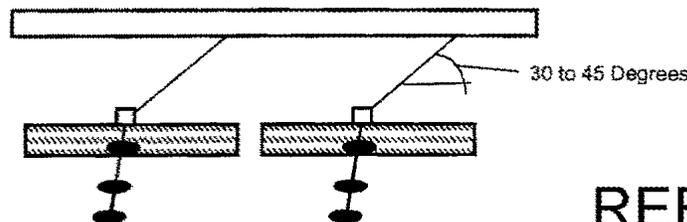
LEGACY HOUSING

TIE DOWN SPACING CHART

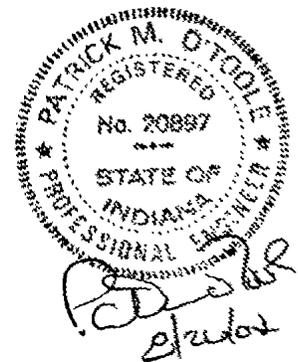
Single / Double	Unit Width (Inches)	I-Beam Spacing (Inches)	Eave (Inches)	Wall Height (Inches)	Max. Roof Pitch	Wind Zone	Max. Height (Inches)	Strap Spacing (Ft. - in.)	Strap Angle (Degrees)	Anchor Load (Lbs.)	Anchor Angle (Degrees)	No. Straps Per End
Single	164	99.5	3	96	4.34 / 12	3	24	5' - 2"	37	4000	55	4
							30	4' - 8"	43	4000	58	4
							36	4' - 3"	48	4000	60	4



Transverse Tiedowns



Longitudinal Tiedowns
(Typical Each End)



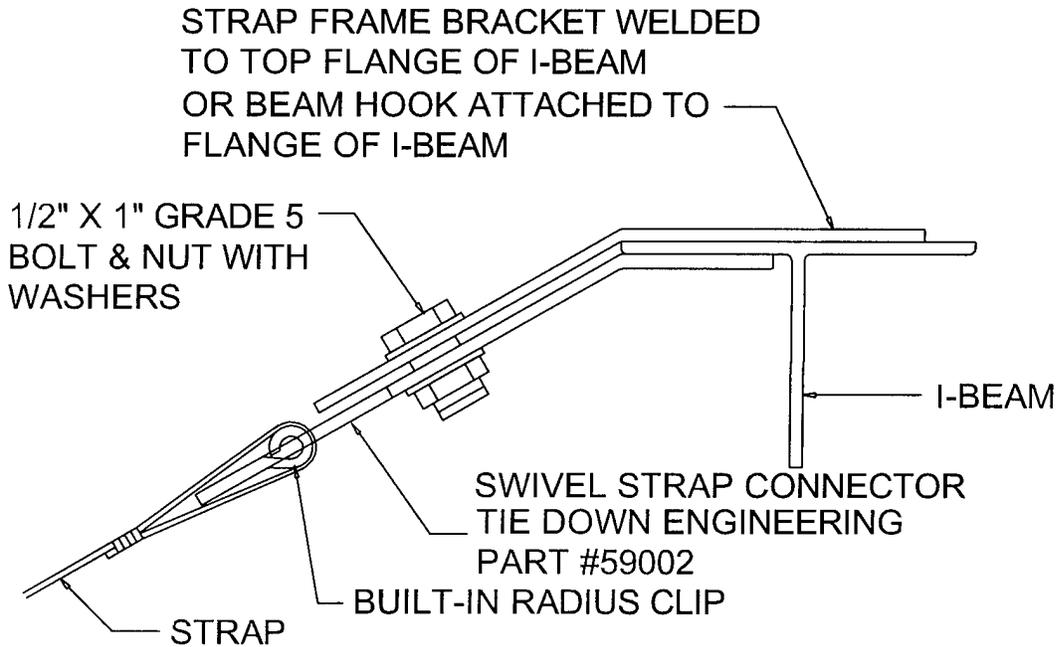
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WIND ZONE 2 AND 3 TIE DOWN SYSTEM NOTES:

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.
4. When anchors are not installed at the angle specified in the table a stabilizer plate must be installed in accordance with the anchor manufacturer's instructions.
5. Frame tie downs and anchors are not supplied by LEGACY HOUSING.
6. Vertical tie straps and/or brackets are supplied by LEGACY HOUSING. Anchors and end treatments are to be supplied by others.
7. Frame ties shall be capable of resisting an ultimate tension load of 4725 lbs and are to be installed per the manufacture's installation instructions.
8. Steel anchoring equipment exposed to the weather shall be protected with at least 0.30 oz. of zinc per square foot of steel.
9. Design based on unit width, I-Beam spacing and a maximum side wall height shown.
10. Longitudinal ties are to be installed per other details and charts.
11. Frame tiedowns are positioned at crossmember location (within 3") when attachment point is at the bottom of the chassis.
12. Anchors to be certified by a professional engineer, architect or 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.
13. Ground anchors to be embedded below the frost line and be at least 12" above the water table. Anchors to be installed to their full depth and are not to extend beyond the side wall of the home.
14. Ground anchors to be rated for 1.5 x anchor capacity or an ultimate load of 4725 lbs.
15. Strapping to be certified by a registered professional engineer, architect or approved testing laboratory to resist these specified forces in accordance with testing procedures in ASTM standards specification D3593-91.
16. shearwall tie down are installed in the plant. A vertical tie down anchor and strap are required at these locations.
17. Minimum pier height shall be 18" and maximum pier height per table for tie spacing.
19. the longitudinal straps must be fastened to the i-beam via an approved method.

SWIVEL STRAP FRAME CONNECTOR

APPROVED BY
NIA INC. Sep 01, 2004
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



ATTACH THE SWIVEL STRAP CONNECTOR TO THE UNDERSIDE OF THE FRAME BRACKET WITH A 1/2" X 1" GRADE 5 BOLT AND NUT WITH WASHERS.

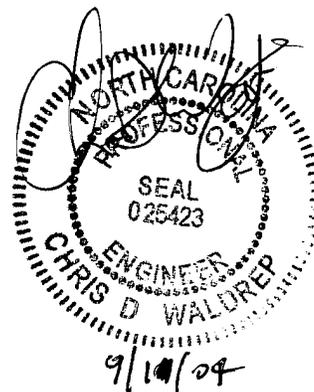
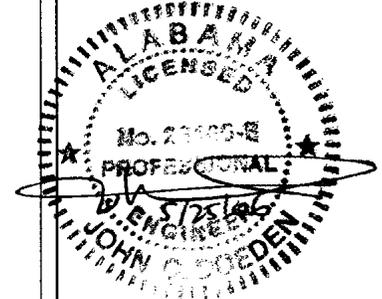
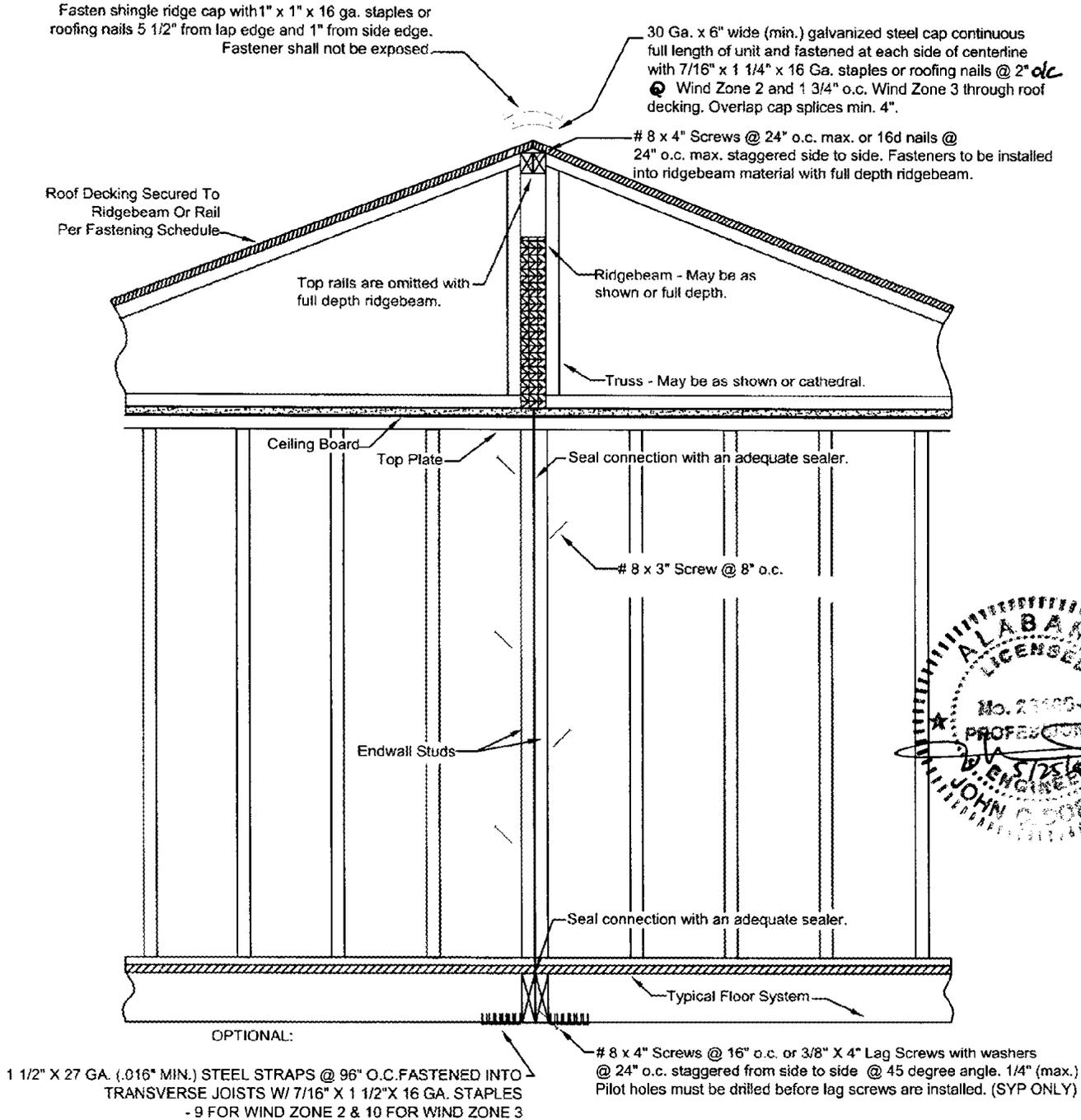


FIGURE 12.10 - Doublewide Onsite Fastening - Wind Zone 2 & 3
20 Degree Max. Roof Slope, 84" Sidewall, 184" Floor Width

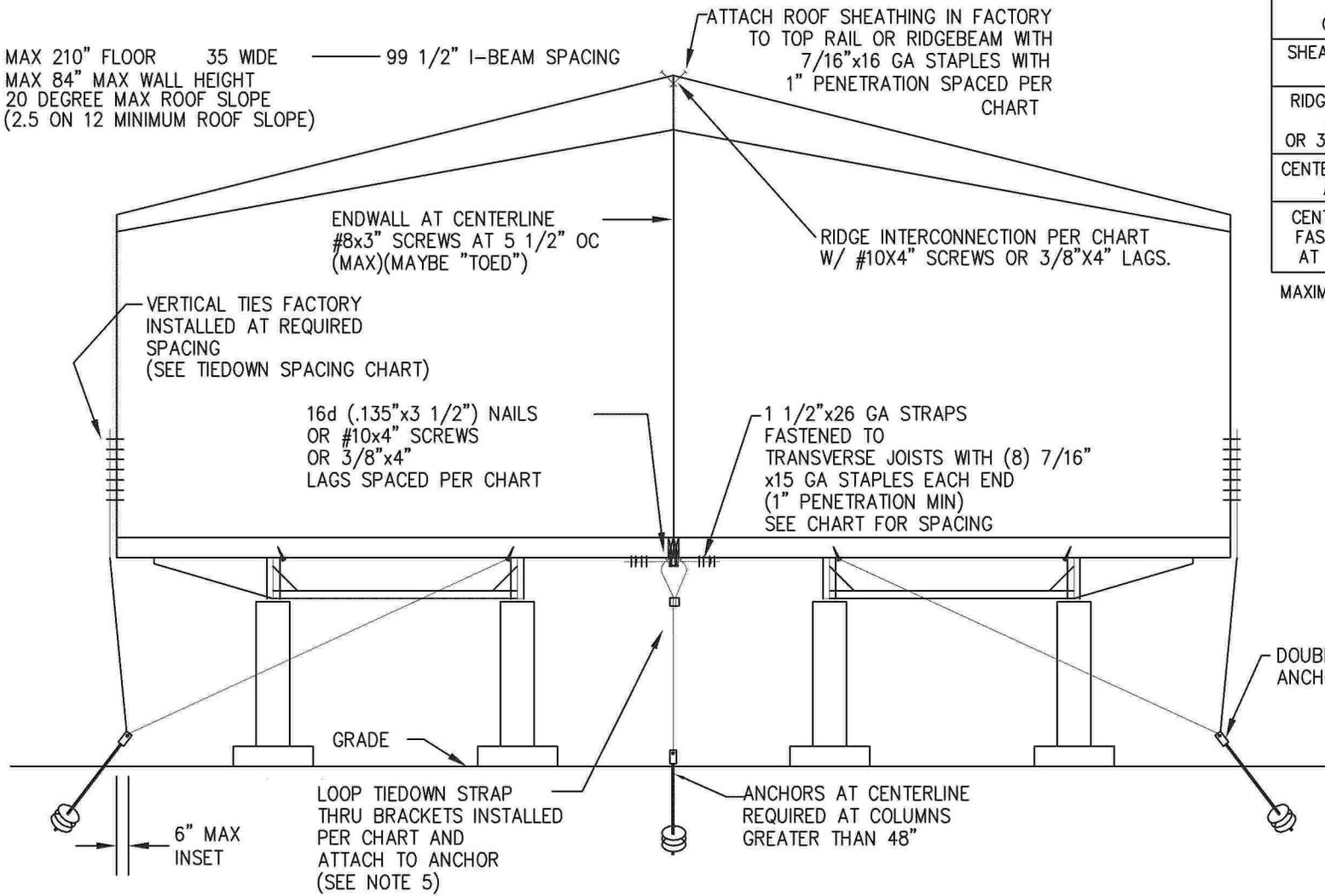


NOTES:

1. Bottom board not shown for clarity. Holes in bottom board must be patched with vinyl tape designed for repairing of holes, cuts, tears.
2. A protective covering material (bottom board, polyethylene, galvanized steel , or similar material may have been installed on top of the shingle roof at the front of the home and along the forward face of any dormer. This material was installed to prevent shingles from blowing off during transit. Holes resulting from fasteners used to secure this material to the roof shall be sealed with roofing cement when material is removed.

MAXIMUM FASTENER SPACING CHART (ALL VALUES ARE O.C.)				
CONNECTION		WIND ZONE 2		WIND ZONE 3
		SLOPE		SLOPE
		20DEG		20DEG
SHEATHING TO TOP RAILS OR RIDGEBEAM		2 1/4"		1 7/8"
RIDGE INTERCONNECTION		8"		6 3/4"
#10x4" SCREWS OR 3/8"x4" LAG SCREWS		12"		10"
CENTERLINE STRAPS AT FLOOR		96"		80"
CENTERLINE FASTENING AT FLOOR	NAILS	22"		20"
	SCREWS	21"		19"
	LAGS	26"		22"

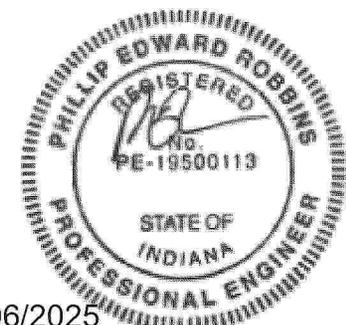
MAXIMUM UNIT LENGTH = 76'-0"



APPROVED BY
NIA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

REVISED
11/14/2025

- NOTES:
- ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 3150# (4725# ULTIMATE).
 - DOUBLE HEADED ANCHORS TO BE RATED FOR THE COMBINED LOAD AND SHOULD BE INSTALLED WITH STABILIZER PLATES.
 - DIAGONAL TIES TO BE INSTALLED FROM I-BEAM AT SAME LOCATIONS AS VERTICAL TIES. REFER TO TABLES STARTING AT 24" FROM EACH END (MAX OPEN END SPACING).
 - MARRIAGE WALL ANCHORS MAYBE SINGLE HEAD WITH A 3150# MIN CAPACITY (4725# ULTIMATE).
 - 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.
FOR 35 WIDES, WIND ZONE 2: MAX. OPENING FOR (1) BRACKET = 16'-4" AND MAX. OPENING FOR (2) BRACKETS = 32'-8".
FOR 35 WIDES, WIND ZONE 3: MAX. OPENING FOR (1) BRACKET = 12'-10" AND MAX. OPENING FOR (2) BRACKETS = 25'-8".
 - 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.



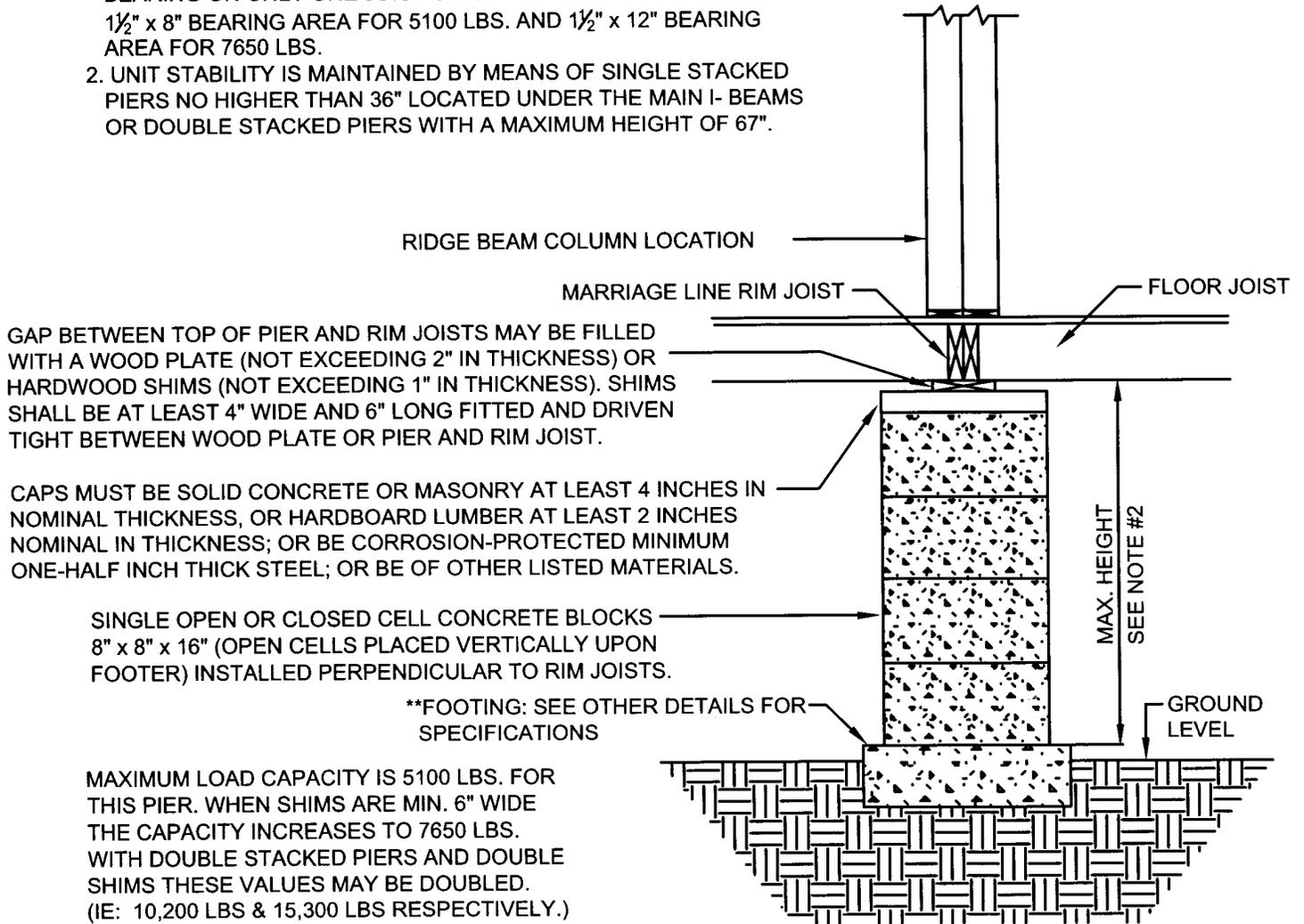
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Legacy Housing, Ltd.

TYPICAL RIDGE BEAM SUPPORT COLUMN PIER

NOTES:

1. THIS DETAIL IS ALSO APPLICABLE TO BLOCKING INSTALLED AT SIDEWALL RIM JOIST LOCATIONS EXCEPT THE MAXIMUM LOAD CAPACITY IS ONE HALF THAT SPECIFIED BELOW WITH BEARING ON ONLY ONE JOIST OR SHIMS MUST PROVIDE 1½" x 8" BEARING AREA FOR 5100 LBS. AND 1½" x 12" BEARING AREA FOR 7650 LBS.
2. UNIT STABILITY IS MAINTAINED BY MEANS OF SINGLE STACKED PIERS NO HIGHER THAN 36" LOCATED UNDER THE MAIN I- BEAMS OR DOUBLE STACKED PIERS WITH A MAXIMUM HEIGHT OF 67".

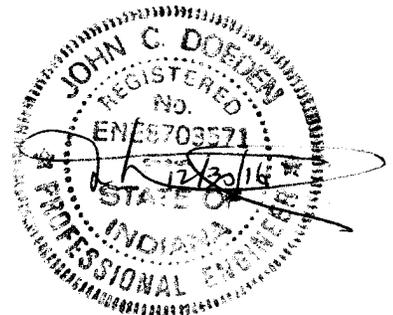


**PLACE BOTTOM OF FOOTING BELOW FROST LEVEL OR MINIMUM 4" BELOW GRADE (WHICHEVER IS GREATEST).

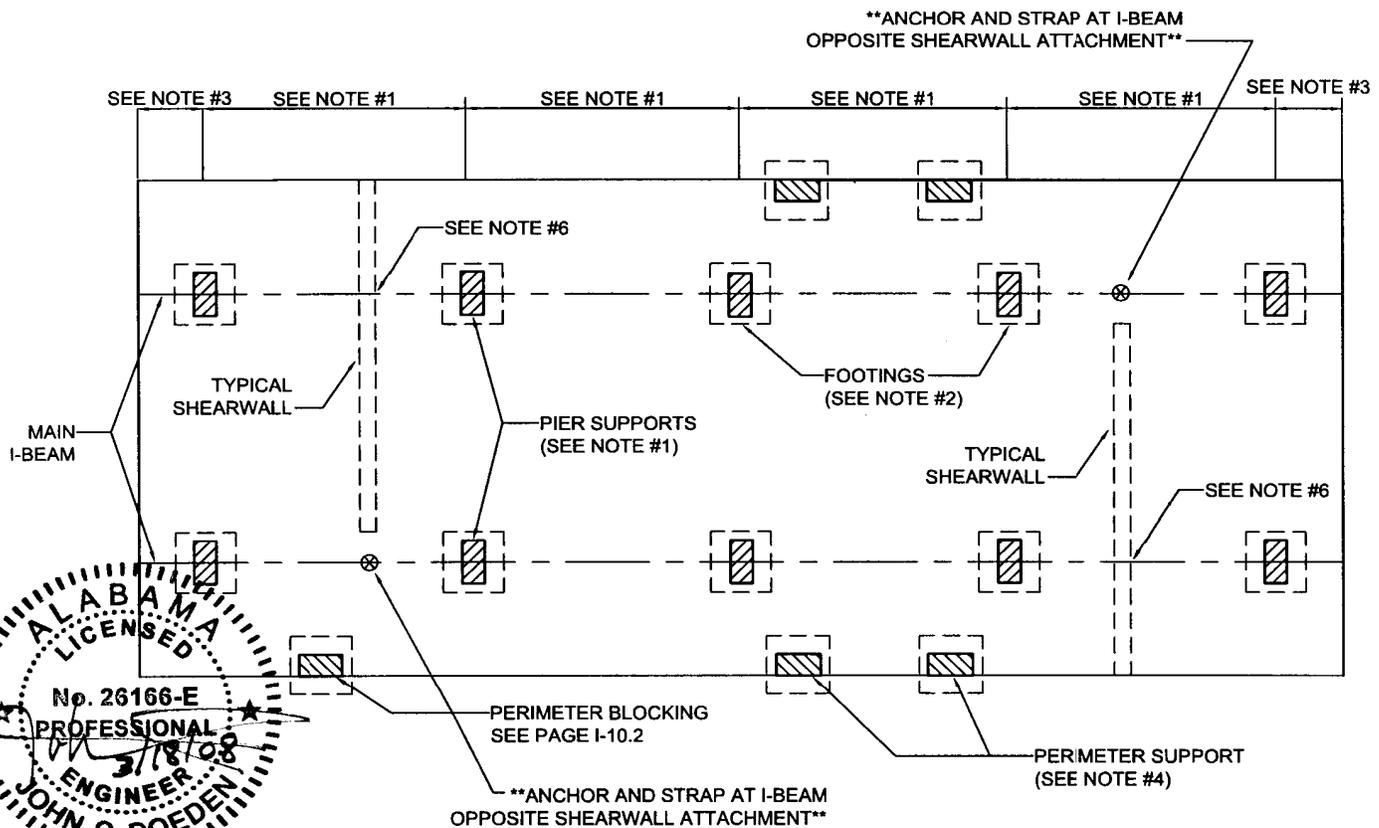
NOTE:

PIER LOCATIONS ARE IDENTIFIED BY LABELS OR PAINT ON THE BOTTOM BOARD AT THE COLUMN SUPPORT LOCATIONS.

APPROVED BY
 REVISOR
 1/25/2017
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS



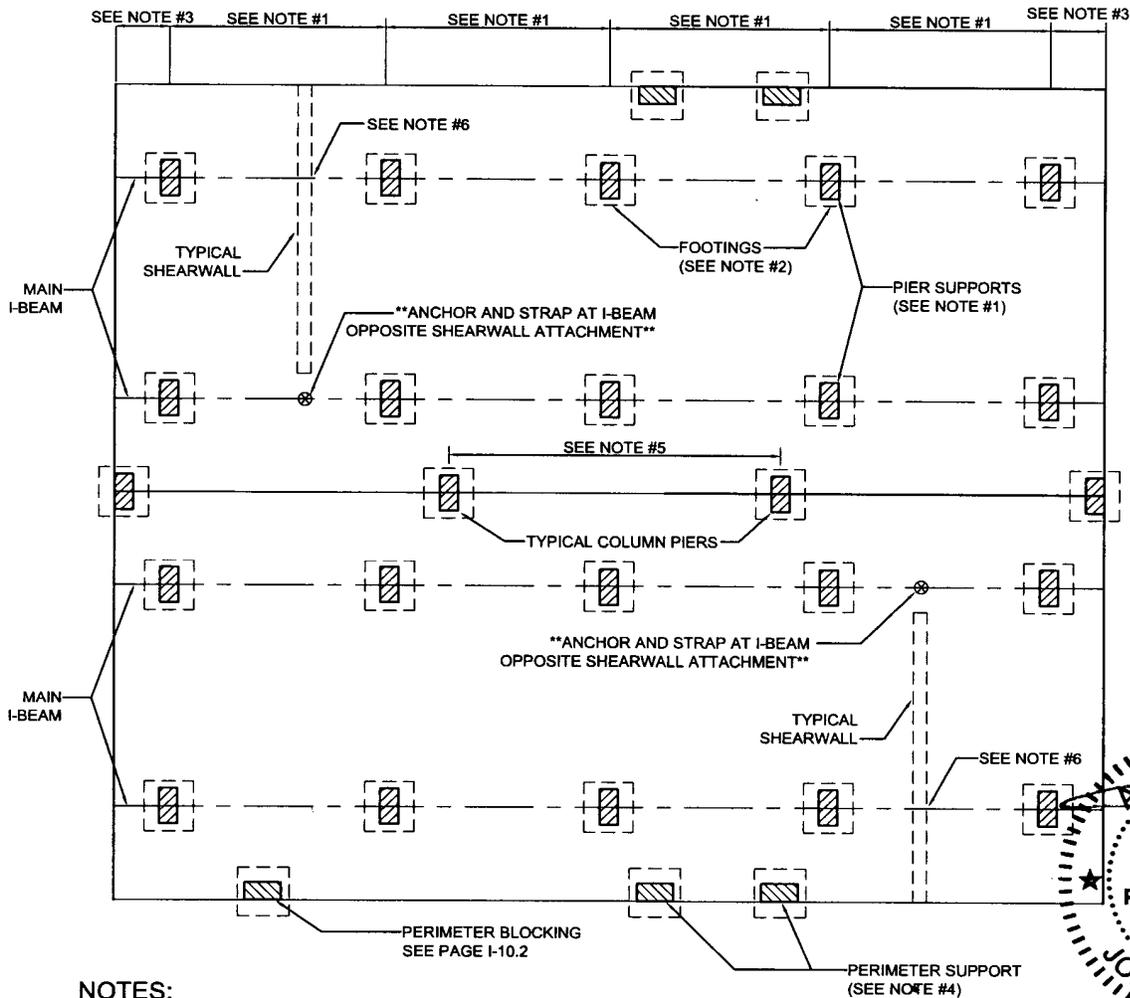
**TYPICAL BLOCKING LAYOUT FOR SINGLE SECTION HOMES
 WIND ZONE 1**



NOTES:

1. SEE OTHER PAGES IN SETUP MANUAL FOR REQUIRED CAPACITY AND SPACING.
 2. SEE OTHER PAGES IN SETUP MANUAL FOR FOOTING REQUIREMENTS.
 3. PIERS SHALL BE LOCATED A MAXIMUM OF 2 FEET FROM BOTH ENDS.
 4. PIERS SHALL BE LOCATED AT EACH SIDE OF ALL PERIMETER OPENINGS FOUR (4) FEET OR WIDER IN WIDTH AS IDENTIFIED BY LABELS. THIS WILL INCLUDE DOORS, WINDOWS, RECESSED ENTRIES, PORCHES, ETC. THESE PIER LOCATIONS ARE REQUIRED TO BE IDENTIFIED BY THE MANUFACTURER OF THE HOME. SEE NOTE 7.
 6. ANCHOR AND STRAP IS REQUIRED AT THE NEAR BEAM WHEN ALTERNATE TIEDOWN SYSTEMS ARE USED (i.e. WHEN THE NEAR BEAM HAS NO DIAGONAL TIES ATTACHED).
 7. LEGACY HOUSING'S METHOD OF IDENTIFYING PIER LOCATIONS FOR THE PERIMETER IS THE ATTACHMENT OF LABELS TO THE BOTTOM BOARD. THE INSTALLER SHOULD VERIFY THESE LOCATIONS ON THE FLOOR PLAN OF THE HOME.
- ** LOCATIONS OF SHEARWALL ANCHORS MAY BE IDENTIFIED BY LABELS ON THE BOTTOM BOARD. IF NONE ARE PRESENT, VERIFY NONE ARE REQUIRED BY REFERRING TO THE HOME'S FLOOR PLAN. ANCHORS AND STRAPS MUST BE INSTALLED IN ACCORDANCE WITH THEIR LISTING.**

**TYPICAL BLOCKING LAYOUT FOR MULTI SECTION HOMES
WIND ZONE 1**



NOTES:

1. SEE OTHER PAGES IN SETUP MANUAL FOR REQUIRED CAPACITY AND SPACING.
2. SEE OTHER PAGES IN SETUP MANUAL FOR FOOTING REQUIREMENTS.
3. PIERS SHALL BE LOCATED A MAXIMUM OF 2 FEET FROM BOTH ENDS.
4. PIERS SHALL BE LOCATED AT EACH SIDE OF ALL PERIMETER OPENINGS FOUR (4) FEET OR WIDER IN WIDTH AS IDENTIFIED BY LABELS. THIS WILL INCLUDE DOORS, WINDOWS, RECESSED ENTRIES, PORCHES, ETC.
5. SEE PAGE I-A-2 FOR PIER CAPACITIES AT MARRIAGE WALL OPENINGS. THESE PIER LOCATIONS ARE REQUIRED TO BE IDENTIFIED BY THE MANUFACTURER OF THE HOME. SEE NOTE 7.
6. ANCHOR AND STRAP IS REQUIRED AT THE NEAR BEAM WHEN ALTERNATE TIEDOWN SYSTEMS ARE USED (i.e. WHEN THE NEAR BEAM HAS NO DIAGONAL TIES ATTACHED).
7. LEGACY HOUSING'S METHOD OF IDENTIFYING PIER LOCATIONS IS THE ATTACHMENT OF LABELS TO THE BOTTOM BOARD. THE INSTALLER SHOULD VERIFY THESE LOCATIONS ON THE FLOOR PLAN OF THE HOME.

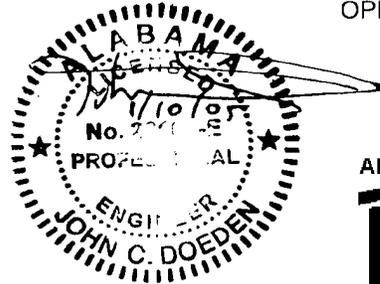
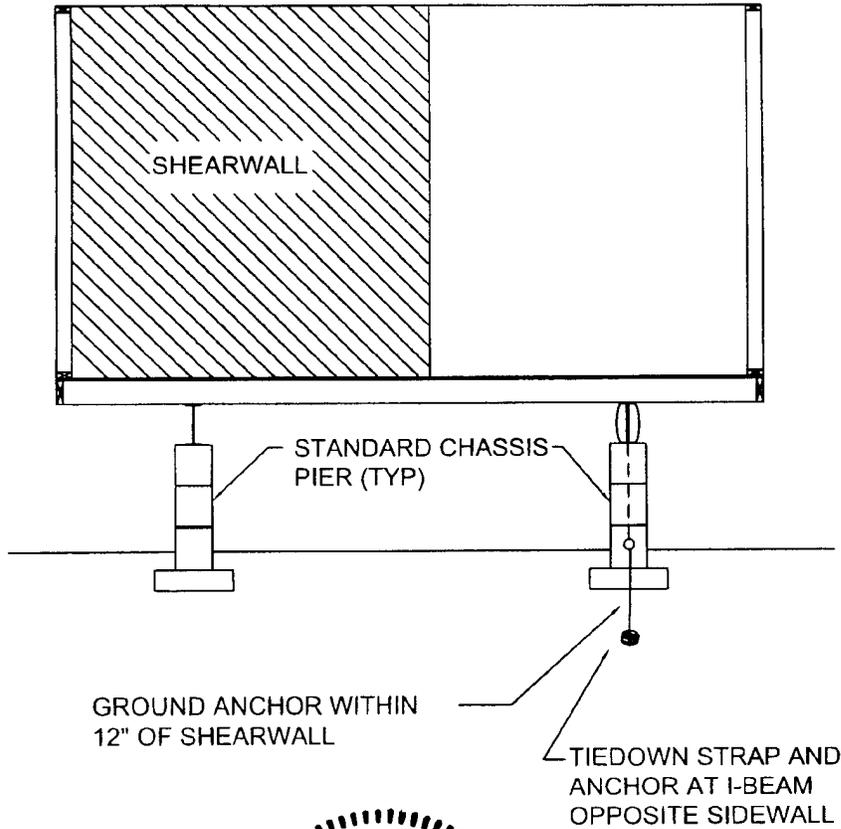
**** LOCATIONS OF SHEARWALL ANCHORS MAY BE IDENTIFIED BY LABELS ON THE BOTTOM BOARD. IF NONE ARE PRESENT, VERIFY NONE ARE REQUIRED BY REFERRING TO THE HOME'S FLOOR PLAN ANCHORS AND STRAPS MUST BE INSTALLED IN ACCORDANCE WITH THEIR LISTING.**

APPROVED BY


 Revised
 Mar 25, 2008
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS



TYPICAL SHEARWALL TIEDOWN INSTALLATION
WIND ZONE 1

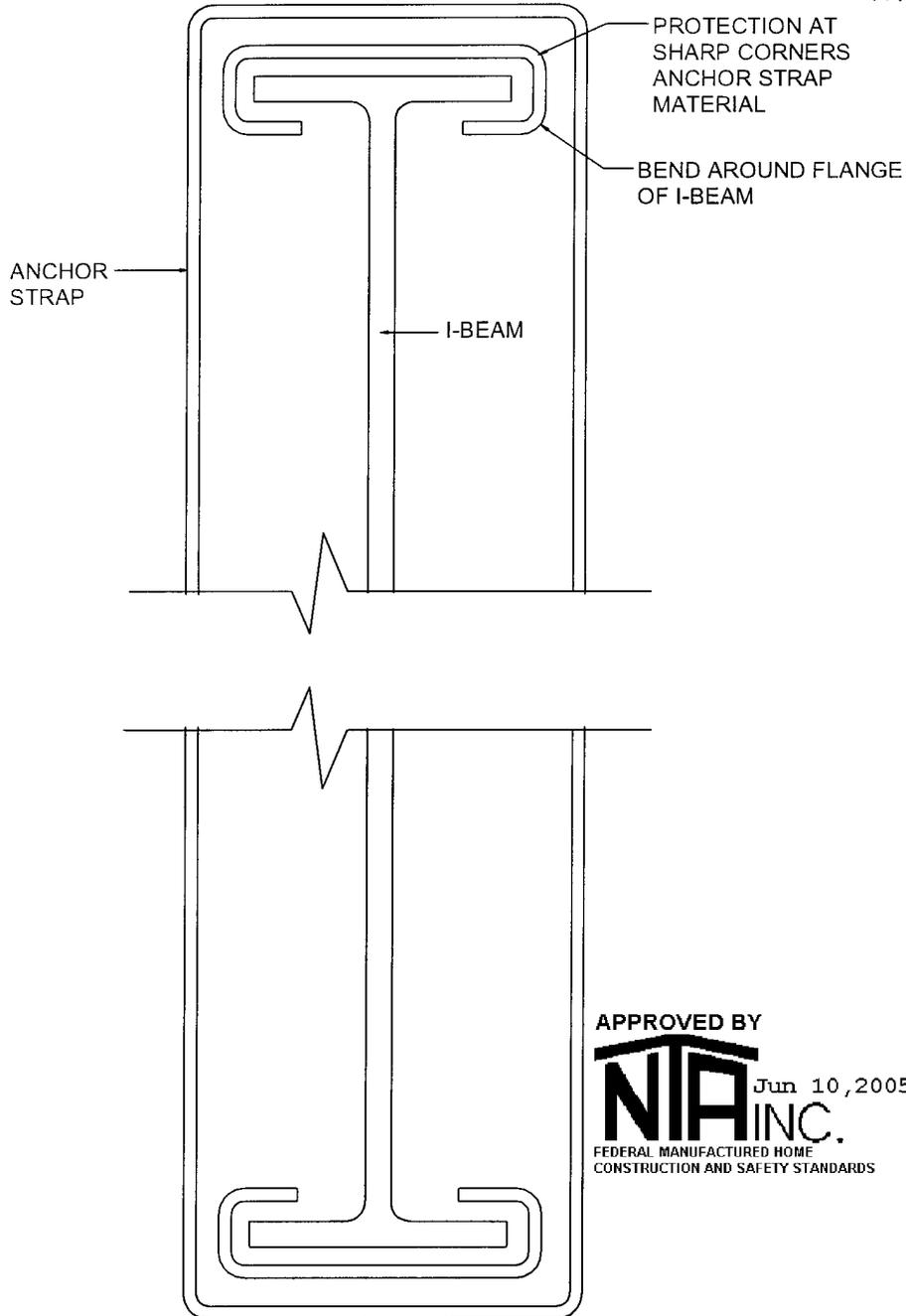
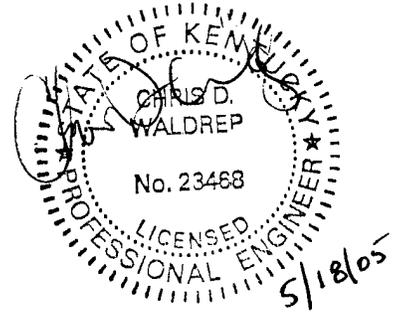


APPROVED BY
NIA INC. Jun 10, 2005
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

NOTES:

1. SHEARWALL LOCATIONS ARE IDENTIFIED BY FACTORY INSTALLED TAGS OR PAINT OR SHIP LOOSE FLOOR PLANS.

PROTECTION OF SHARP CORNERS FOR TIEDOWN STRAPS

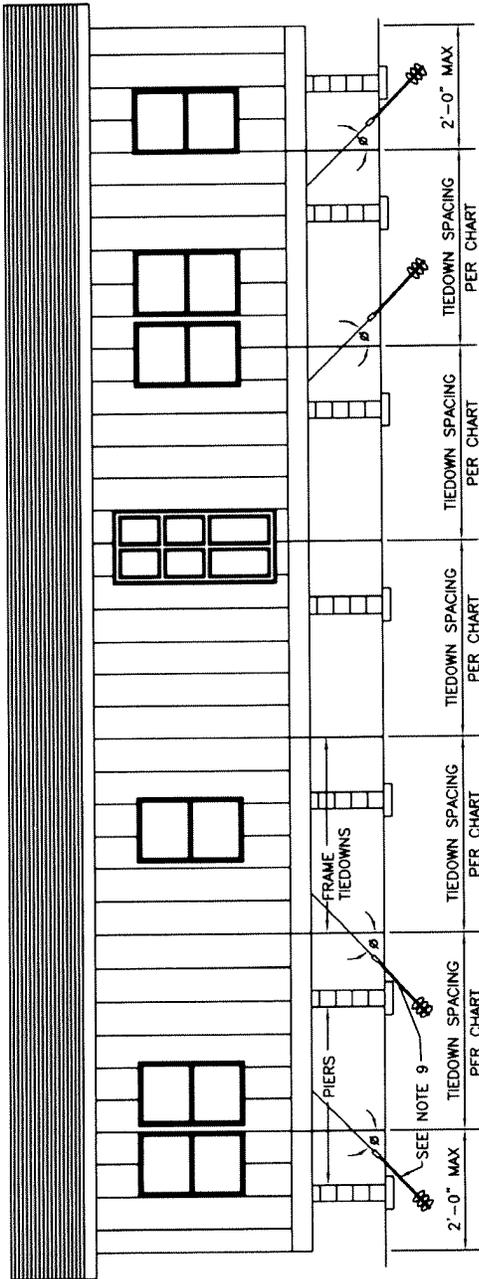


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NIA INC. Jun 10, 2005
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

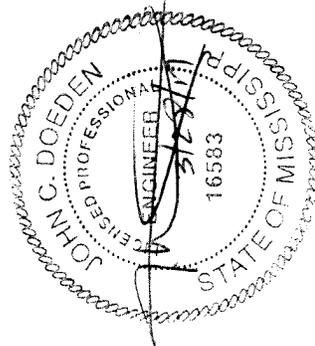
Protection of sharp corners for tiedown straps must be provided at sharp corners, such as where strap is bent around steel I-Beams. Protection is to be provided by means of a piece of anchor strap material placed between I-Beam and strap at sharp corners.

TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH)

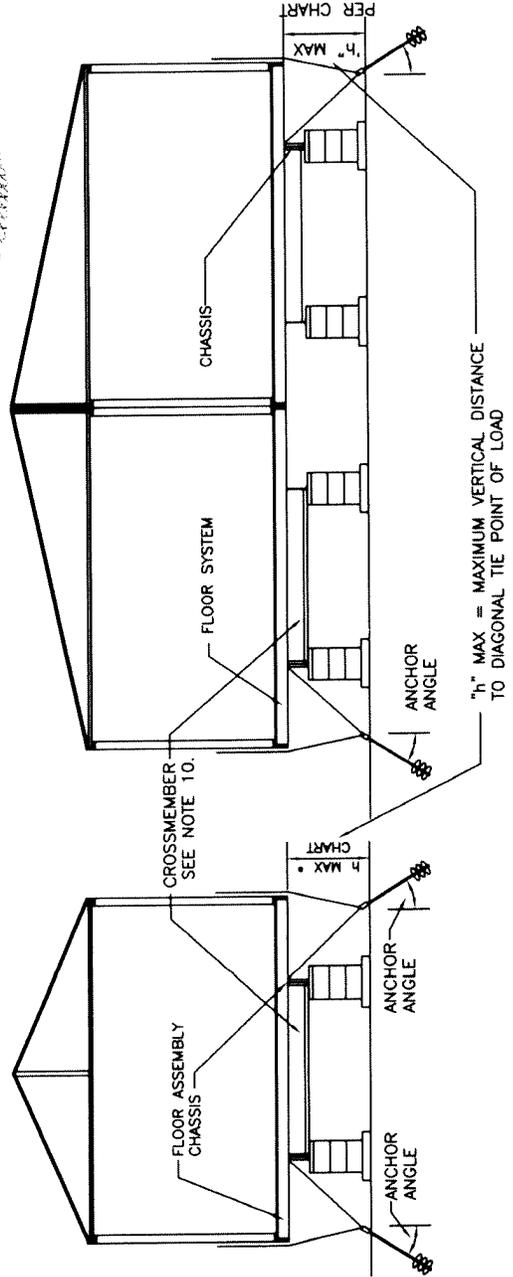
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



APPROVED BY
NIA INC.
 4/7/2017
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



- NOTES:
1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
 2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
 3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE TO A DOUBLE HEADED ANCHOR INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE OR AN APPROVED STABILIZER PLATE MUST BE INSTALLED ACCORDING TO THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
 4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOMES.
 5. APPROVED BRACKETS FOR VERTICAL TIE ATTACHMENT ARE INSTALLED BY LEGACY HOMES. 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 7'-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.
 15. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS. 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".

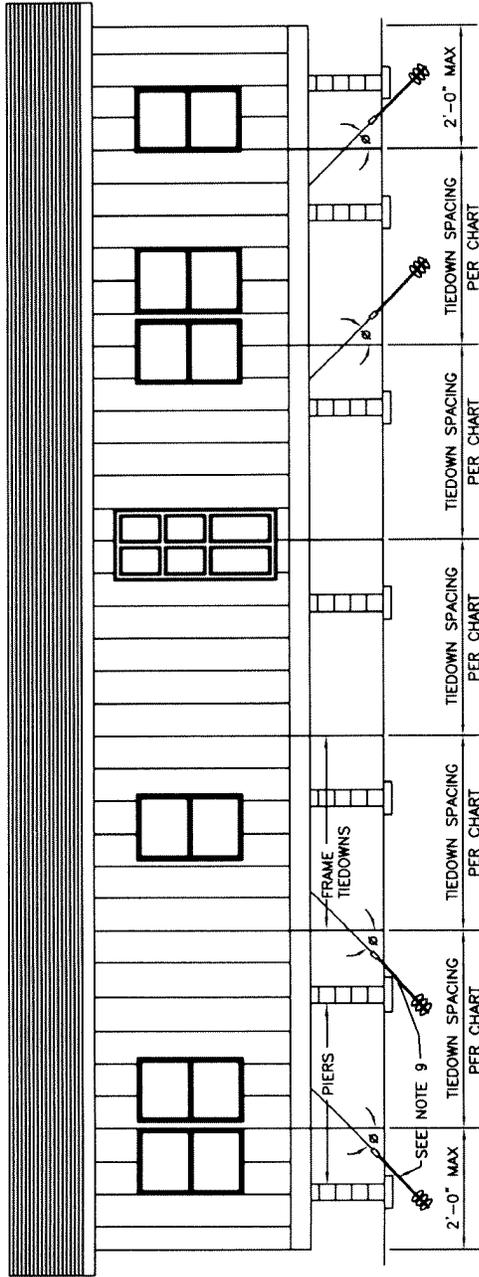
20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)			WIND ZONE 2	
FLOOR WIDTH	EAVE OVERHANG	SPACING	h" MAX	ANCHOR ANGLE
15'-4" SINGLE	8" MAX	6'-8"	30"	30-40
		5'-4"	46"	25-30
30'-8" DOUBLE	8" MAX	6'-8"	29"	30-40
		5'-4"	43"	25-30
17'-6" SINGLE	3"	6'-8"	38"	35-40
		5'-4"	58"	30-35
35'-0" DOUBLE	8" MAX	6'-8"	37"	35-40
		5'-4"	58"	25-30
LONGITUDINAL TIEDOWN QUANTITY CHART				
FLOOR WIDTH	QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE (DEGREES)		
184" MAX SINGLE	4	30-60		
184" MAX DOUBLE	3	42-60		
210" MAX SINGLE	3	43-60		
210" MAX DOUBLE	4	36-60		

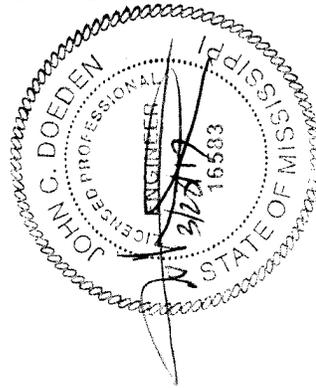
* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

TIEDOWN SYSTEM
WIND ZONE 3 (110 MPH)

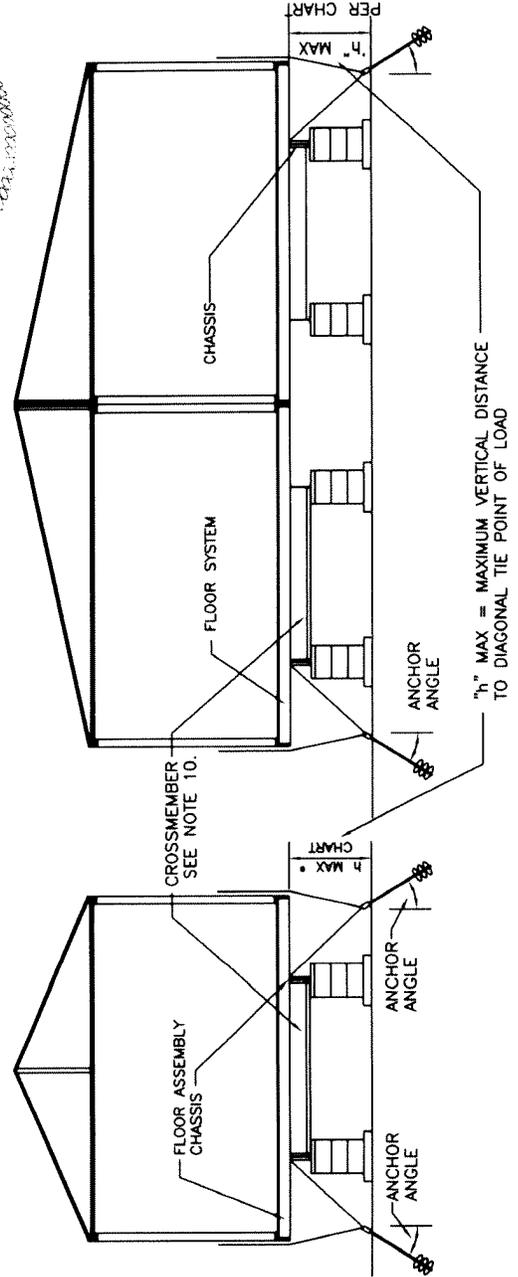
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



APPROVED BY
NTA INC.
4/7/2017
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



- NOTES:
1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
 2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
 3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE TO A DOUBLE HEADED ANCHOR INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE OR AN APPROVED STABILIZER PLATE MUST BE INSTALLED ACCORDING TO THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
 4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOMES.
 5. APPROVED BRACKETS FOR VERTICAL TIE ATTACHMENT ARE INSTALLED BY LEGACY HOMES. 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 7'-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 NATURALLY 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.
 15. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
 16. GROUND ANCHORS TO BE RATED FOR LOAD TABULATED IN CHARTS TIMES 1.5 SAFETY FACTOR OR ULTIMATE LOAD OF 4725# WHICHEVER IS GREATER.
 17. 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".

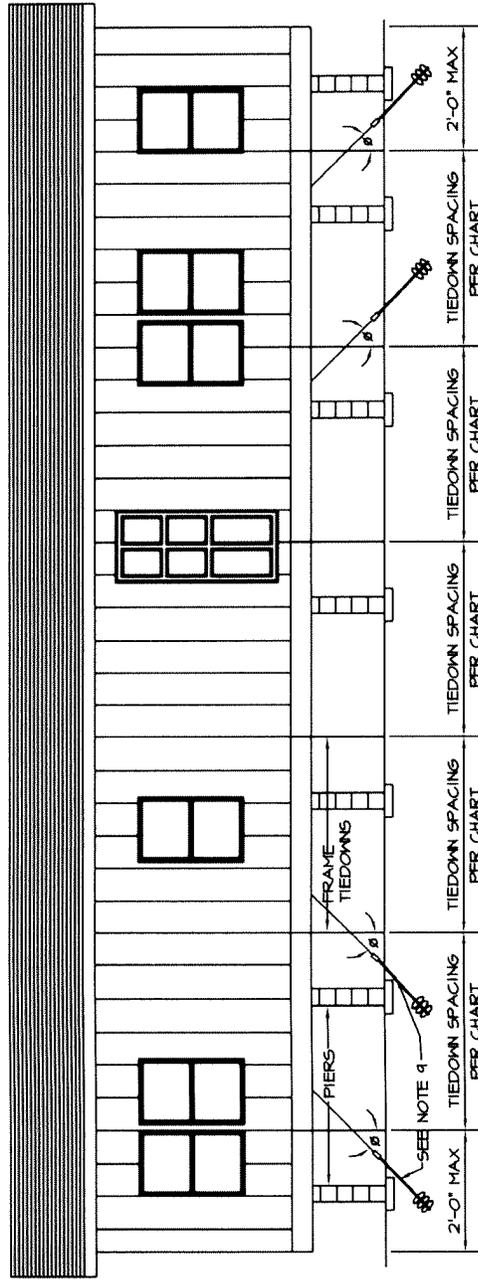
20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)			
FLOOR WIDTH	EAVE OVERHANG	SPACING	"h" MAX ANCHOR ANGLE
15'-4" SINGLE	8" MAX	5'-4"	28°
		4'-0"	52°
30'-8" DOUBLE	8" MAX	5'-4"	28°
		4'-0"	48°
17'-6" SINGLE	3" MAX	5'-4"	40°
		4'-0"	66°
35'-0" DOUBLE	8" MAX	5'-4"	35°
		4'-0"	62°
LONGITUDINAL TIEDOWN QUANTITY CHART			
FLOOR WIDTH	QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE (DEGREES)	
184" MAX SINGLE	4	32-60	
184" MAX DOUBLE	4	39-60	
210" MAX SINGLE	4	38-60	
210" MAX DOUBLE	4	45-60	

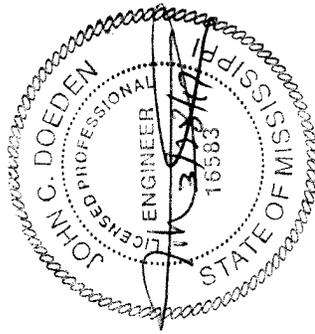
* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH)

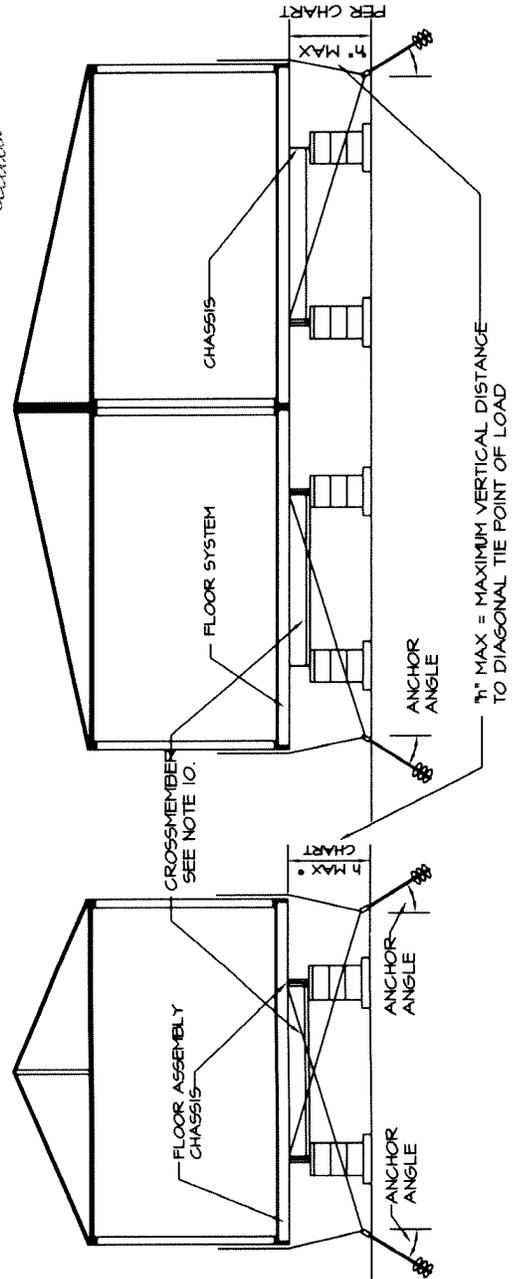
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



APPROVED BY
NIA INC.
4/7/2017
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



- NOTES:
- THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
 - HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
 - EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE TO A DOUBLE HEADED ANCHOR STABILIZER PLATE MUST BE INSTALLED ACCORDING TO THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
 - FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOUSING.
 - APPROVED BRACKETS FOR VERTICAL TIE ATTACHMENT ARE INSTALLED BY LEGACY HOMES, ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
 - 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.
 - 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.
 - DESIGN BASED ON 94-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-6".
 - LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, AND 7.
 - FRAME TIEDOWNS ARE POSITIONED AT CROSSMEMBER LOCATIONS (WITHIN 3') WHEN STRAP COMES OFF BOTTOM FLANGE OF BEAM WITH APPROVED BUCKLE OR LOOP.
 - 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.
 - 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.
 - 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 D9453-97, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
 - GROUND ANCHORS TO BE RATED FOR LOAD TABULATED IN CHARTS TIMES 1.5 SAFETY FACTOR OR ULTIMATE LOAD OF 4725# WHICHEVER IS GREATER.
 - STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .095 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D9453-97, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.

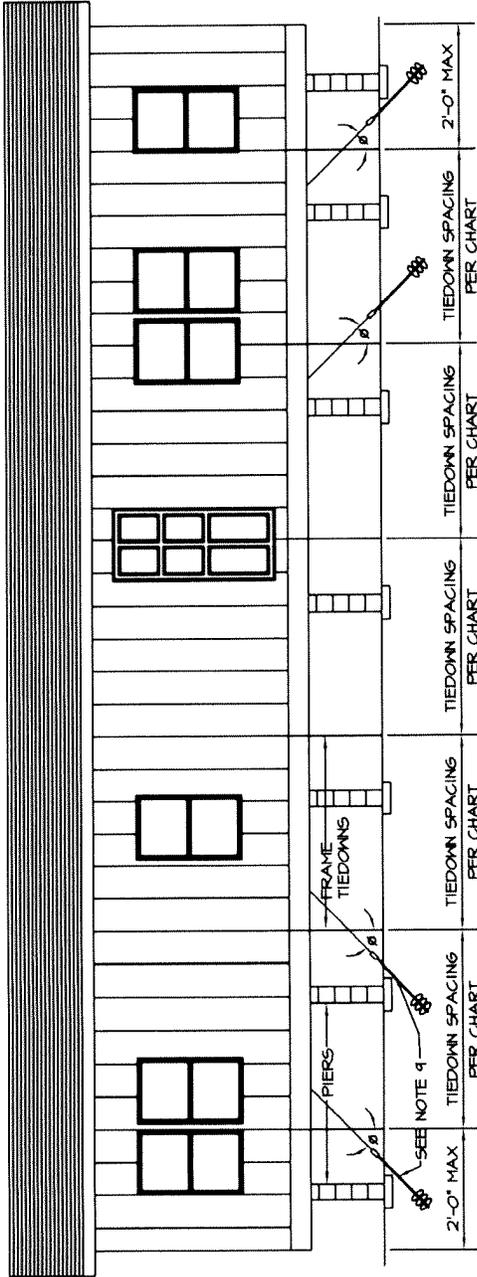
20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)			
FLOOR WIDTH	EAVE OVERHANG	WIND ZONE 3	
		SPACING	T ¹ MAX ANCHOR ANGLE
184" MAX SINGLE	8" MAX	8'-0"	42°
184" MAX DOUBLE	8" MAX	8'-0"	44°
LONGITUDINAL TIEDOWN QUANTITY CHART			
FLOOR WIDTH	QUANTITY (MIN EACH END OF EACH SECTION)		ANCHOR ANGLE (DEGREES)
184" MAX SINGLE	4		30-60
184" MAX DOUBLE	3		44-60

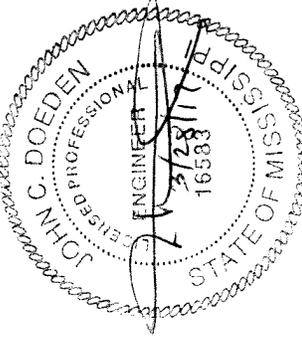
* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE 3 (110 MPH)

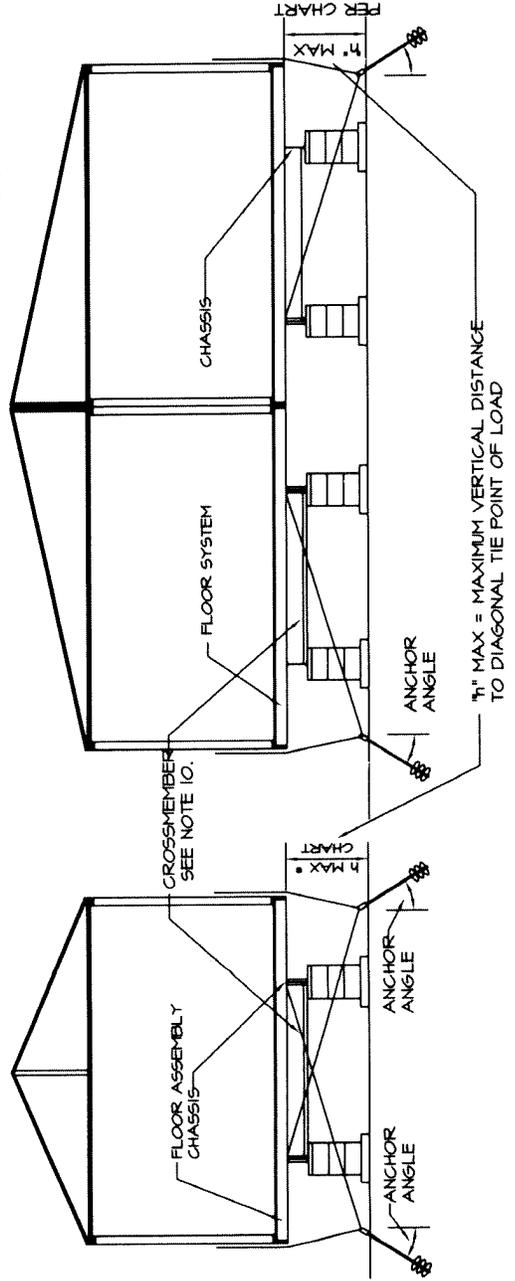
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



• PIER HEIGHT INCLUDES DEPTH OF I-BEAM

NOTES:

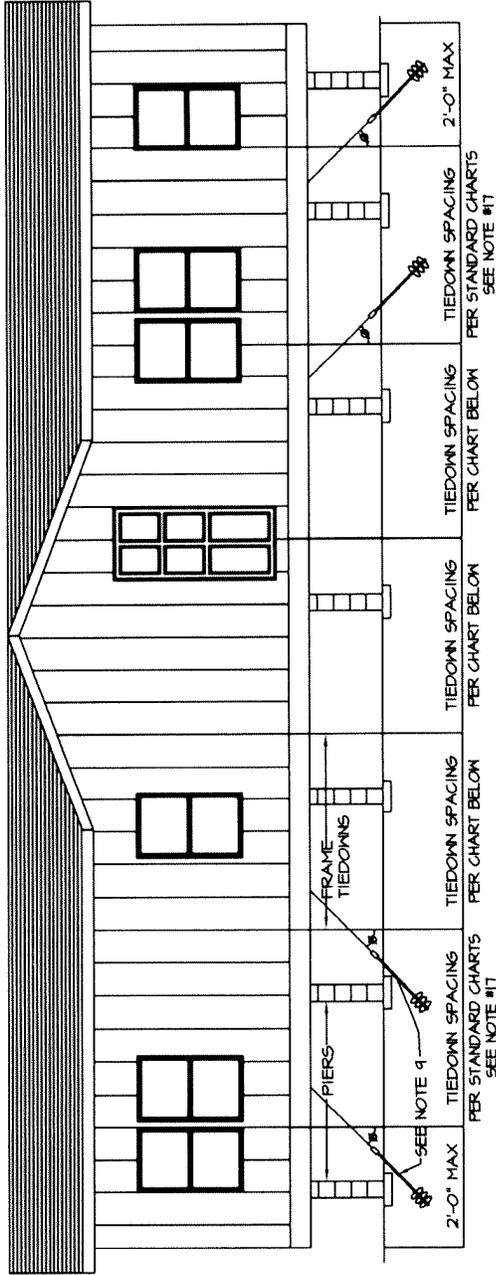
- THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
- HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
- EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE TO A DOUBLE HEADED ANCHOR INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE OR AN APPROVED STABILIZER PLATE MUST BE INSTALLED ACCORDING TO THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
- FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOUSING.
- APPROVED BRACKETS FOR VERTICAL TIE ATTACHMENT ARE INSTALLED BY LEGACY HOMES; ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
- 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.
- 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.
- DESIGN BASED ON 99-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-6".
- LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, AND 7.
- FRAME TIEDOWNS ARE POSITIONED AT CROSS-MEMBER LOCATIONS (WITHIN 3') WHEN STRAP COMES OFF BOTTOM FLANGE OF BEAM WITH APPROVED BUCKLE OR LOOP.
- 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.
- GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND 13" DEPTH. GROUND ANCHORS SHALL BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
- 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.
- GROUND ANCHORS TO BE RATED FOR LOAD TABULATED IN CHARTS TIMES 1.5 SAFETY FACTOR OR ULTIMATE LOAD OF 4725# WHICHEVER IS GREATER.
- 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.

20 DEGREE MAXIMUM ROOF SLOPE

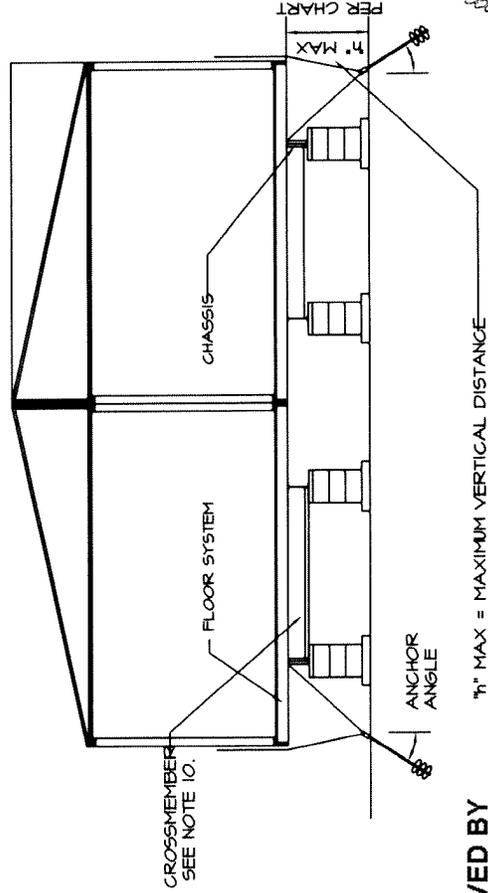
FRAME TIEDOWN SPACING CHART (SEE NOTE 10)			
FLOOR WIDTH	EAVE OVERHANG	SPACING	ANCHOR ANGLE
104" MAX SINGLE	8" MAX	6'-8"	36°
104" MAX DOUBLE	8" MAX	6'-8"	32°

LONGITUDINAL TIEDOWN QUANTITY CHART		
FLOOR WIDTH	QUANTITY (MIN EACH END OF EACH SECTION)	ANCHOR ANGLE (DEGREES)
104" MAX SINGLE	4	34-60
104" MAX DOUBLE	4	34-60

LEGACY HOUSING
PRISMATIC DORMER
TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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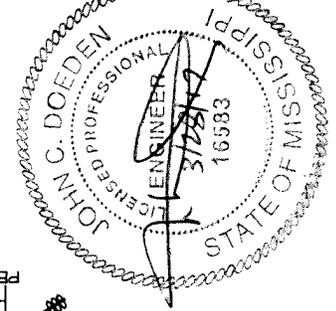
NOTES:

1. THE ANCHORING SYSTEM WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE TO A DOUBLE HEADED ANCHOR INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE OR AN APPROVED STABILIZER PLATE MUST BE INSTALLED ACCORDING TO THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
4. FRAME TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY LEGACY HOMES.
5. APPROVED BRACKETS FOR VERTICAL TIE ATTACHMENT ARE INSTALLED BY LEGACY HOMES. 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 9/12" BEAM SPACING AND A MAXIMUM PRISMATIC WALL HEIGHT OF 4'-6" AT HIGHEST POINT. (1'-0" FOR NORMAL SIDEWALL = 34° PROJECTION)
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 15. 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. CHARTS TIMES 15 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."
17. THE CHART BELOW IS ONLY APPLICABLE TO THE PRISMATIC PORTION OF THE UNIT. FOR TIEDOWN SPACING AND PIER HEIGHTS BEYOND THIS PORTION REFER TO STANDARD TIEDOWN DESIGNS.

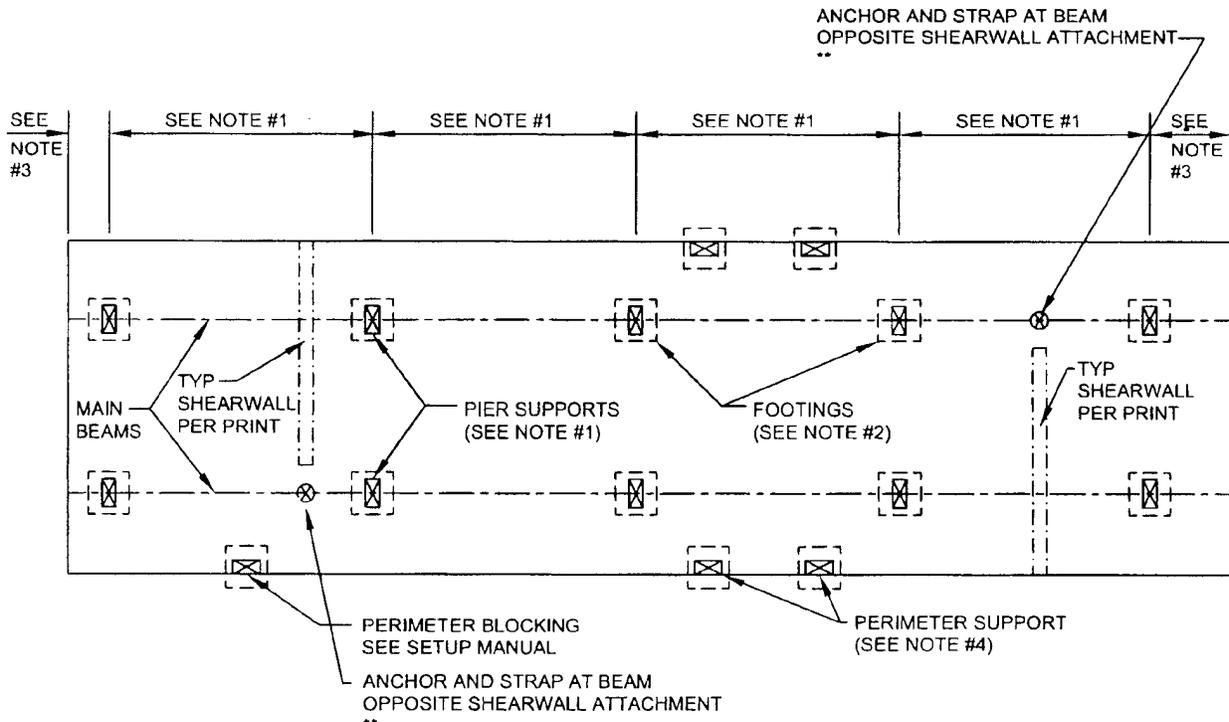
* PIER HEIGHT INCLUDES DEPTH OF I-BEAM
20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)			
FLOOR WIDTH	EAVE OVERHANG	WIND ZONE 2	
		SPACING	1" MAX ANCHOR ANGLE
30'-0" DOUBLE	8" MAX	4'-0" 06	40°
			30-35

LONGITUDINAL TIEDOWN QUANTITY CHART				
FLOOR WIDTH	184" MAX DOUBLE	QUANTITY (MIN) EACH END OF EACH SECTION		ANCHOR ANGLE MIN Ø



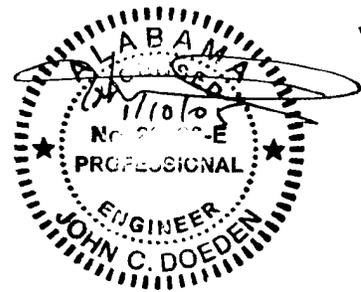
TYPICAL BLOCKING LAYOUT FOR SINGLE-SECTION HOMES WIND ZONE 2 & 3



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. PIERS SHALL BE LOCATED AT EACH SIDE OF ALL PERIMETER OPENINGS (4) FEET OR WIDER IN WIDTH. THIS WILL INCLUDE DOORS, WINDOWS, RECESSED ENTRIES, PORCHES, ETC.
5. PIERS SHALL BE INSTALLED AT EACH INTERIOR SHEARWALL LOCATION AS IDENTIFIED BY PRINT PROVIDED WITH HOME.

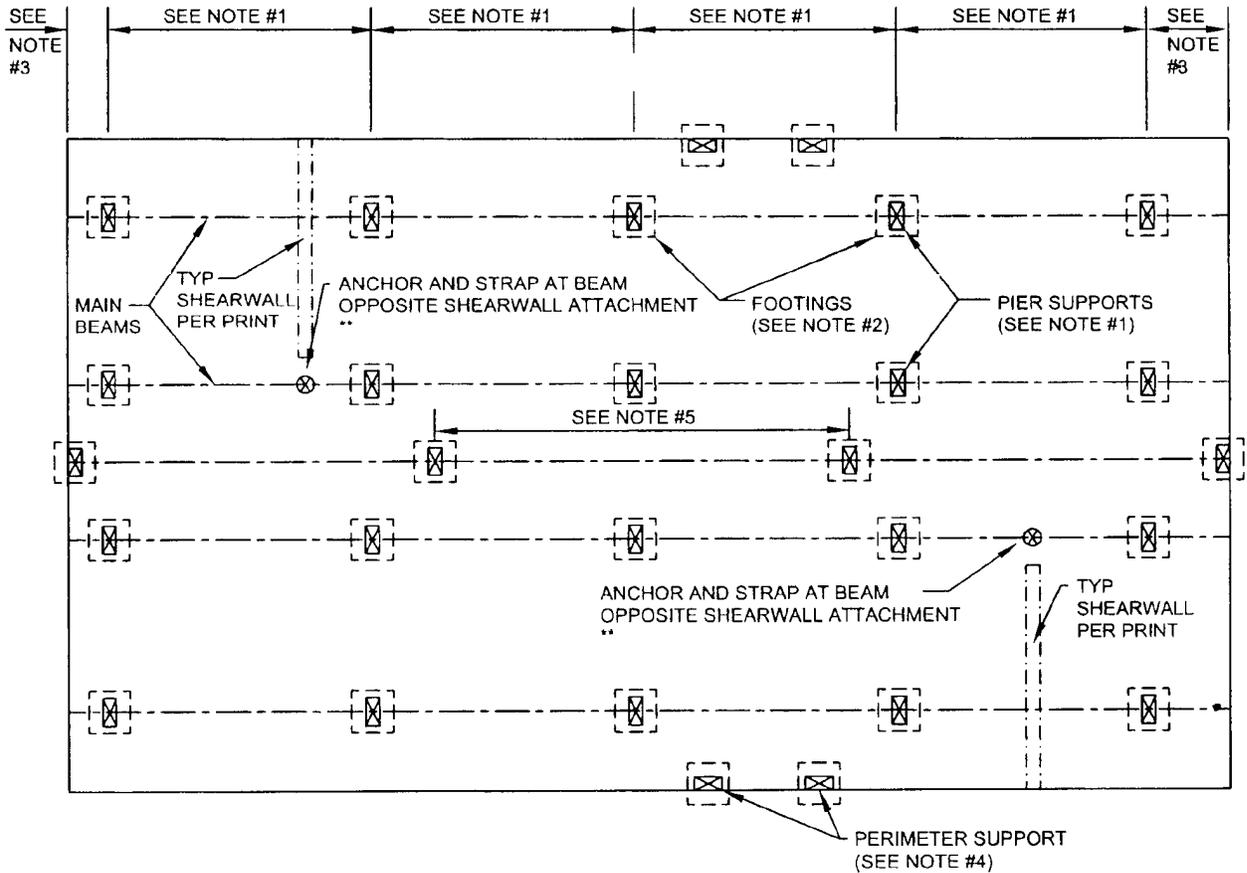
** REFER TO MANUFACTURER'S FLOOR PLAN (PROVIDED) OR IDENTIFYING TAGS OR PAINT FOR SHEARWALL LOCATIONS (INCLUDING ENDWALL). THESE ANCHORS MUST BE INSTALLED IN ACCORDANCE WITH THEIR LISTING.



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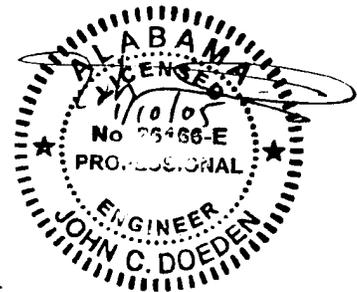
TYPICAL BLOCKING LAYOUT FOR MULTI-SECTION HOMES WIND ZONE 2 & 3



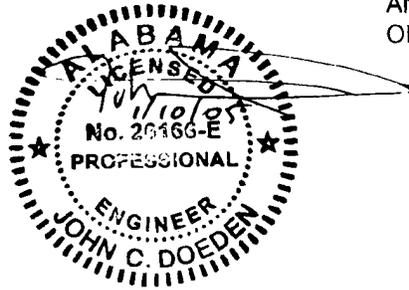
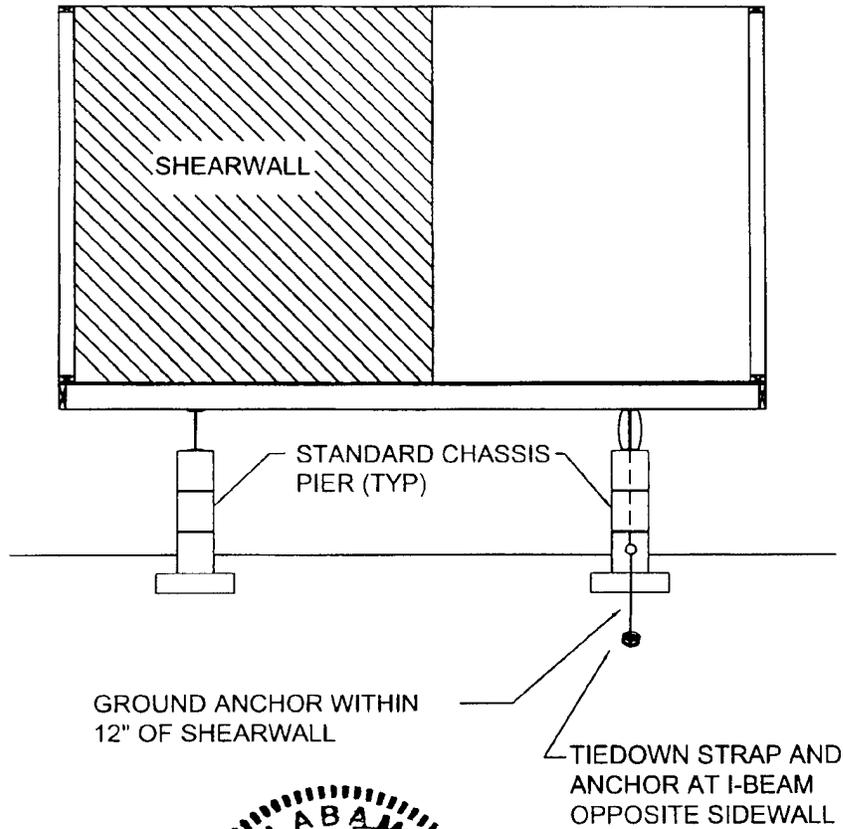
NOTES:

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. PIERS SHALL BE LOCATED AT EACH SIDE OF ALL PERIMETER OPENINGS (4) FEET OR WIDER IN WIDTH. THIS WILL INCLUDE DOORS, WINDOWS, RECESSED ENTRIES, PORCHES, ETC.
5. SEE SETUP MANUAL FOR PIER CAPACITIES AT MARRIAGE LINE OPENINGS.

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



TYPICAL SHEARWALL TIEDOWN INSTALLATION
WIND ZONE 2 & 3



NOTES:

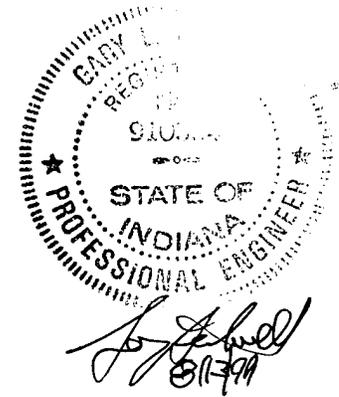
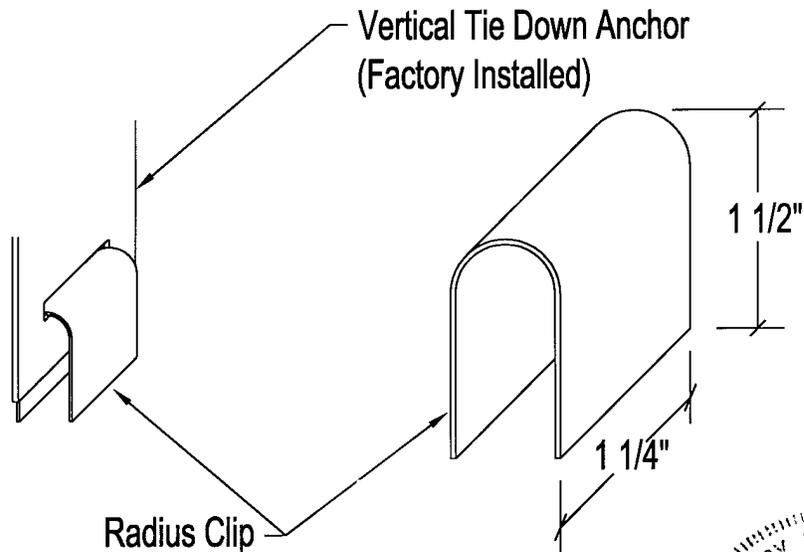
1. SHEARWALL LOCATIONS ARE IDENTIFIED BY FACTORY INSTALLED TAGS OR PAINT OR SHIP LOOSE FLOOR PLANS.

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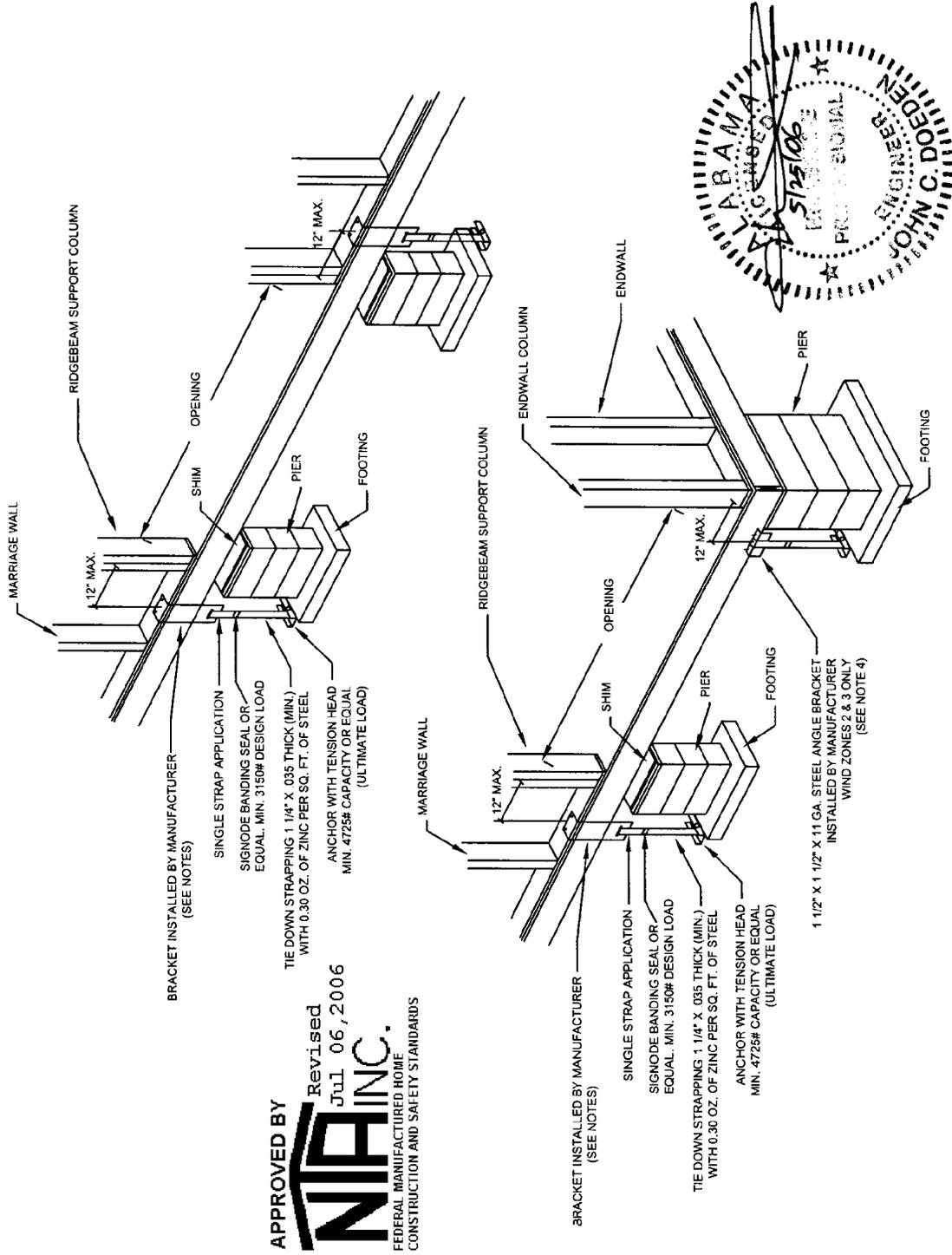
Tie Down Radius Clip



General Notes:

- 1) Radius Clip must be installed on all Longitudinal Frame Tie Down Anchors, Marriage Wall Vertical Tie Down Anchors, and Shear Wall Vertical Anchors (only).
- 2) Installer to fabricate Radius Clip by placing straight 3" length of 1 1/4" x .035" Tie Down Strap in Anchor slot and manually bending the strap to the configuration shown.

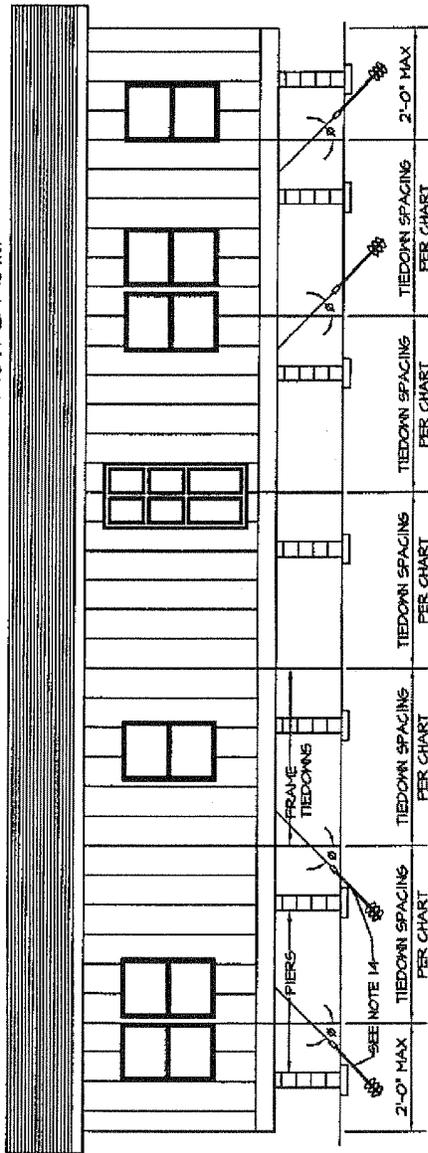
FIGURE 5.9 - RIDGEBEAM COLUMN TIE DOWN AND SUPPORT PIER - WIND ZONES 1, 2, & 3



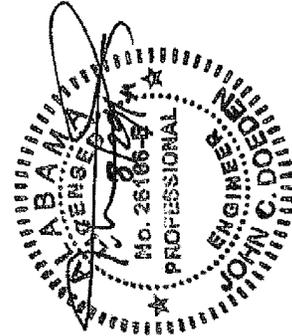
- NOTES:
- BRACKETS ARE INSTALLED BY MANUFACTURER PER OTHER DETAILS. TIE DOWN STRAPS AND ACCESSORIES ARE NOT PROVIDED NOR INSTALLED BY THE MANUFACTURER. 1 OR 2 BRACKETS INSTALLED PER ANCHOR FOR SPAN (SEE NOTE 4).
 - BRACKETS ARE IDENTIFIED BY PAINT ON THE BOTTOM OF HOME.
 - MINIMUM BRACKET DESIGN CAPACITY (WORKING LOAD) = 1750#.
 - 1 1/2" X 1 1/2" X 11 GA. X 6" LONG ANGLE BRACKETS INSTALLED @ COLUMN SUPPORTS & SECURED INTO CENTERLINE RIM JOIST WITH (2) 5/16" X 3" LAG SCREWS. MAX SPAN FOR 1 BRACKET = 18'-9" FOR WIND ZONE 2 & 14'-9" FOR WIND ZONE 3. 2 BRACKETS = 37'-4" FOR WIND ZONE 2 & 29'-4" FOR WIND ZONE 3.

TIEDOWN SYSTEM
TYPICAL DETAILS
WIND ZONE 1
FIGURE A6.1.1

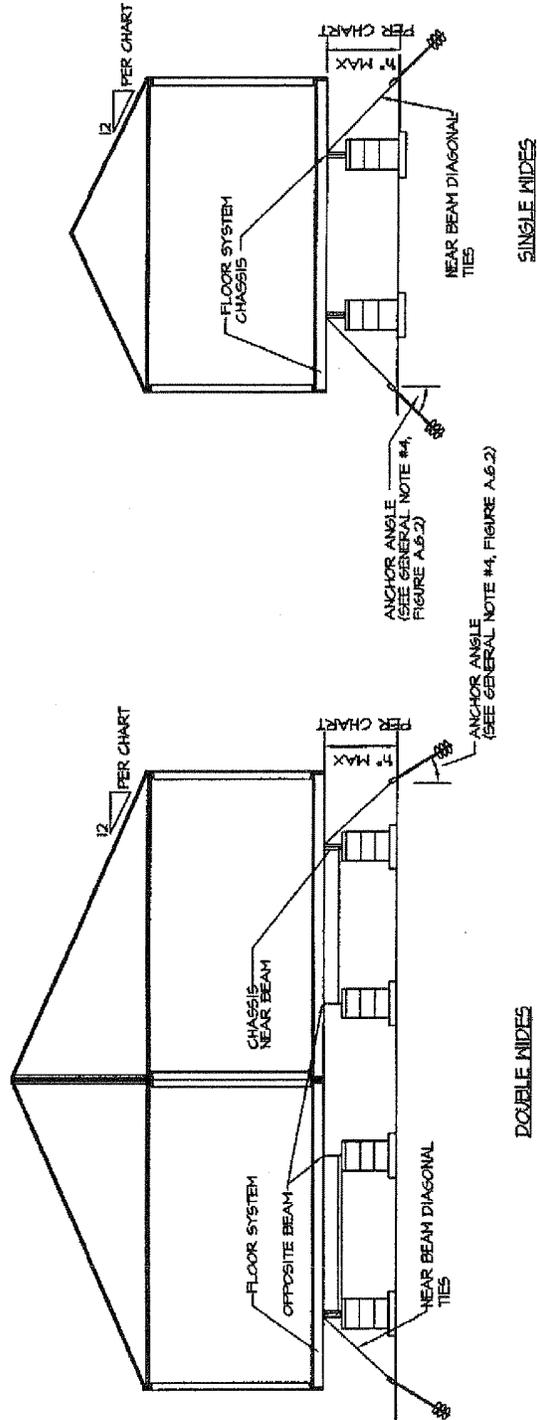
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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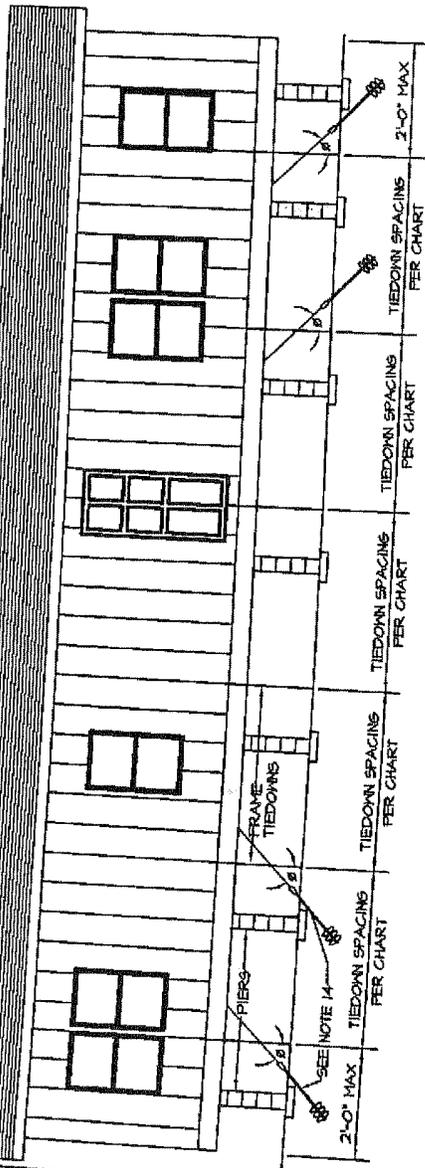


TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

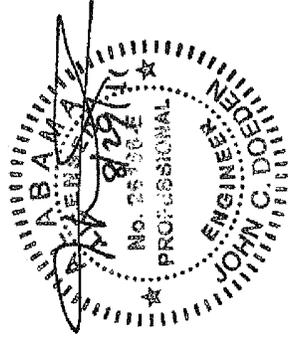


TIEDOWN SYSTEM
TYPICAL DETAILS
WIND ZONE 1, 2 AND 3
FIGURE A6.1.2

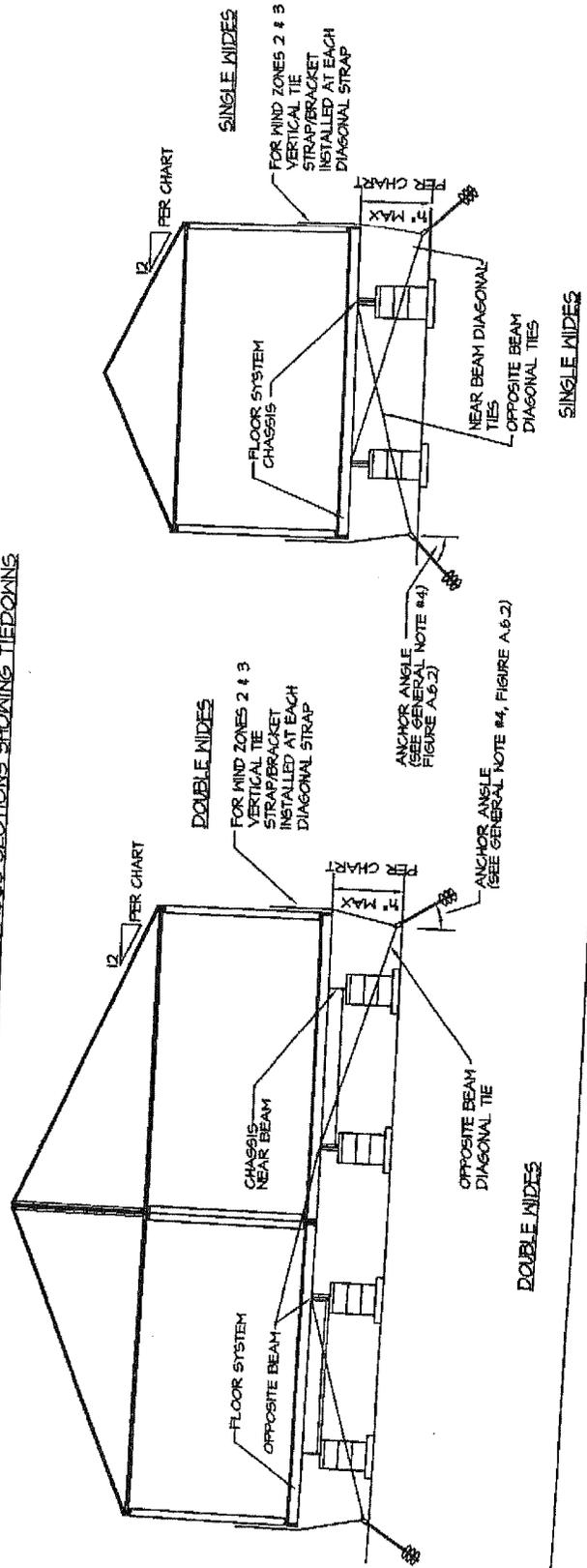
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS
FIGURE A6.1.2



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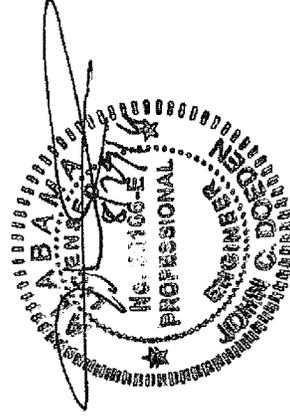
TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



TIEDOWN SYSTEM
GENERAL NOTES
WIND ZONE 1, 2 AND 3
FIGURE A6.2

1. Frame tiedowns shall be installed to properly secure the home.
2. Except as indicated in the chart with a specified vertical tie load, vertical ties are not required for Wind Zone 1 with properly spaced and installed frame tiedowns. When installed, vertical ties may be secured to the same ground anchors as the frame tiedowns. When required the vertical ties are installed by Legacy Housing at the spacing required for frame ties and for the load specified under "Vertical Tie Load" column.
3. For Wind Zones 2 and 3 vertical ties are required at each frame tiedown location. Vertical ties may be secured to the same ground anchor as the frame tiedowns when a double headed anchor is capable of resisting the combined loading.
4. When anchors are not installed at the angle specified in the tables a stabilizer plate must be installed in accordance with the anchor manufacturer's instructions.
5. Frame tiedowns and anchors are not supplied by Legacy Housing.
6. Vertical tiedown brackets are supplied by Legacy Housing and secured along the sidewall to resist the vertical tie load specified at the spacing specified. Anchors, straps and end treatments are to be supplied by others.
7. Ground anchors and frame ties shall be capable of resisting an ultimate 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.
8. 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.
9. Anchors shall be certified for site 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.
10. Ground anchors shall be embedded below the frost line and at least 12" above the water table.
11. Ground anchors shall be installed to their full depth and stabilizer plates should be installed to provide added resistance to overturning or sliding forces.
12. 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 D3543-01, "Standard Specification For Strapping, Flat Steel and Seals".
13. Strapping to be Type I, Finish B, Grade 1 steel strapping, 1/2" wide and 0.025" in thickness, certified by a Registered Professional Engineer or Architect as conforming with ASTM Standard Specification D3543-01, "Standard Specification For Strapping, Flat Steel and Seals".
14. Longitudinal tiedowns are installed on brackets welded to I-beams at each end. See Figure A6.4. The approved bracket must be attached to the I-beam per certified test reports and details therein or the longitudinal tiedown straps may be looped around a 3/8" diameter bolt inserted in the chassis axle spring hangers.
15. In addition to the vertical and frame tiedowns discussed on this page vertical tiedowns may be required at shearwall locations and at marriage wall column locations. See applicable sections of the installation instructions Manual for specific information.
16. Design is based on I-beams spaced 9 1/2" center to center and centered in unit width. Anchor head may be located a maximum of 6" inside the outside edge of the sidewall. The "Maximum Vertical Distance" indicated in the Wind Zone 1 tables is the true vertical distance from the anchor head to the top of the I-beam. The "Pier Height" indicated in Wind Zones 2 and 3 tables is the vertical distance from the anchor head to the top of the I-beam when diagonal comes off the top and to the bottom of the I-beam when it comes off the bottom.

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Sep 28, 2011



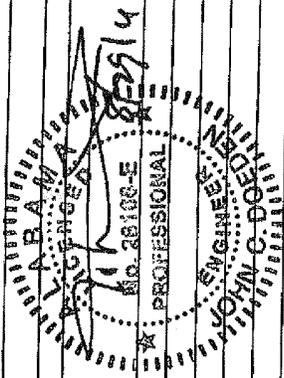
TIEDOWN SYSTEM
 CHARTS
 WIND ZONE 1
 FIGURE A6.3

MIND ZONE 1 TIE DOWN REQUIREMENTS CHART

FLOOR WIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME TIEDOWNS			LONGITUDINAL TIEDOWNS	NOTES
						ANCHOR ANGLE	NEAR OR OPPOSITE BEAM	VERTICAL TIE LOAD (LBS)		
184" SINGLE SECTION	3" MAX	20 Deg Max	96"	10'-0"	44"	40	NEAR	N/A	2	34
210" SINGLE SECTION	3" MAX	20 Deg Max	96"	10'-0"	54	40-45	NEAR	N/A	2	41
184" DOUBLE SECTION	8" MAX	20 Deg Max	96"	10'-0"	44	40	NEAR	N/A	2	34

MIND ZONE 2 TIE DOWN REQUIREMENTS CHART

FLOOR WIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME TIEDOWNS			LONGITUDINAL TIEDOWNS	NOTES
						ANCHOR ANGLE	NEAR OR OPPOSITE BEAM	VERTICAL TIE LOAD (LBS)		
184" SINGLE SECTION	3" MAX	20 Deg Max	96"	8'-0"	31"	50-55	OPPOSITE	1280	4	21
				6'-8"	64"	45-50	OPPOSITE	1055	4	21
210" SINGLE SECTION	3" MAX	20 Deg Max	96"	8'-0"	35"	50-55	OPPOSITE	1220	4	35
184" DOUBLE SECTION	8" MAX	20 Deg Max	96"	8'-0"	30"	50-55	OPPOSITE	1920	3	40
				8'-8"	64"	45-50	OPPOSITE	1040	3	40



MIND ZONE 3 TIE DOWN REQUIREMENTS CHART

FLOOR WIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME TIEDOWNS			LONGITUDINAL TIEDOWNS	NOTES
						ANCHOR ANGLE	NEAR OR OPPOSITE BEAM	VERTICAL TIE LOAD (LBS)		
184" SINGLE SECTION	3" MAX	20 Deg Max	96"	5'-4"	64"	40-45	OPPOSITE	1175	4	36
210" SINGLE SECTION	3" MAX	20 Deg Max	96"	6'-0"	30"	50-55	OPPOSITE	1965	4	43
				5'-4"	64"	40-50	OPPOSITE	1190	4	43
184" DOUBLE SECTION	8" MAX	20 Deg Max	96"	5'-4"	31	40-45	OPPOSITE	1800	3	62
				5'-4"	31	40-45	OPPOSITE	1800	4	41

NOTES:

1. WHEN CONTENTS OF BELLY WILL INTERFERE WITH TAUT INSTALLATION OF DIAGONAL TIE FOR ANY POSSIBLE VERTICAL DISTANCE A CROSSMEMBER MUST BE AT THE VERTICAL TIE LOCATIONS (FACTORY INSTALLED)
2. SEE NOTES, FIGURE A6.2 FOR TIEDOWN SYSTEM

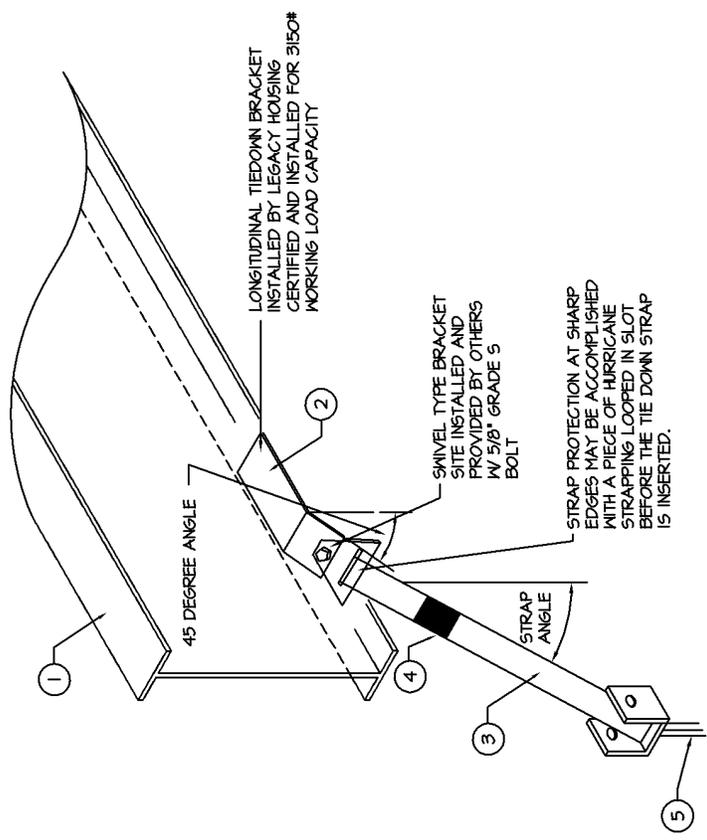
LONGITUDINAL TIEDOWN ATTACHMENT DETAIL
WIND ZONE 1, 2 AND 3
FIGURE A6.4

NOTES:
1. EITHER METHOD SHOWN IS ACCEPTABLE FOR THE INSTALLATION OF LONGITUDINAL TIEDOWNS.
2. SEE APPLICABLE ZONE 1, 2 OR 3 LONGITUDINAL TIEDOWN CHARTS FOR QUANTITY OF TIEDOWNS REQUIRED BASED ON FLOOR WIDTH, WALL HEIGHT, ROOF SLOPE, ETC.

ALTERNATE ATTACHMENT DETAIL #1

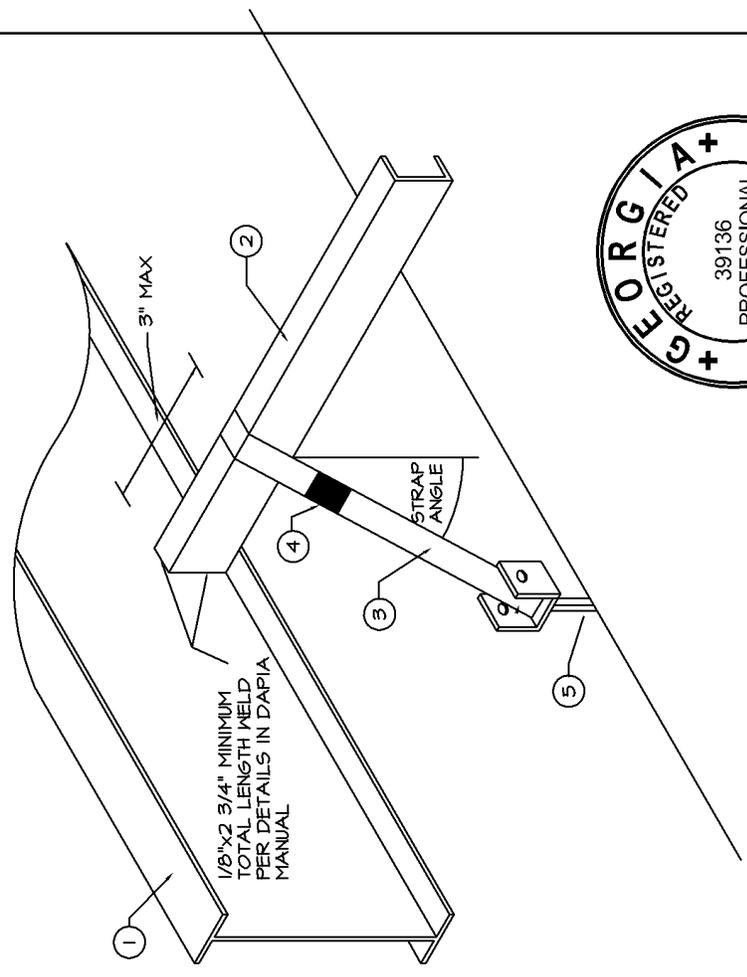
- 1: TYPICAL LONGITUDINAL I-BEAM
- 2: ALTERNATE FACTORY INSTALLED TIEDOWN BRACKET
- 3: TIEDOWN STRAP
- 4: BANDING SEAL
- 5: GROUND ANCHOR - INSTALLED TO FULL DEPTH OF ANCHOR HEAD

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Mar 11, 2016
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



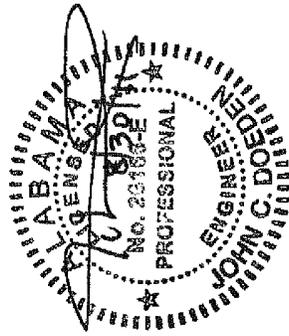
ALTERNATE ATTACHMENT DETAIL #2

- 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

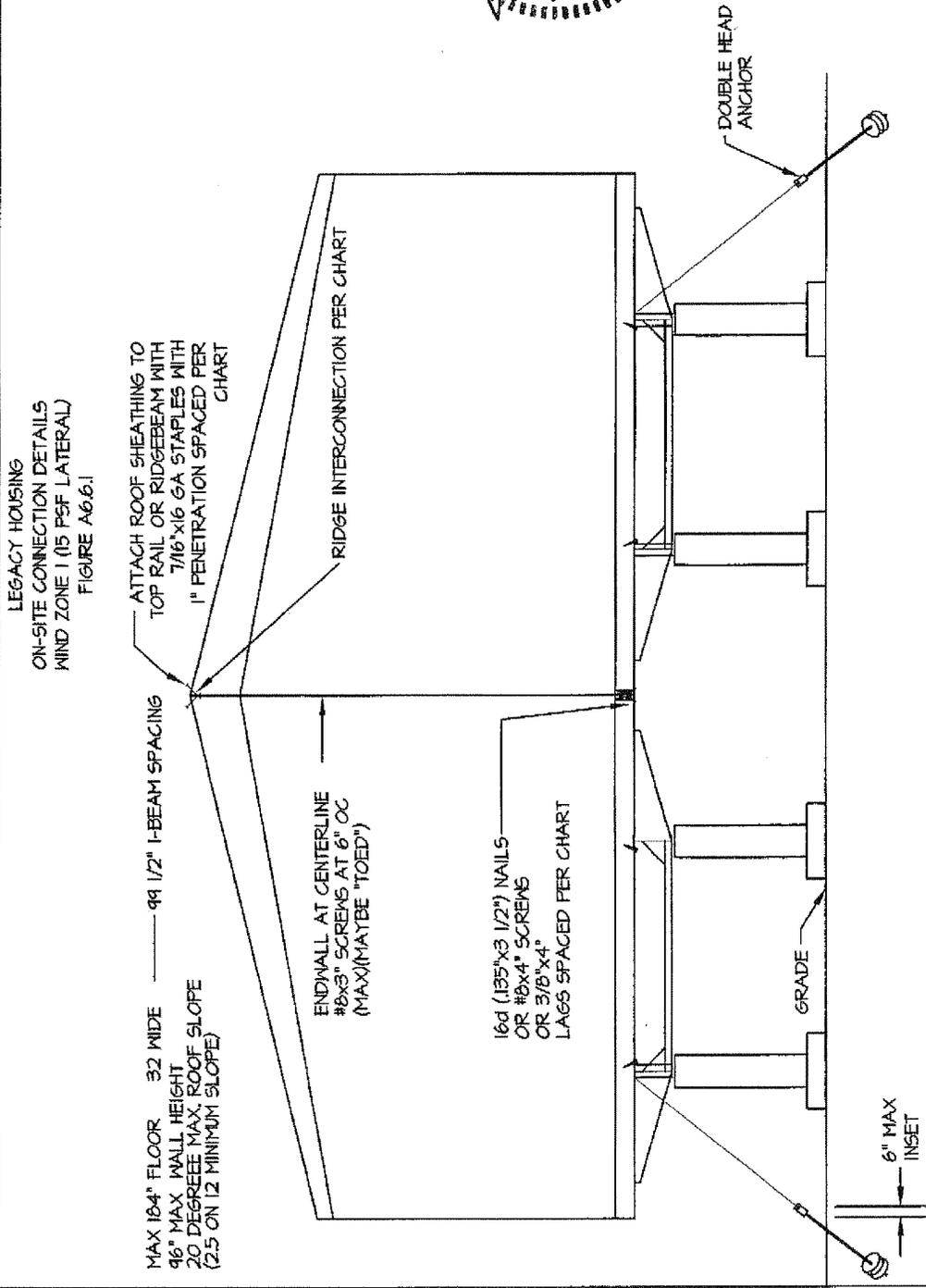


I-B-13

MAXIMUM FASTENER SPACING CHART		96" SIDEWALL HEIGHT	WIND ZONE
CONNECTION			I
SHEATHING TO TOP RAILS OR RIDGEBEAM			6' o.c.
RIDGE INTERCONNECTION			12' o.c.
#10x4" SCREWS OR 3/8"x3" LAG SCREWS			11' o.c.
CENTERLINE STRAPS AT FLOOR			N/A
CENTERLINE FASTENING AT FLOOR			20' o.c.
	NAILS		19' o.c.
	SCREWS		23' o.c.
	LAGS		

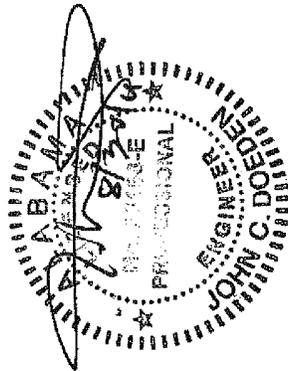


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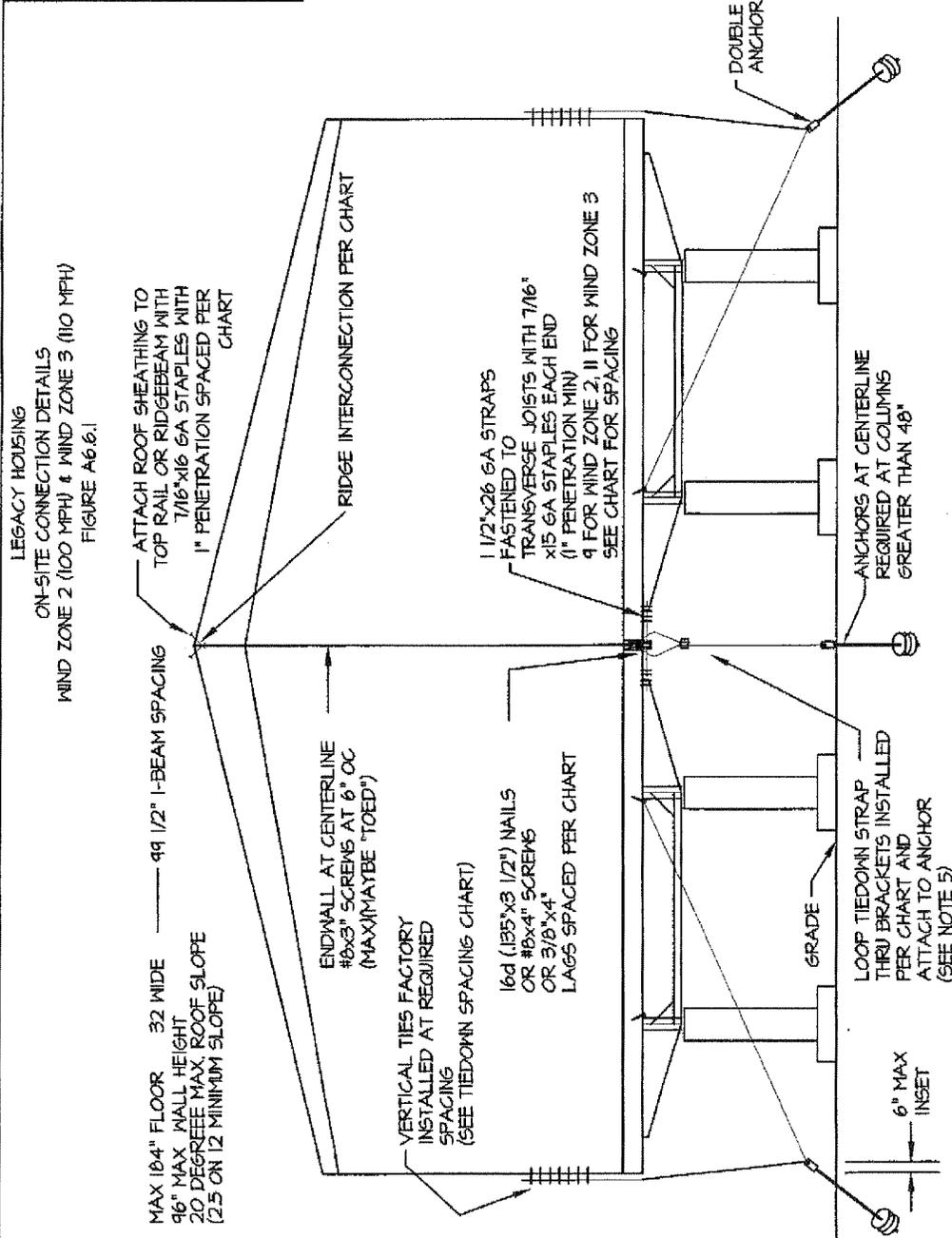


NOTES:
 1. ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 3150# (4125# ULTIMATE).

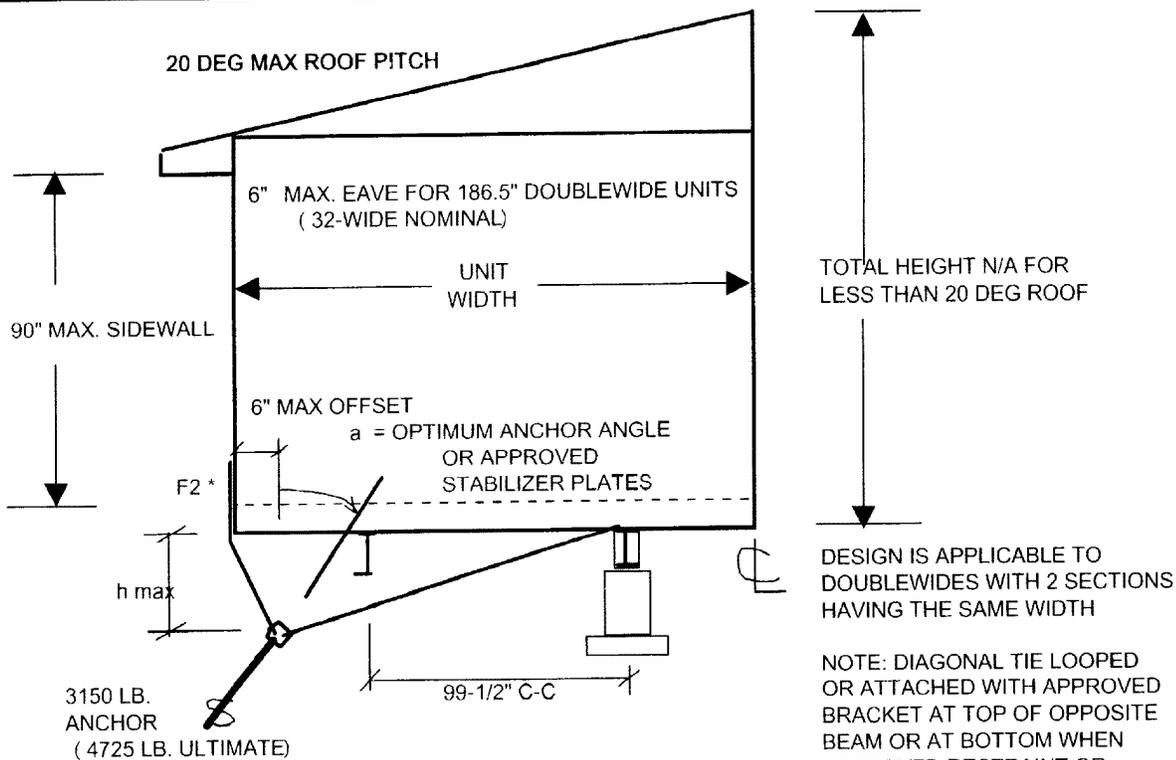
MAXIMUM FASTENER SPACING CHART		96" SIDEWALL HEIGHT	
		WIND ZONE 2	WIND ZONE 3
CONNECTION		4' o.c.	3' o.c.
SHEATHING TO TOP RAILS OR RIDGEBEAM			
RIDGE INTERCONNECTION		1 1/2' o.c.	6 3/4' o.c.
#10x4" SCREWS OR 3/8"x5" LAG SCREWS		10' o.c.	1' o.c.
CENTERLINE STRAPS AT FLOOR		96" o.c.	96" o.c.
CENTERLINE FASTENING AT FLOOR		17 1/2' o.c.	12' o.c.
NAILS		16 1/2' o.c.	12' o.c.
SCREWS		20' o.c.	14' o.c.
LAGS			



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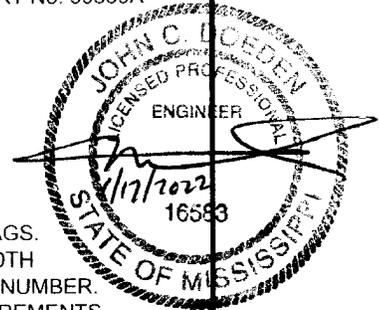


- NOTES:
- ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 350# (475# ULTIMATE).
 - DOUBLE HEADED ANCHORS TO BE RATED FOR THE COMBINED LOAD AND SHOULD BE INSTALLED WITH STABILIZER PLATES.
 - DIAGONAL TIES TO BE INSTALLED FROM I-BEAM AT SAME LOCATIONS AS VERTICAL TIES. REFER TO TABLES (FIGURES 5.0.1) STARTING AT 24" FROM EACH END (MAX OPEN END SPACING).
 - MARRIAGE WALL ANCHORS MAYBE SINGLE HEAD WITH A 350# MIN CAPACITY (475# ULTIMATE).
 - BRACKETS ARE 1 1/2" x 1/2" x 1/2" 5/16" (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" x 3" MIN LAGS.
 - FOR 30'-8" WIDES, WIND ZONE 3: MAX. OPENING FOR (1) BRACKET = 18'-8" AND MAX. OPENING FOR (2) BRACKETS = 37'-4". FOR 30'-8" WIDES, WIND ZONE 3: MAX. OPENING FOR (1) BRACKET = 14'-8" AND MAX. OPENING FOR (2) BRACKETS = 29'-4". 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 MOOD 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.



* VERTICAL TIE SWIVEL BRACKETS (F2) ARE FACTORY INSTALLED AT 8'-0" o/c WITH A LOAD RESISTANCE CAPACITY OF 1425 lbs. TYPICAL BRACKET IS TIEDOWN ENGINEERING'S 'SIDEWALL SWIVEL STRAP ASSEMBLY' - PART No. 59339A

WIND ZONE	UNIT WIDTH	EXP	ANCHOR SPACING	h max in.	a DEG.
II 100 mph	160 "	C	8' - 0"	38 "	40 - 50

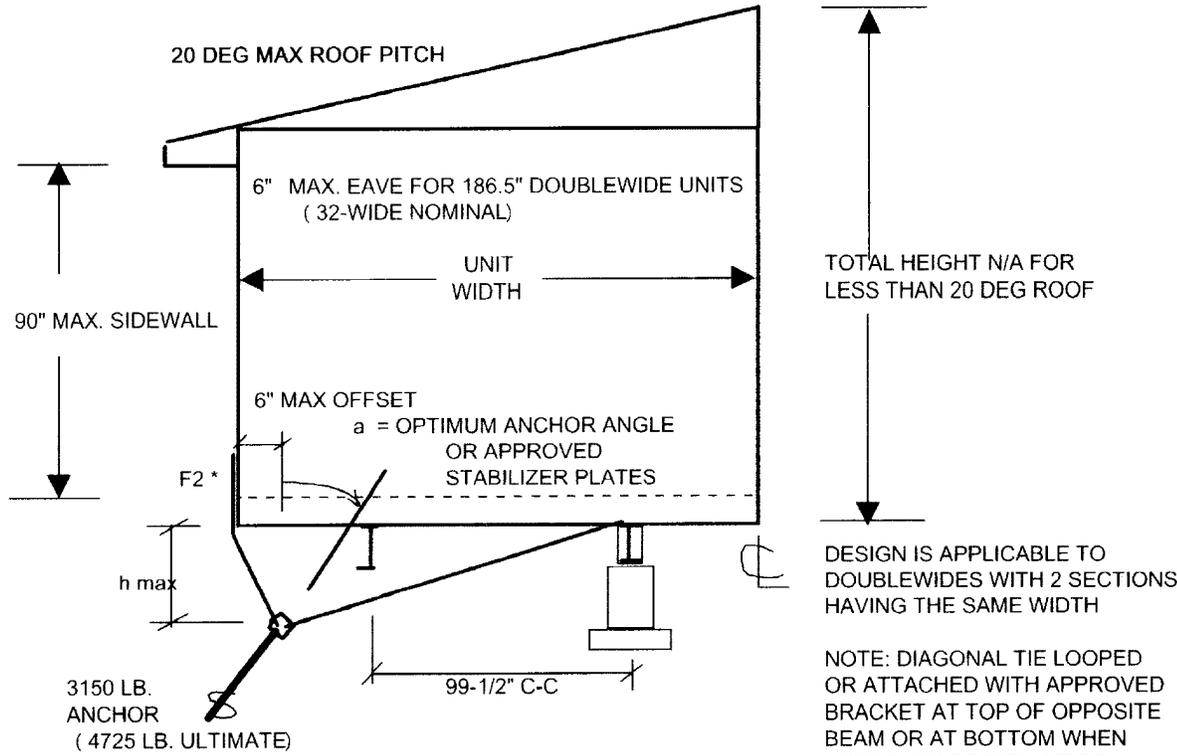


NOTES :

- 1) THIS CHART IS NOT APPLICABLE TO 'SLIP-SIDE' UNITS (i.e. OFFSET HALVES) OR TAGS.
- 2) EACH OUTER SECTION OF A DOUBLEWIDE MUST BE ANCHORED PER ITS OWN UNIT WIDTH REQUIREMENTS. EACH SECTION REQUIRES LONGITUDINAL TIEDOWNS. SEE NOTE 6 FOR NUMBER.
- 3) LONGITUDINAL TIE AND COLUMN TIE INSTALLATION TO BE PER SET-UP MANUAL REQUIREMENTS.
- 4) MAX. DISTANCE TO FIRST TIEDOWN EACH END IS 2'- 0"
- 5) WHEN ANCHOR ANGLE SPECIFIED CANNOT BE ACHIEVED , INSTALL APPROVED STABILIZER PLATES.
- 6) INSTALL LONGITUDINAL TIES PER METHOD IN INSTALLATION MANUAL :
3 MIN. EACH END AT 35 DEGREES MINIMUM (60 DEGREES MAX) FROM VERTICAL.
- 7) CONNECTIONS BETWEEN SECTIONS ARE AS FOLLOWS (a,b,c,d ARE ON-SITE & e IS FACTORY) :
 a. FLOOR - TRANSVERSE JOISTS STRAPPED WITH 1-1/2x 26 GA. STRAP AT 8'-0" o/c W/ (7) 7/16 x 15 GA. STAPLES EA. END
 b. FLOOR - CENTERLINE JOISTS FASTENED TOGETHER WITH #10 x 4-1/2" SCREWS AT 20" o/c (PEN= 1-1/2")
 c. ROOF PEAK 2x4 RAIL CONNECTION- THRU SHEATHING WITH #10 x 4-1/2" SCREWS AT 10" o/c (PEN= 1-1/2")
 d. ROOF SHEATHING FASTENED TO 2x4 RAIL AT PEAK WITH 7/16x 16 GA. STAPLES AT 3-1/2" o/c MAX. (FACTORY INSTALLED)
- 8) MAXIMUM COLUMN BRACKET SPACING IS 24'-10" FOR 1 BRACKET AT EACH COLUMN AND 49'- 9" FOR 2 BRACKETS AT EACH COLUMN SPACED APART PER INSTALLATION MANUAL. COLUMN BRACKET TYPE AND FASTENING PER STANDARD MANUAL.

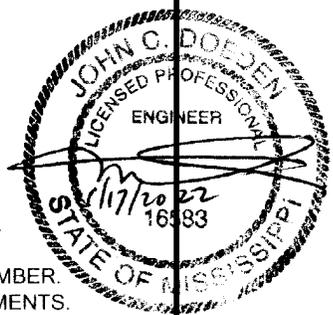
ALL OTHER CONNECTIONS IN ACCORDANCE WITH THE LEGACY HOUSING INSTALLATION MANUAL.

<p style="text-align: center;">APPROVED BY</p> <p style="text-align: center;">NIA INC. FEDERAL MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS</p> <p style="text-align: right; margin-right: 10px;">1/22/2022</p>	LEGACY HOUSING	
	<p>TITLE: TIEDOWNS FOR 3150 # ANCHORS - PER HALF ADDENDUM TO SET-UP MANUAL</p> <p>WIND ZONE 2 - EXPOSURE C</p> <p>DOUBLEWIDE UNITS</p> <p>20 DEG. MAX. ROOF PITCH</p>	<p>DATE: 1 / 17 / 21</p> <hr/> <p>PAGE No.</p> <p style="text-align: center; font-size: 1.2em;">I-B-28.2</p>



* VERTICAL TIE SWIVEL BRACKETS (F2) ARE FACTORY INSTALLED AT 6'-8" o/c WITH A LOAD RESISTANCE CAPACITY OF 1680 lbs. TYPICAL BRACKET IS TIEDOWN ENGINEERING'S 'SIDEWALL SWIVEL STRAP ASSEMBLY' - PART No. 59339A

WIND ZONE	UNIT WIDTH	EXP	ANCHOR SPACING	h max in.	a DEG.
III 110 mph	160 "	C	6' - 8"	31 "	40 - 50



- NOTES:
- THIS CHART IS NOT APPLICABLE TO 'SLIP-SIDE' UNITS (i.e. OFFSET HALVES) OR TAGS.
 - EACH OUTER SECTION OF A DOUBLEWIDE MUST BE ANCHORED PER ITS OWN UNIT WIDTH REQUIREMENTS. EACH SECTION REQUIRES LONGITUDINAL TIEDOWNS. SEE NOTE 6 FOR NUMBER.
 - LONGITUDINAL TIE AND COLUMN TIE INSTALLATION TO BE PER SET-UP MANUAL REQUIREMENTS.
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b.FLOOR - CENTERLINE JOISTS FASTENED TOGETHER WITH #10 x 4-1/2" SCREWS AT 15" o/c (PEN= 1-1/2")
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 - MAXIMUM COLUMN BRACKET SPACING IS 19'-8" FOR 1 BRACKET AT EACH COLUMN AND 39'-49" FOR 2 BRACKETS AT EACH COLUMN SPACED APART PER INSTALLATION MANUAL. COLUMN BRACKET TYPE AND FASTENING PER STANDARD MANUAL.

ALL OTHER CONNECTIONS IN ACCORDANCE WITH THE LEGACY HOUSING INSTALLATION MANUAL.

<p>APPROVED BY</p> <p>FEDERAL MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS</p>	<p>LEGACY HOUSING</p>	
	<p>TITLE: TIEDOWNS FOR 3150 # ANCHORS - PER HALF ADDENDUM TO SET-UP MANUAL WIND ZONE 3 - EXPOSURE C DOUBLEWIDE UNITS 20 DEG. MAX. ROOF PITCH</p>	<p>DATE: 1 / 17 / 21</p> <p>PAGE No. I-B-28.3</p>

Appendix C - Minute Man Anchor Installation Manual

The FMHCSS requires manufacturers to include a tie-down system in their installation manual. The entire Minute Man system is included in this manual. However, due to unique design and/or construction methods used by the manufacturer other details are included to supplement the Minute Man information and are identified as the manufacturer.

There may be conflicting information between the “generic” Minute Man and the manufacturer details. In all cases the manufacturer details are to be followed and supersedes any of the Minute Man details.

The following information applies to homes being sited within WIND ZONE 1, 2 & 3. Please verify the appropriate Wind Zone and carefully review the appropriate information.

Any Minute Man details that utilize the words “should” or “recommended” must be considered a REQUIRED reference.

Some Minute Man details illustrate the ground anchor to be installed vertically. The manufacturer details must supersede and be followed which indicate the ground anchors to be installed diagonally.

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 Jun 14, 2005
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

Minute Man anchors,[®] inc.

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NIA INC.
Revised
Apr 15, 2011
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



Installation Instructions

**For
Anchors,
Frame Ties,
Steel Piers
& LLBS Support System**

305 West King St.

East Flat Rock, North Carolina 28726

I-C-2

Minute Man **anchors**,[®] *inc.*

LIMITED WARRANTY

Minute Man Anchors, Inc. warrants its product is free from defects in materials and workmanship at the time of installation when properly installed in accordance with the installation instructions. THE FOREGOING WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANY LIABILITY IS EXPRESSLY LIMITED TO AN AMOUNT EQUAL TO THE PURCHASE PRICE PAID, AND ALL CLAIMS FOR SPECIAL, INCIDENTAL AND CONSEQUENTIAL DAMAGES ARE HEREBY EXCLUDED. Minute Man does not assume any other liability or obligation in connection with the sale or use of this product.

If the product is defective at the time of delivery or installation and you give prompt notice to Minute Man no later than thirty (30) days of attempted installation of the defect, Minute Man, at its option, will replace the product at no cost or refund the full amount of the purchase price, provided the defective product is returned to Minute Man with proof of purchase at the address set forth below. PRODUCT REPLACEMENT OR REFUND IS YOUR SOLE AND EXCLUSIVE REMEDY.

This warranty extends only to the distributor and original installer of the product and does not cover a defect resulting from abuse, misuse, neglect, repairs, any use not in conformity with the printed instructions or installation by unauthorized personnel.

This warranty gives you specific legal rights, and you may also have other legal rights which vary from state to state. Some states do not allow limitations on implied warranties or special, incidental or consequential damages, so the foregoing limitations may not apply to you.

If you have a claim under this warranty, please contact our CUSTOMER SERVICE department (have model and type numbers available):

CUSTOMER SERVICE

Toll Free In the U.S. 1-800-438-7277

1-828-692-0256

OR WRITE TO:

Minute Man- Customer Service

305 West King Street

East Flat Rock, NC 28726

APPROVED BY



To our knowledge, the information provided in and by the independent, professional engineers' reports and certifications and obtained from other independent sources contained in the installation instructions and product manuals is accurate. However, Minute Man Anchors, Inc. cannot assume any liability whatsoever for the accuracy or completeness thereof. Final determination of the suitability of any information or material for the use contemplated is the sole responsibility of the user. Specifications are subject to change without notice. The load ratings established in the report are not valid in any application where the use of the product would overload any structural member of the home or foundation,

To Our Customers:

These Installation Instructions are provided as a source of reference and installation information.

Minute-Man Anchors, Inc., having pioneered anchoring for the manufactured home industry, continues in our efforts to provide new and innovative products. In so doing, we are committed to the highest quality made materials, workmanship and total customer satisfaction.

If you are a longtime Minute-Man customer, "Thank You" for your continued trust and patronage. If you are a new customer, "Welcome!" we look forward to serving you in this ever growing industry.

Questions?
Regardless of your level of association with the Manufactured Housing market, if you have questions or we may be of service, please contact our office.
1-800-438-7277
FAX: (828) 692-0258
You can also find further information at our website:
www.minutemanproducts.com

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Note: Prior to installation, refer to any local, state and federal regulations, to assure proper compliance.

Soil test probe the anchor location in order to match the soil classification with the proper anchor.

Note: Prior to installation, refer to any local, state and federal regulations, to assure proper compliance. Soil test probe the anchor location in order to match the soil classification with the proper anchor.



Minute Man anchors, inc.

ANCHOR INSTALLATION

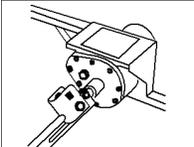
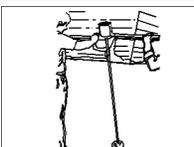
There are two basic methods of installing anchors, each equally effective in properly securing manufactured homes to the ground.

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

Warning: Before ground anchor installation, determine that the anchor locations around home will not be close to any underground electrical cables, water lines or sewer piping. Failure to determine the location of electrical cables may result in serious personal injury.

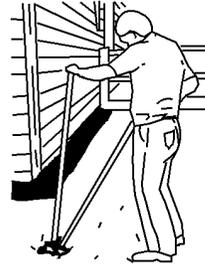
MACHINE INSTALLATION

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

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

MANUAL INSTALLATION

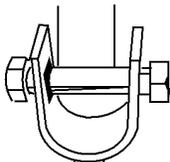
A hole is dug to a depth of approximately $\frac{1}{2}$ the length of the anchor, in the proper position as explained under machine installation.

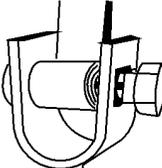


After the hole is dug to $\frac{1}{2}$ the length of the anchor, then the anchor is turned into the ground by hand, using a rod or length of pipe for leverage or by machine.

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

PROPER TENSIONING OF STRAP TO ANCHOR HEAD

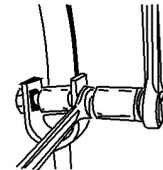
1.  Insert bolt into head; attach nut loosely. Insert strap in slot of $\frac{5}{8}$ " bolt until strap is flush with far side of bolt.

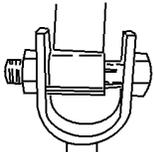
2.  Bend strap 90° and take at least three complete turns on bolt until strap is taut.

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3. Bolt is turned with $\frac{15}{16}$ " socket wrench, or adjustable wrench, on hex head. With square hole in anchor head, hold bolt under tension while repositioning wrench: Place open-end wrench on $\frac{5}{8}$ " square shoulders of bolt. Align square shoulders of bolt with square hole in anchor head.



4.  Holding hex head of bolt in position, tighten nut to draw square shoulders into square hole. Shoulders are now in locking position; continue to tighten nut. Tensioning device is now in locked, secure position.

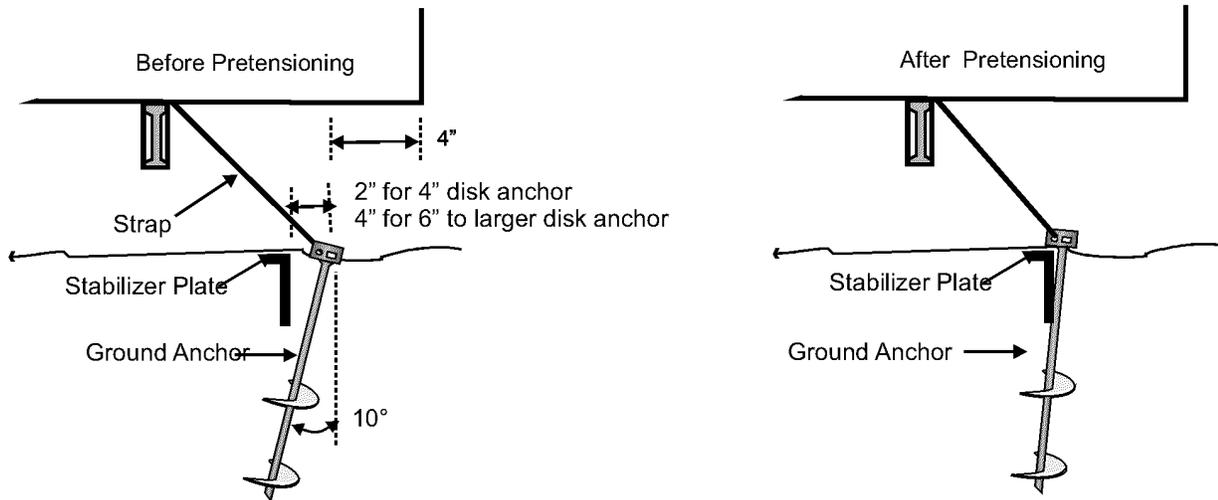
Note: The tensioning bolt can be inserted in the head from either side.

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

MINUTE MAN ANCHORS, INC.

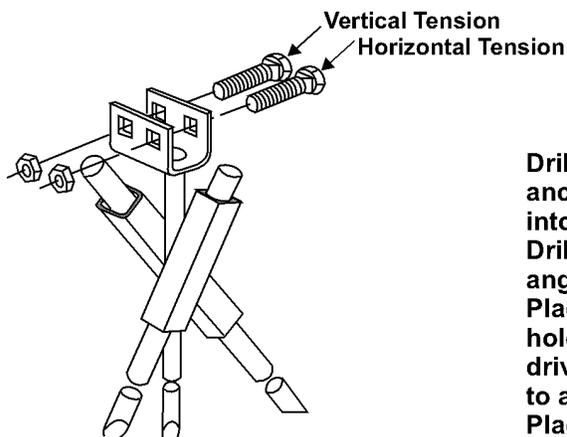
INSTRUCTION FOR USING MINUTE MAN STABILIZING DEVICE

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



1. Place the anchors approximately four inches to the inside of the exterior wall line of the home or a sufficient distance to avoid interference with the skirting (see above)
2. Hold the anchor at an angle of approximately 10 degrees off of vertical so that the head of the anchor is just outside the sidewall (see above)
3. Install the anchor to a depth of approximately one-third (1/3) the anchor length.

4. Place a stabilizer plate to the inside of the anchor shaft (side of shaft toward center of house) and the distance indicated from the shaft.
5. Drive the stabilizer plate into the ground until the top of the plate is 1" below the surface of the ground.
6. Install the anchor to its full depth.
7. Pretension the anchor by pulling it up to the stabilizer plate. Pull the anchor approximately 1/2 inch more while it is in contact with the plate using the strap and take-up bolt to move the anchor head.

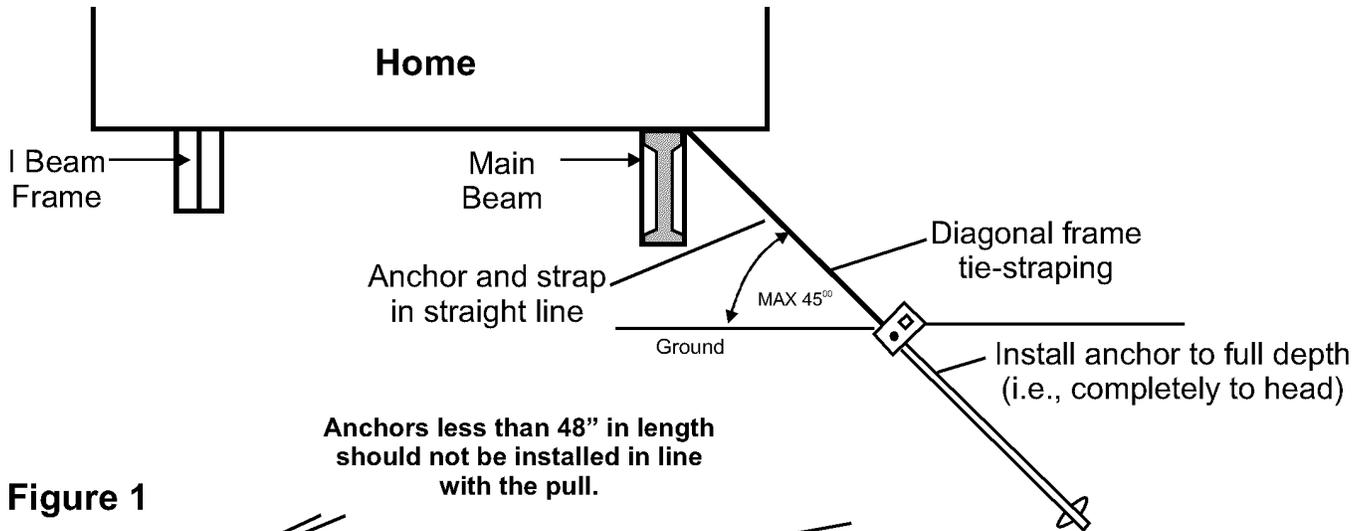


Installation Instructions for Cross Drive Rock Anchor

INSTALLATION INSTRUCTIONS

Drill 5/8" diameter hole 5 1/2" deep, in center of anchor location, for pilot stud. Insert pilot stud into hole.
 Drill two - 3/4" diameter holes in rock at 45 degree angles, using anchor head as a locating guide.
 Place rod through top of (1) square tube and into hole. Drive rod to desired depth. (Rod must be driven into rock at least 80% of its length in order to achieve minimum allowable pullout resistance.)
 Place second rod through top of remaining tube. Drive rod to desired depth to lock.
 Maximum pullout resistance is developed when anchor head is low as possible and ground surface is solid rock. Distance from square tubing to rock surface should not exceed 1".

IN LINE INSTALLED AND CONNECTED GROUND ANCHOR AND FRAME CONNECTION



Anchors less than 48" in length should not be installed in line with the pull.

Figure 1

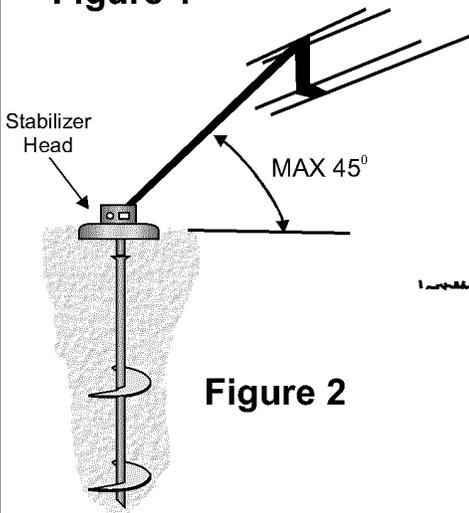


Figure 2

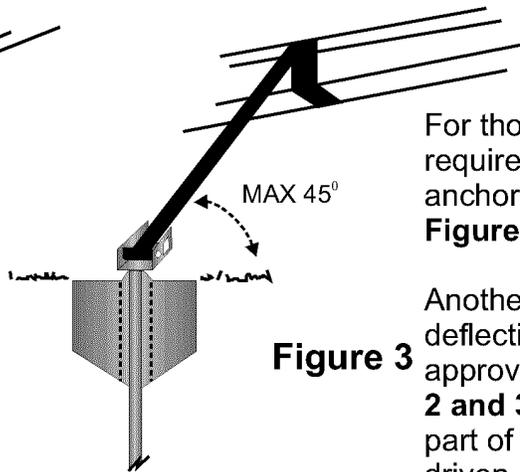


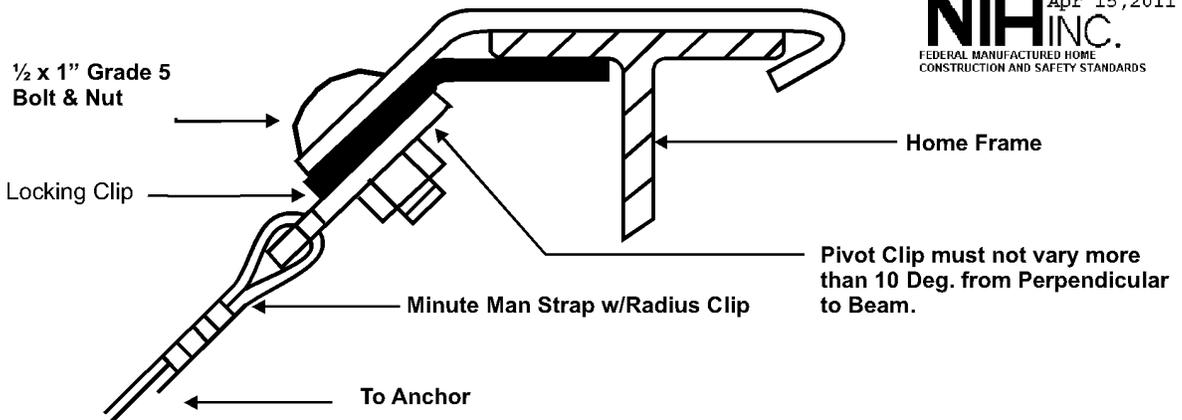
Figure 3

For those homes which are designed to require only diagonal frame ties, the anchor can be installed in line with the ties. **Figure 1.**

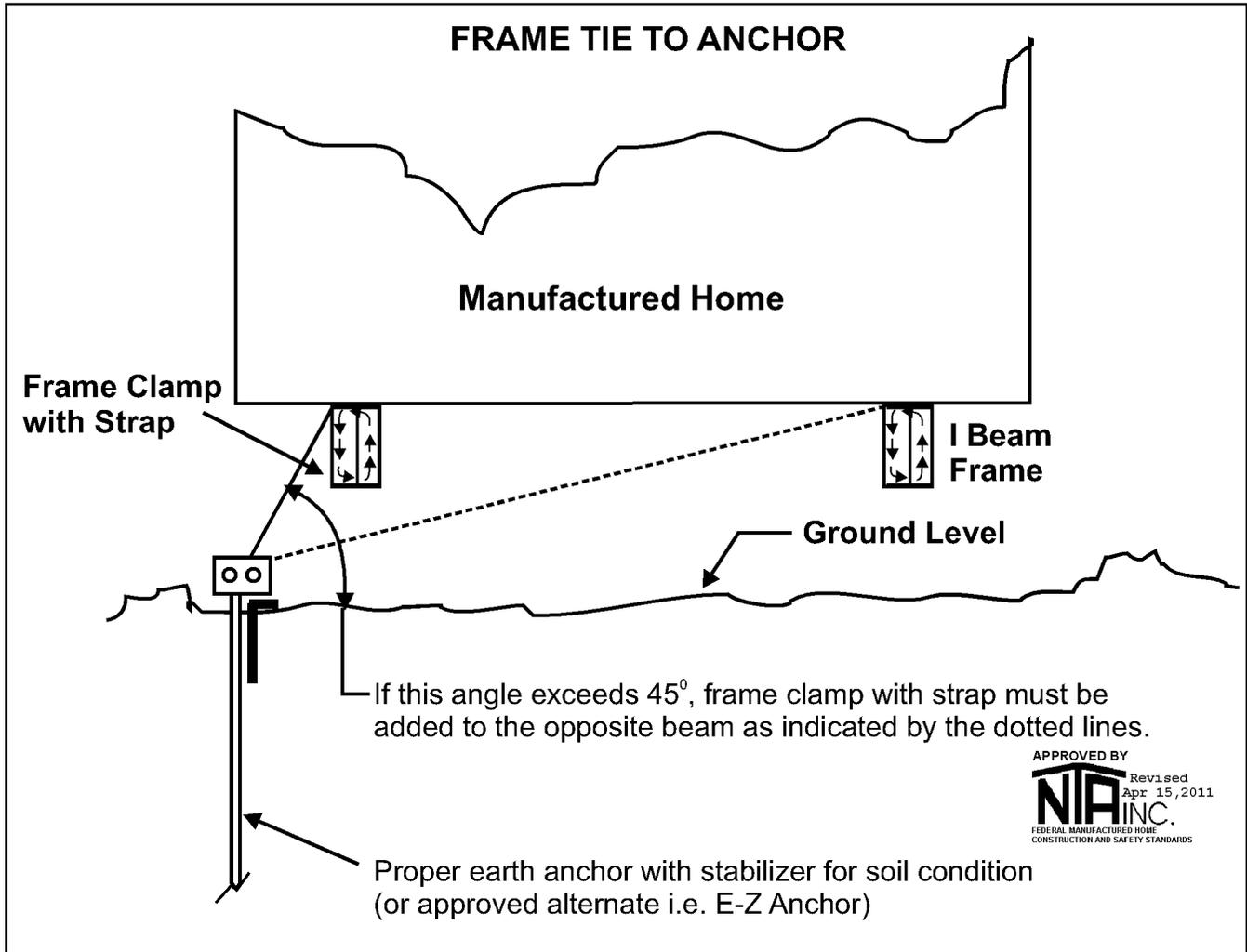
Another accepted way to limit lateral deflection is by use of a tested and approved Metal Stabilizing Device. **Figure 2 and 3.** In **Figure 2**, the Stabilizer is a part of the anchor. In **Figure 3**, the plate is driven in front of the anchor's direction of pull and will act to minimize the anchor rod deflection.

See Top of Page 2.

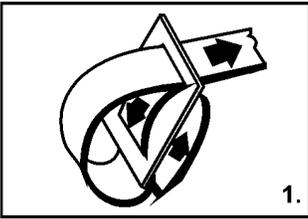
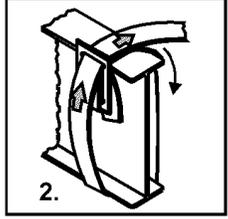
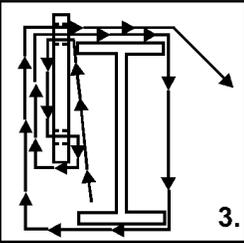
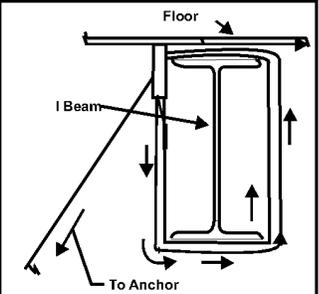
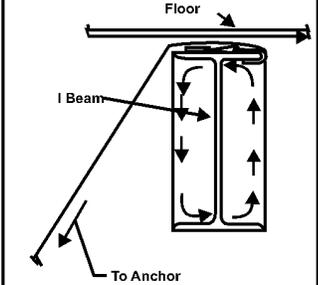
LOCKING FRAME CLAMP II MMA-33 ASSEMBLED UNIT



APPROVED BY
 Revised
 Apr 15, 2011
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS



FRAME TIE INSTALLATION INSTRUCTIONS

<p>Frame Tie With Buckle</p>  <p style="text-align: right;">1.</p>  <p style="text-align: right;">2.</p> <p>Thread sufficient length of frame tie strap through buckle as shown.</p>  <p style="text-align: right;">3.</p> <p>Next, thread long end of strap between frame and floor of home. Bring strap around frame and back through buckle as shown in diagram and fasten to anchor head.</p> <p>Diagram showing strap in position around frame and through buckle. It is important to remove all slack from system.</p> <p>Note: Use of a single buckle is an appropriate alternate.</p>	<p>Single Slot Buckle With Strap</p>  <p style="text-align: center;">Enlarged View of Frame Beam</p> <p>Place buckle at top of anchor side of beam, pass strap around beam and through buckle. Pass strap back around beam and through buckle to anchor. Strap will wrap beam twice. Remove all slack from system.</p>	<p>Frame Tie With Hook</p>  <p style="text-align: center;">Enlarged View of Frame Beam</p> <p>Attach Frame Clamp (Hook) inside top flange of home frame. Bring strap around frame. Place strap between frame and home as shown in sketch. Pull strap tight and attach to anchor tension head.</p>
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E-Z ANCHOR INSTALLATION METHOD

Note: With machine installation, a Minute-Man adapter designed to fit both the anchor head and drive machine shaft is available. Installers do not need additional or special equipment for E-Z Anchor Installation.

E-Z Anchors are a patented item.

1. MACHINE INSTALLATION

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

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

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

E-Z Anchor carries U.S. Patents and manufacture is exclusive to Minute-Man Anchors, Inc.

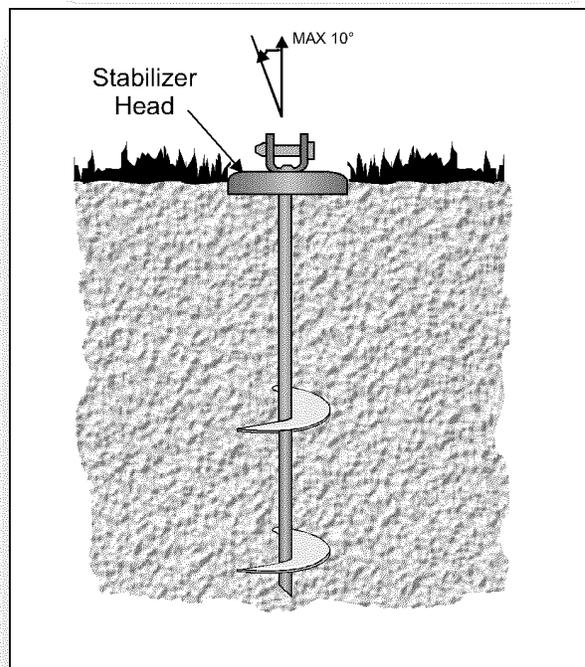


Figure A

2. STANDARDS FOR INSTALLATION

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

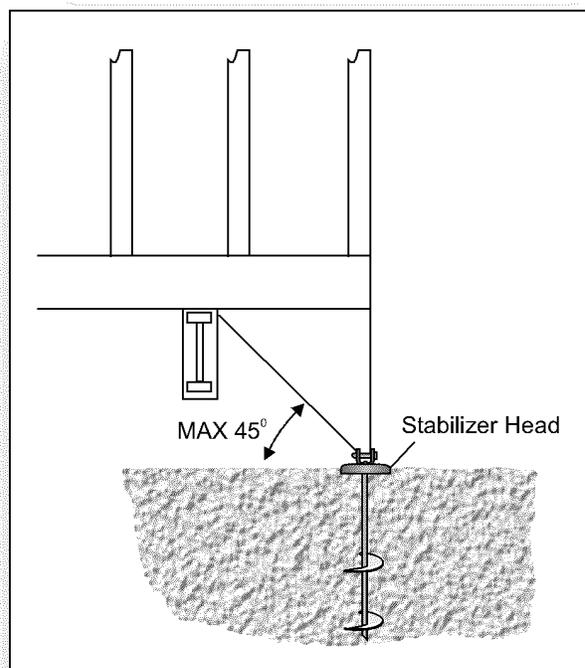


Figure B

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

Minute Man Anchors, inc.®

INSTALLATION

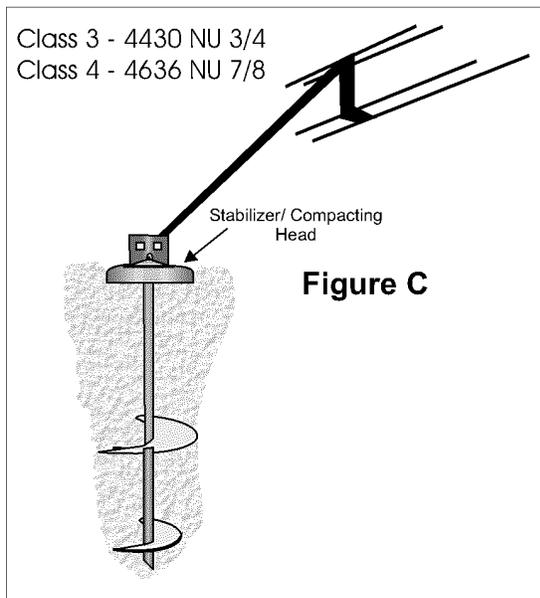
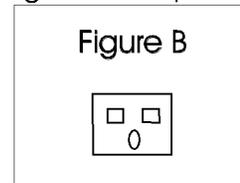
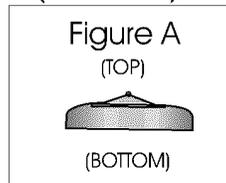
NU-CONCEPT ANCHOR

CLASS 3&4

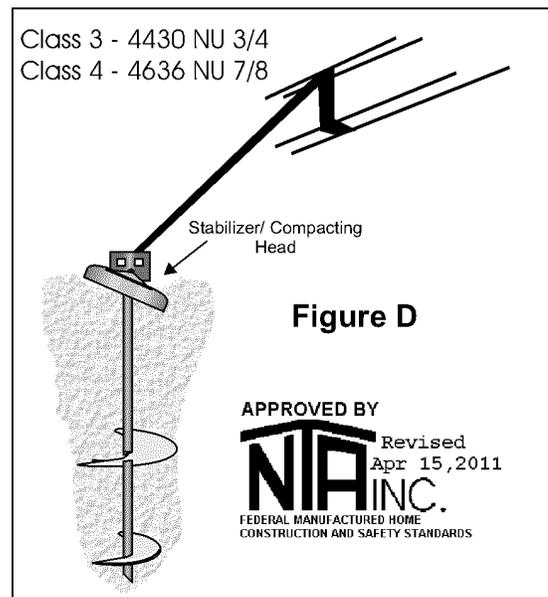
Patent Pending

The Nu-Concept Anchor combines a patented elongated hole in the tension head with a stabilizing and compaction cap. When combined with a grade 5 bolt, the anchor will rotate in all directions allowing adjustment to uneven terrain. Under load conditions the cap, rotates down ward in the direction of the pull, causing a double compaction of the soil and laterally restricts movement of anchor through the soil.

- I. Attach stabilizer/ compaction cap to the tension head of the anchor. This is done by sliding the cap over the top of the tension head, aligning 9/32" holes in cap with 1/4" elongated hole in tension head. Insert 1/4" x 2-1/4", grade 5 bolt (included). Hand tighten. Cap must be installed at any time prior to ground contact. See Cap *Figure A* and Tension Head *Figure B*.

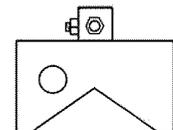


- II. The Drive Machine is started and the anchor is turned into the ground to a point where the bottom of the tension head is at or slightly below ground level. This insures maximum soil compression by the cap. See *Figure C*. Engineered to allow ground anchor to be installed at a slight back angle of 15°



- III. Anchor is pre-loaded. Pre-load causes the cap to rotate downward in the direction of pull, further compacting the soil and presenting a larger surface area, resisting both horizontal and vertical movement. See *Figure D*. When used with rigid support tubes, rather than strap systems, pre-loading is not required.

Note: A special adapter is available to insure against tension head and bolt damage.



GW-2 NU CONCEPT ANCHOR

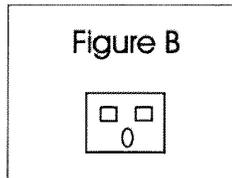
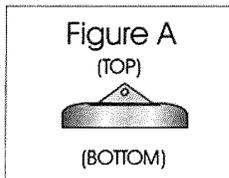
INSTALLATION

CLASS 2+3

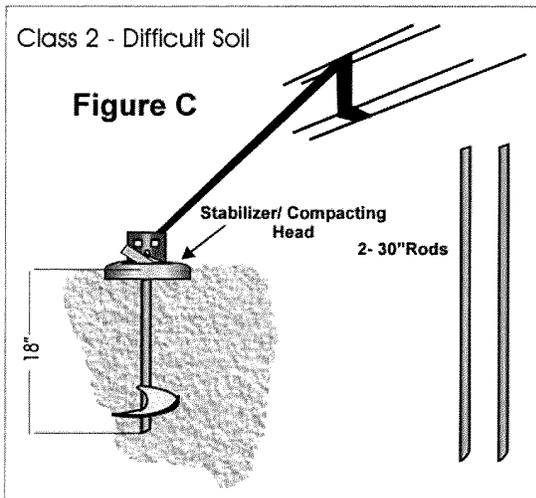
Patent # 6,871,455

The Nu-Concept GW-2 Anchor combines a patented elongated hole in the tension head with a stabilizing and compaction cap with drive rod guides. When combined with a grade 5 bolt, the anchor will rotate in all directions allowing adjustment to uneven terrain. Under load conditions the cap, rotates down ward in the direction of the pull, causing a double compaction of the soil and laterally restricts movement of anchor through the soil. Turn cap to position the drive rod guides facing away from the home. Insert 30" rods and drive to full depth into the soil.

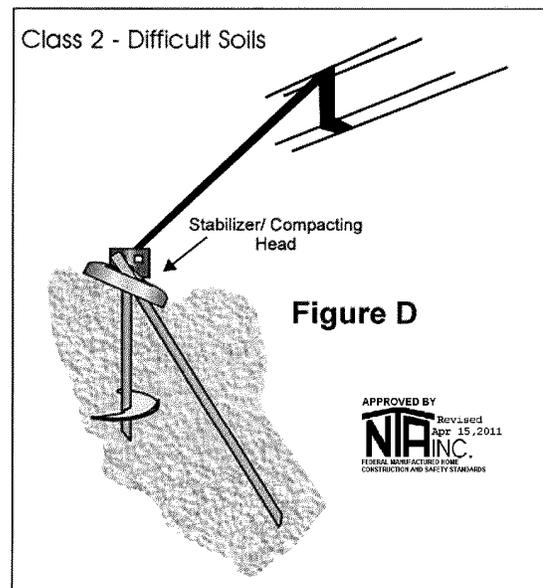
- I. Attach stabilizer/ compaction cap to the tension head of the anchor. This is done by sliding the cap over the top of the tension head, aligning 9/32" holes in cap with 1/4" elongated hole in tension head. Insert 1/4" x 2-1/4", grade 5 bolt (included). Hand tighten. Cap must be installed at any time prior to ground contact. See Cap *Figure A* and Tension Head *Figure B*.



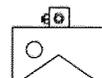
- II. The Drive Machine is started and the anchor is turned into the ground to a point where the bottom of the tension head is at or slightly below ground level. At this point, the drive rod guides on the top of the cap should be slanted away from the outer wall of the home allowing the installer to drive the rods from the outside of the home. This insures maximum soil compression by the cap. See *Figure C*. Engineered to allow ground anchor to be installed at a slight back angle of 15°



- III. Anchor is pre-loaded. Pre-load causes the cap to rotate downward in the direction of pull, further compacting the soil and presenting a larger surface area, resisting both horizontal and vertical movement. See *Figure D*. When used with rigid support tubes, rather than strap systems, pre-loading is not required.

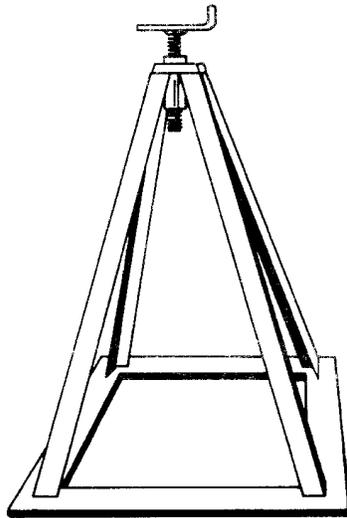


Note: A special adapter is available to insure against tension head and bolt damage



Revised 3-14-07

INSTRUCTIONS FOR USING **Minute Man anchors, inc.** MOBILE HOME PIERS



MINUTE MAN ANCHORS 28726
TR# 8524
RATED 6000 LBS 3 TO 1 SAFETY FACTOR
RATED 8000 LBS 2.25 TO 1 SAFETY FACTOR
2" MAX EXTENSION
WARNING! DO NOT USE TO JACK HOME

The manufactured home shall be installed and leveled by qualified contracting personnel who are acceptable and licensed by the governing authority. Minute Man piers are designed to SUPPORT mobile homes and are not to be used for raising or lowering the home.

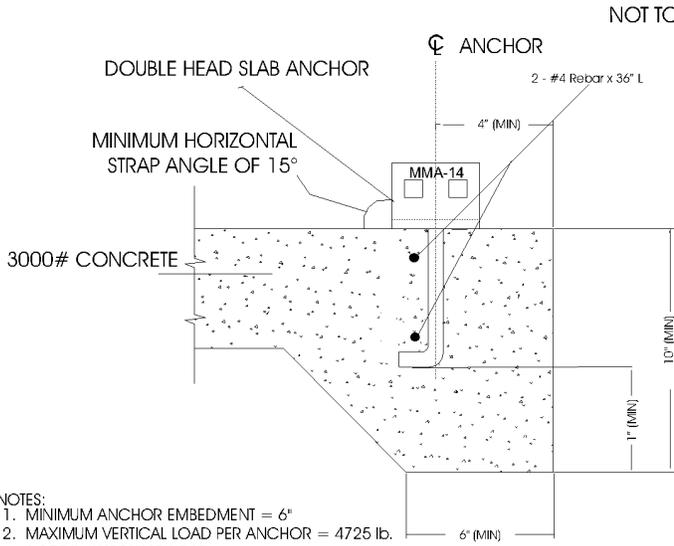
Minute Man piers should be placed directly under the main support frames on both sides of the home spaced in accordance with the home manufacturer's instructions.

MINUTE MAN PIER SET-UP PROCEDURES

1. Designed and manufactured for use under mobile and manufactured homes and commercial structures, the support pier is best suited to a dry environment. Minute Man piers are not recommended for use within 1500 foot of a coastline or in an application where the base of the pier would be immersed in water. All support piers must be attached to the I-beams with an appropriate pier head, to prevent horizontal movement.
2. Use hydraulic jacks or other suitable devices to level the chassis beam of the home. Be sure to use sufficient jacks and safety blocking to safely support the home before installing support piers. Level the chassis using a water level or other leveling device for accuracy. After the chassis is leveled using hydraulic jacks and levels, you may begin to install the support piers.
3. Using the appropriate pier for the installation, determine the pier height that will be best for each individual pier location and insure that the height to the bottom of the chassis beam is no greater than 36 inches. Insure that the pier caps are appropriate for the type of chassis beam or for the marriage line.
4. Prepare a level surface at the location of each pier. Use coarse sand or gravel, if necessary to prepare the surface so as to have full contact for the footing pad. The surface of the footing pad needs to be high enough to insure that the base of the support pier does not come into contact with any drainage water that may be present under the home. Do not set a footing pad on organic material. Use the appropriate type and size of footing pad for the load required. Refer to the home manufacturer's installation manual for specific loads and footing sizes; and to the governing authority in the locale in which you are installing.
5. Locate the support pier on the footing pad, making certain to center the support pier on the pier pad. Where required by local code, secure the support pier to the footing pad with appropriate fasteners. In no case are you to extend the threaded rod adjuster more than 2 inches. When more height is needed, use the next taller size support pier. Carefully align the support pier under the chassis beam or marriage line and install the pier head. Tighten and snug plus one-half turn.
6. Repeat this installation process with each pier. After all support piers are installed, you may then remove the safety blocking and hydraulic jacks used to initially level the chassis.

CONCRETE ANCHOR INSTALLATION INSTRUCTIONS

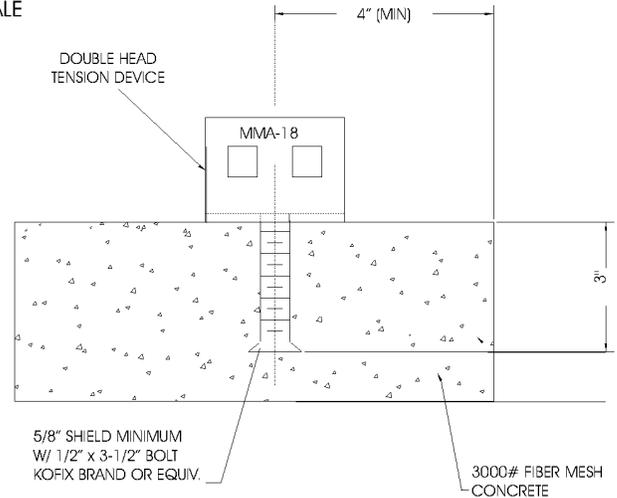
210 PDH CONCRETE ANCHOR



NOTES:

1. MINIMUM ANCHOR EMBEDMENT = 6"
2. MAXIMUM VERTICAL LOAD PER ANCHOR = 4725 lb. 3,150 lb. WORKING LOAD
3. MINIMUM SLAB PER ANCHOR:
 4" SLAB = 95 S.F.
 6" SLAB = 65 S.F.
 8" SLAB = 48 S.F.
4. MARK: MMA-14

THDHLS CONCRETE ANCHOR

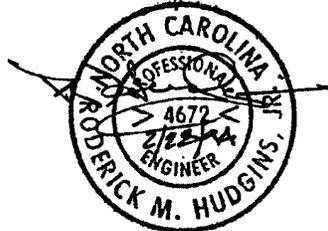


1. MAXIMUM VERTICAL LOAD PER ANCHOR = 4725lb 3,150 lbs. WORKING LOAD.
2. MINIMUM SLAB AREA PER BOLT
 4" SLAB = 95 S.F.
 6" SLAB = 65 S.F.
 8" SLAB = 48 S.F.
3. MARK: MMA 18



INSTALLATION NOTE

1. DRILL 21/32" DIAM. HOLE 4" FROM EDGE OF SLAB AND INSERT SHIELD
2. PLACE TENSION HEAD ON SLAB AND INSTALL 1/2" DIAM. SHIELD BOLT



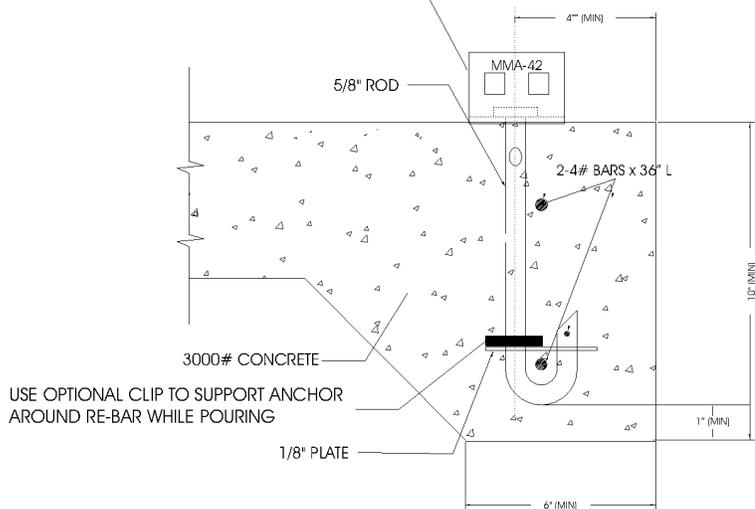
210 JDH CONCRETE ANCHOR

NOTE:

Your set must be designed by a Registered Professional Engineer if the location is within 1500 feet of the coastline.

The allowable working load on concrete anchor models 210 PDH, THDHLS, and 210 JDH is 3,150 pounds vertical for single or double ties in 3,000 PSI concrete. There must be a minimum 4" of distance from the edge of the concrete to the center of the anchor shaft.

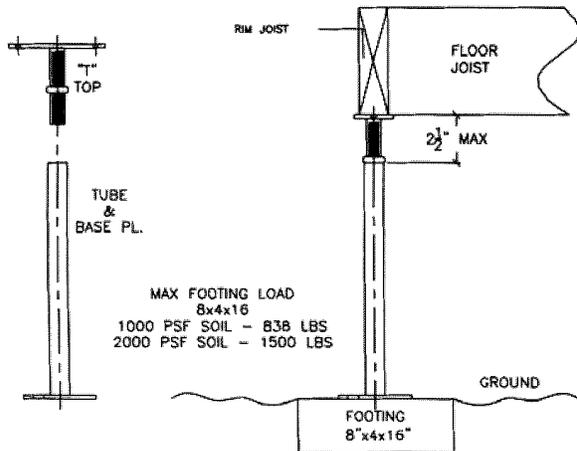
DOUBLE HEAD SLAB ANCHOR 210 JDH



1. MINIMUM ANCHOR EMBEDMENT = 6"
2. MAXIMUM LOAD PER ANCHOR = 4725 lb.
3. MINIMUM SLAB PER ANCHOR:
 4" SLAB = 95 S.F.
 6" SLAB = 65 S.F.
 8" SLAB = 48 S.F.
4. MARK: MMA 42

New Minute Man EZ Joist Brace

- Ideal for supporting sticky doors and windows, heavy pianos, fish tanks, or waterbeds.
- EZ to install, one adjustable size fits most homes.
- Will not bend I-beams or split rim joist like outriggers can do.
- Braces from the ground up to the rim joist for stronger and more stable support under the home.

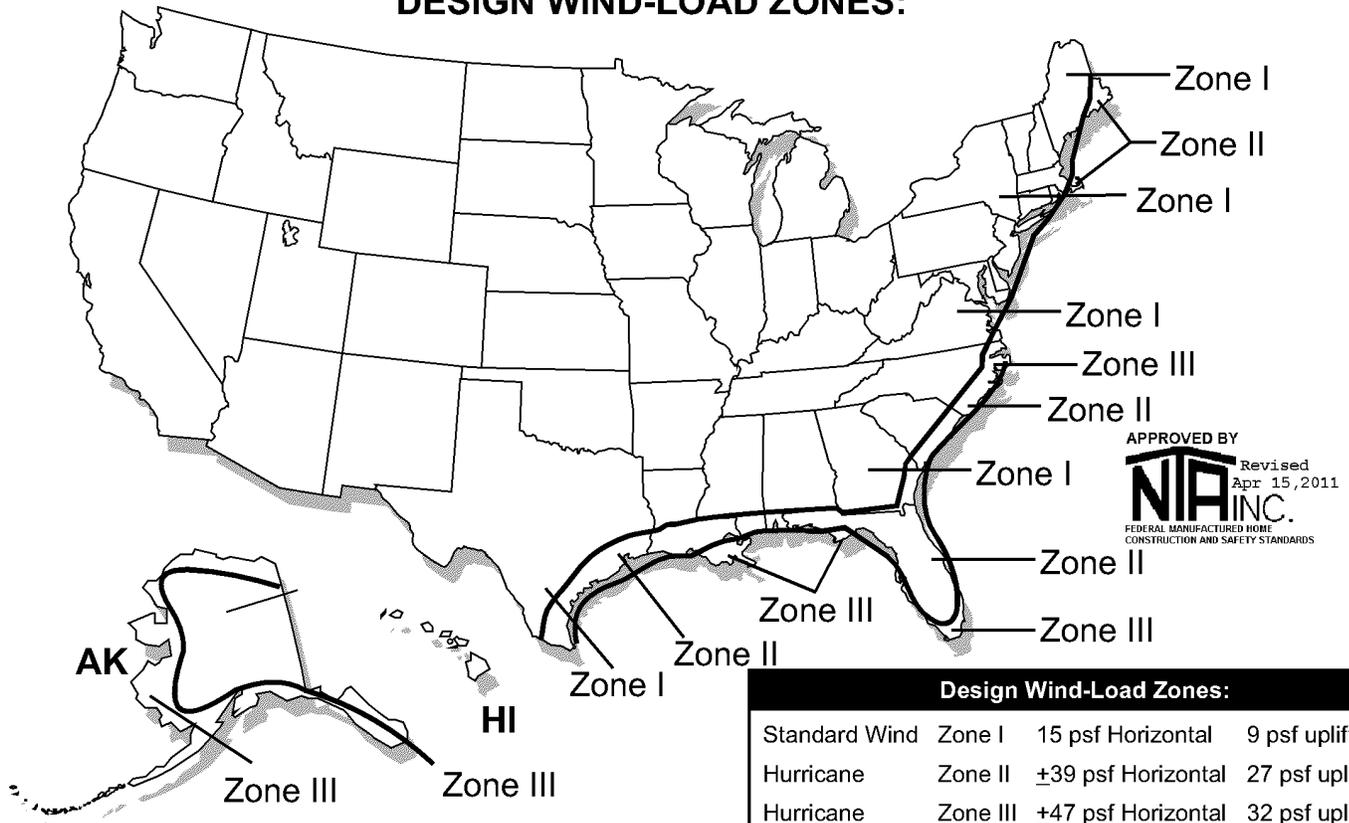


INSTALLATION INSTRUCTIONS

NOTE: Do not use the EZ Joist Brace to replace any foundation piers required by the home manufacturer. EZ Joist Braces' maximum working load is 1,500 lbs.

1. Determine the rim joist area that needs bracing.
2. Remove turf to expose firm soil at each EZ Joist Brace location. Footing must be level, directly under problem area, and located inside perimeter to allow clearance for skirting. Footings must be in compliance with home manufacturer, state codes, local codes, and frost line guidelines as they may apply.
3. Measure distance from top of footing to bottom of joist. Square cut top of tube 1" less than measured distance.
4. Turn nut on threaded rod up to "T" plate. Place "T" top into EZ Brace Joist Tube.
5. Center EZ Joist Brace under the rim joist and in the center of footing, use your level to be sure the brace is vertical.
6. Adjust nut on "T" top to apply desired pressure to level rim joist. Secure "T" top to rim joist with 2 - # 10 nails or 2 - # 10" x 2" screws in holes provided. **The maximum safe adjustment between the top of "T" top plate and top of tube is 2 1/2 inches.**

DESIGN WIND-LOAD ZONES:



Source: Manufactured Home Construction and Safety Standards- Part 3280.305

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

Note: Prior to installation, refer to any local, state and federal regulations, to assure proper compliance. Soil test probe the anchor location in order to match the soil classification with the proper anchor.

For tie down strap and anchor spacing. See the Mobile Home Manufacturers Installation Manual. Each state, county or municipality may require a specific anchor from the groups shown for each soil classification. Check local regulations before installation.



Note:

- Soil test probe the anchor location in order to match the proper anchor with the soil classification.
- Stabilizer plates or certified stabilizing device must be used with anchors when anchors are used to resist horizontal forces.
- The distance from the end of the home to the first anchor must not exceed 2'- 0".
- All homes located in Wind Zones II and III must have a vertical tie installed at each diagonal tie location.

SOIL CLASSIFICATION CHART

Soil Class	Soil Description	Blow Count (ASTM D1586)	Test Probe Value	Recommended Minute Man Anchor
1	Sound hard rock	NA	NA	Cross Drive or Rock Anchor
2	Very dense &/or cemented sands, coarse gravel and cobbles, caliche, preloaded silts, and clays.	40-up	551 lb. in. Up	4430DH 650DH 4430 EZDH 4636 EZDH 636 EZDH GW-2 12" Stabilizer Plate Nu-Concept Stabilizer Cap
3	Medium dense coarse sands, sandy gravels, very stiff silts, and clays.	24-39	351 to 550 lb in.	636 DH 4430 EZDH 650DH 636 EZDH 4430DH 4636 EZDH 4636 DH 650 EZDH GW-2 12" Stabilizer Plate Nu-Concept Stabilizer Cap
4(a)	Loose to medium dense sands, firm to stiff clays and silts alluvial fill.	18-23,3	276 to 350 lb. in.	4636 DH 4450DH 650DH 4636 EZDH 4636 NU Concept Stabilizer Cap 12" Stabilizer Plate
4(b)	VERY loose to medium dense sands, firm to stiff clays and silts, alluvial fill.	12-17	175 to 275 lbs. in	760DH 860DH 1060DH 17" Stabilizer Plate

Remember: Each state, county or municipality may require a specific anchor from the groups shown for each soil classification. Check local regulations first. Soils less than 4B, see home manufacturer's instructions.

Note: Many anchors are designed for particular soil condition(s) and are unacceptable for use in other type soils. We have listed the soils for which each anchor is designed and approved. Soil classifications are taken from the "standard for the installation on mobile homes". Part 3280 each anchor model listed has been tested by an independent professional engineer to meet ANSI A225.1 and ASTM D3953.91 codes.

Revised 3/14/07

Following is a list of Minute-Man Anchors with an allowable working load equal to or exceeding 3,150 lbs. and are capable of withstanding a 50% overload (4,725 lbs. total). Stabilizer devices must be used with anchors when anchors are used to resist horizontal forces. HUD Part 3280.506(f)

ITEM #	MARK	MODEL	DESCRIPTION	USE IN SOIL TYPE
1071	MMA-2	650-DH 5/8"	6" DISC, 50" ANCHOR	2,3,4(a)
1101	MMA-4	650-DH 3/4	6" DISC, 50" ANCHOR	2,3,4(a)
1131	MMA-28	636-DH 3/4	6" DISC, 36" ANCHOR	2,3
1241	MMA-30	4430-DH 5/8	DOUBLE 4" DISC, 30" ANCHOR	2,3
1271	MMA-6	4430-DH 3/4	DOUBLE 4" DISC, 30" ANCHOR	2,3
1349	MMA-35	36-XDH	36" CROSS DRIVE ANCHOR	1
1350	MMA-8	48-XDH	48" CROSS DRIVE ANCHOR	1
1390	MMA-BR	24 BA	BARB ROCK ANCHOR	1
1287	MMA-86	860-DH 3/4	8" DISC, 60" ANCHOR	4(b) (Fla.)
1288	MMA-71	1060-DH 3/4	10" DISC, 60" ANCHOR	4(b)
1291	MMA-75	760-DH 3/4	7" DISC, 60" ANCHOR	2,3,4(a),4(b)
1346	MMA-52	4636-DH 3/4	4" & 6" DISC, 36" ANCHOR	2,3,4(a)
1284	MMA-55	4450-DH 3/4	DOUBLE 4" DISC, 50" ANCHOR	2,3,4(a)
1282	MMA-50	4442-DH 3/4	DOUBLE 4" DISC, 42" ANCHOR	2,3
1312	MMA-57	4636 NU 7/8	4" & 6" DISC, NU CONCEPT CAP	2,3,4(a)
1592	MMA-92	4430-EZDH 3/4	DOUBLE 4" DISC, 30" EZ ANCHOR	2,3
1593	MMA-93	4636-EZDH 3/4	4" DISC, 6" DISC, 36" EZ ANCHOR	2,3,4
1594	MMA-94	636-EZDH 3/4	6" DISC, 36" EZ ANCHOR	2,3
1596	MMA-96	650-EZDH 3/4	6" DISC, 50" EZ ANCHOR	2,3
1598	MMA-98	6650 EZVDH 3/4	DOUBLE 6" DISC, VERT. STABILIZER	2,3,4(a) (Fla.)
1599	MMA-99	8860 EZVDH 3/4	DOUBLE 8" DISC, VERT. STABILIZER	4(b) (Fla.)
2390	MMA-18	THDH	DOUBLE HEAD TENSION DEVICE	SLAB
2391	MMA-18	THDHLS	DH TENSION DEVICE W/LAG	SLAB
1420	MMA-12	210-DH	CONCRETE ANCHOR	SLAB
1450	MMA-14	210-PDH	WET CONCRETE ANCHOR	SLAB
1445	MMA-42	210-JDH	SWIVEL HEAD WET CONCRETE ANCHOR	SLAB
1321	MMA	G W1	G W 1 ROCK ANCHOR	1
1322	MMA	G W2	G W 2 SOIL ANCHOR	2,3
2200	MMA-SD2A		STABILIZER- 12"	2,3,4(a)
2202	MMA-SD2		STABILIZER- 17"	FLA. 2,3,4(a),4(b)
2211	N C1		NU CONCEPT STABILIZER CAP	2,3,4(a)
2691	MMA-29	FCIIW/S	FRAME CLAMP II W/STRAP	FLA.
2820	MMA-31	FRAME TIE	LONGITUDINAL FRAME TIE-8 BOLT	
2822	MMA-34	FRAME TIE	LONGITUDINAL FRAME TIE-4 BOLT	

APPROVED BY

 Revised
 Apr 15, 2011
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS

Revised 3/14/07

ITEM #	MARK	MODEL	DESCRIPTION	USE IN SOIL TYPE
2700	MMA-32	BUC/WS	BUCKLE W/STRAP	
2801	MMA-33	FCII (LOCKING)	LOCKING FRAME CLAMP II	
2704	MMA-71	CT/WS	CORNER TIE W/STRAP	
2706	MMA-71-C	CT/WS	CORNER TIE W/STRAP	
2709	MMA-71-C	CT/WS	CORNER TIE W/ REG. STRAP	
2010	MMA	SBN	STRAP BOLT & NUT	
2510	MMA-25	22 BUCKLE	DOUBLE SLOT BUCKLE	
2530	MMA-32	SS BUCKLE	SINGLE SLOT BUCKLE	
2491		44 RB	4X4" ROOF BRACKET	
2492		66 RB	6X6" ROOF BRACKET	
2150		POCKET PENETROMETER	POCKET PENETROMETER	
2100		SOIL TEST PROBE	SOIL TEST PROBE	
2250		JACKING PLATE	I BEAM JACKING PLATE	
3006	MMP-6	6" PIER	STANDARD MOBILE HOME PIER	
3008	MMP-8	8" PIER	STANDARD MOBILE HOME PIER	
3010	MMP-10	10" PIER	STANDARD MOBILE HOME PIER	
3012	MMP-12	12" PIER	STANDARD MOBILE HOME PIER	
3014	MMP-14	14" PIER	STANDARD MOBILE HOME PIER	
3016	MMP-16	16" PIER	STANDARD MOBILE HOME PIER	
3018	MMP-18	18" PIER	STANDARD MOBILE HOME PIER	
3020	MMP-20	20" PIER	STANDARD MOBILE HOME PIER	
3022	MMP-22	22" PIER	STANDARD MOBILE HOME PIER	
3024	MMP-24	24" PIER	STANDARD MOBILE HOME PIER	
3026	MMP-26	26" PIER	STANDARD MOBILE HOME PIER	
3028	MMP-28	28" PIER	STANDARD MOBILE HOME PIER	
3030	MMP-30	30" PIER	STANDARD MOBILE HOME PIER	
3521	MMSD3	20" STEEL PIER PAD	LONGITUDINAL AND LATERAL BRACING SYSTEM	
3530	MMAST	60" LATERAL TUBE	LONGITUDINAL AND LATERAL BRACING SYSTEM	
3539	MMLBT	39" BRACE TUBE	LONGITUDINAL AND LATERAL BRACING SYSTEM	
3544	MMLBT	44" BRACE TUBE	LONGITUDINAL AND LATERAL BRACING SYSTEM	
3553	MMLBT	53" BRACE TUBE	LONGITUDINAL AND LATERAL BRACING SYSTEM	
3510	MMLBC	BEAM CLIP W/B&N	LONGITUDINAL AND LATERAL BRACING SYSTEM	
3534	CAF	CONCRETE DRY SET	LONGITUDINAL AND LATERAL BRACING SYSTEM	
3536	CFW	CONCRETE WET SET	LONGITUDINAL AND LATERAL BRACING SYSTEM	

APPROVED BY

 Apr 15, 2011
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS



ROD M. HUDGINS, JR. P.E.
P.O. BOX 5070
ASHEVILLE, N.C. 28813-5070

APPROVED BY
NIA INC. Apr 15, 2011
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS

JANUARY 8, 2007

MINUTE MAN ANCHORS, INC.
 305 WEST KING STREET
 EAST FLAT ROCK, N.C. 28726

DEAR SIR:

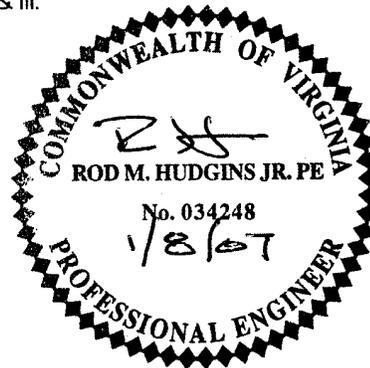
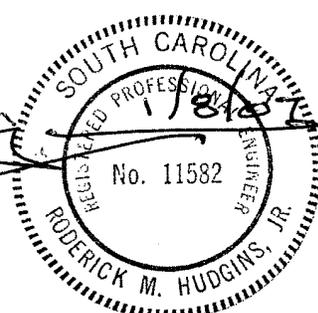
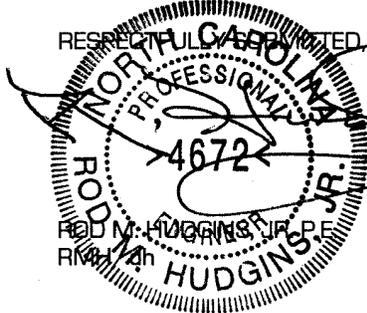
I HAVE ANALYZED DESIGN DRAWING, PHYSICAL TESTING REPORTS AND INSTALLATION INSTRUCTIONS FOR THE MINUTE MAN PRODUCTS LISTED AS FOLLOWS:

650 DH 5/8	4430 DH 5/8	GW2-NC2	
650 DH 11/16	4430 DH 11/16	36 XDH	THDH
650 DH 3/4	4430 DH 3/4	48 XDH	THDHLS
760 DH 3/4		36 DH	
636 DH 5/8	4442 DH 5/8	24 BA	FCI W/S
636 DH 3/4		210 DH	FCII W/S
		210 PDH	BUC W/S
4636 DH 3/4	4450 DH 11/16	210 JDH	SBN
4636 NCI 7/8	4450 DH 3/4	100 DH	MMASD2
4430 EZDH			MMASDA2
636 EZDH 3/4		CT/WS CORNER TIE	
650 EZDH 3/4		LLBS LONGITUDINAL & LATERAL BRACING SYSTEM	
660 EZDH 3/4		MMA 31 LONGITUDINAL FRAME TIE	
6650 EZVDH 3/4 W/ VERT. STABILIZER		MMA 33 LOCKING FRAME CLAMP 11	
8860 EZVDH 3/4 W/ VERT. STABILIZER		MMSPP LONG STAB SYSTEM	
		E-Z ASTS SUPPORT TUBS SYSTEM	

MY ANALYSIS OF THE PHYSICAL TEST REPORTS DEFINE THE BREAKING STRENGTH OF EACH OF THESE ANCHORS AND THEIR COMPONENTS TO BE IN EXCESS OF 4625 POUNDS. THE STRAPPING MEETS FEDERAL SPECIFICATION QQ-S-781H FOR TYPE I, CLASS B, GRADE I STRAPPING. THE STRAPPING ALSO MEETS WITH ANSI 225.1 STANDARDS AND ASTM D3953-91 STANDARDS. THE STRAPPING IS 1 1/4 X .035 MINIMUM, HOT DIP GALVANIZED STEEL.

ON FILE ARE TESTING REPORTS OF THE DIRECT WITHDRAWAL STRENGTH OF THESE ANCHORS. THESE TEST EVALUATE THE ANCHORAGE STRENGTH OF MINUTE MEN ANCHORS INSTALLED RESISTING AN AXIAL AND 45 DEGREE ANGLE APPLIED WITHDRAWAL LOAD. FOR THE ANCHORS LISTED ON PAGES 10 AND 11, THE AVERAGE HOLDING POWER MEETS AND/ OR EXCEEDS THE REQUIRED MINIMUM OF 4,725 POUNDS, WHEN INSTALLED IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS IN THE SOIL TYPES AND CLASS SHOWN.

THE LLBS BRACING SYSTEM WAS TESTED FOR WIND ZONES I, II, & III.

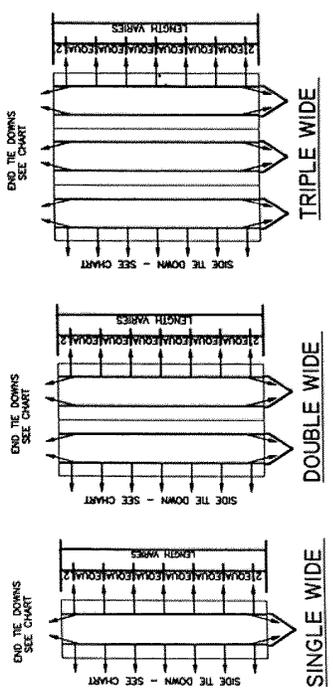


Apr 15, 2011

INSTALLATION INSTRUCTIONS

- FIRST CHECK FOR UNDERGROUND UTILITY LOCATION:
- EZDH EARTH AUGERS**
- SEE DETAIL THIS BOOKLET FOR INSTALLATION INSTRUCTIONS.
- EARTH AUGERS**
- INSTALL AUGERS INTO SOIL WITH CONSTANT DOWNWARD PRESSURE TO MINIMIZE SOIL DISTURBANCE LEAVING APPROX. 12" OF SHAFT EXPOSED.
 - INSTALL STABILIZER PLATE - DRIVE FLUSH WITH GROUND SURFACE.
 - COMPLETE TURNING AUGER INTO GROUND UNTIL AUGER HEAD IS FLUSH WITH GROUND SURFACE AND TOP OF STABILIZER PLATE.
- CROSS DRIVE ANCHORS**
- CROSS DRIVES ARE USED WHERE HARD ROCKY SOIL OCCURS. IF THE GROUND SURFACE IS OTHER THAN ROCK OR MINIMUM 2" ASPHALT, INSTALL MMA-S02 STABILIZER PLATE, OR PLACE 12"x12"x12" DEEP CONCRETE.
- CONCRETE SLAB ANCHORS**
- CONCRETE SLAB TO BE MINIMUM 3 1/2" THICK AND IN GOOD CONDITION.
 - MINIMUM SLAB AREA REQUIRED FOR EACH ANCHOR IS 28 SQ. FEET.
 - DRILL PROPER SIZE HOLE IN SLAB MINIMUM 1/2" FROM ANY EDGE.
- ALL APPLICATIONS**
- ATTACH STRAPS TO CHASSIS BEAM IN MANNER SHOWN.
 - INSERT STRAP THROUGH SPLIT NUT, CUT OFF EXCESS STRAP AND TIGHTEN UNTIL SNUG.

TIE DOWN LOCATIONS



EARTH AUGERS	CROSS DRIVE ANCHORS				CONCRETE SLAB ANCHORS							
	MAX. LENGTH OF MFG'D HOME - TIE DOWNS	MAX. LENGTH OF MFG'D HOME - TIE DOWNS	MAX. LENGTH OF MFG'D HOME - TIE DOWNS	MAX. LENGTH OF MFG'D HOME - TIE DOWNS	MAX. LENGTH OF MFG'D HOME - TIE DOWNS	MAX. LENGTH OF MFG'D HOME - TIE DOWNS	MAX. LENGTH OF MFG'D HOME - TIE DOWNS	MAX. LENGTH OF MFG'D HOME - TIE DOWNS				
39'	54'	72'	32'	42'	52'	62'	73'	34'	42'	50'	59'	69'
2	3	4	3	4	5	6	7	4	5	6	7	8

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

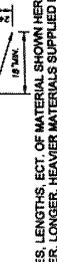
LISTED BY:
 TRI STATE TESTING SERVICE, INC.
 801 WALFORD ROAD
 MARIETTA, GA 30067
 LISTING NUMBER MM 18-01
 THE DOWN SYSTEM TO BE IDENTIFIED BY A STICKER PLACED ON THE STEEL STRAPS MARKED OR MMA-T1 - STICKER TO COMPANY IDENTIFICATION NUMBER
 TRI STATE TESTING SERVICE, INC.
 LISTING NO. MM 18-01

MINUTE MAN ANCHORS, INC.

185 WEST PLATONCK, NC 27726
 PHONE: (800) 438-7177
 ENGINEERED TIE DOWN SYSTEM
DESIGN & GENERAL NOTES

- DESIGN LOADS:**
- WIND 15 PSF (70 MPH EXPOSURE "C")
 - SOIL BEARING 1000 PSF
 - TIE DOWN STRAP 3150# WORKING LOAD
 - SEISMIC ZONE 4
- TIE DOWN STRAPS TO BE MIN. 1 1/4" WIDE x 0.035 THICKNESS ZINC PLATED AND MEET ASTM D-3985/91
- EARTH AUGERS 2802# MIN. (TESTED TO 4750# MIN.)
 - CROSS DRIVES 1727# (CALCULATED)
 - CONCRETE SLAB ANCHORS 1390# (CALCULATED)

- GENERAL NOTES:**
- THE CHARTS SHOWN HEREIN ARE FOR THE REQUIRED NUMBER OF TIE DOWNS ON THE SIDES OF THE MANUFACTURED HOME. EACH END OF EACH TRANSPORTABLE SECTION OF THE MANUFACTURED HOME AND CAN BE ANY OTHER TYPE OF TIE DOWN SYSTEM PROVIDED THE TIE DOWNS CAN BE USED.
 - CONNECTIONS OF THE DIFFERENT TYPES OF TIE DOWNS CAN BE USED.
 - IN THE EVENT AN EARTH AUGER CANNOT BE INSTALLED DUE TO AN OBSTRUCTION, USE OF CROSS DRIVE ANCHORS IS PERMITTED, PROVIDED (2) CROSS DRIVES ARE INSTALLED FOR EACH EARTH AUGER THAT CANNOT BE INSTALLED.
 - FOR ALL TIE DOWN INSTALLATIONS, THE MFG'D HOME CHASSIS MEMBERS ARE TO BE USED FOR ALL TIE DOWN ATTACHMENT PURPOSES ONLY. CHASSIS BEAMS CAN ALSO BE "C" SHAPED OR "T" SHAPED.
 - END TIE DOWNS CAN BE LOCATED WITHIN 24" OF EITHER SIDE OF CHASSIS BEAM AXIS AS SHOWN.
 - THE SIZES, TYPES, LENGTHS, ECT. OF MATERIAL SHOWN HEREIN ARE MINIMUM. LARGER, LONGER, HEAVIER MATERIALS SUPPLIED BY MINUTE-MAN PRODUCTS MAY BE USED AT THE MANUFACTURER'S DISCRETION.
 - THIS TIE DOWN SYSTEM CAN BE USED WITH 10' WIDE MANUFACTURED HOME SECTIONS WITH 100" CHASSIS CENTERS PROVIDED THE HEIGHT FROM GRADE TO THE BOTTOM OF THE CHASSIS BEAM DOES NOT EXCEED 19".
 - THE DOWN STRAPS IN THE LONGITUDINAL OR TRANSVERSE DIRECTION CAN BE BOLTED TO THE HITCH ATTACHMENT PLATE THAT IS WELDED TO THE CHASSIS BEAM.



ENGINEER APPROVAL

SEE PAGE 2 FOR LISTING INFORMATION

REGISTERED PROFESSIONAL ENGINEER
 DAVID A. DAHMEN
 No. 3913
 STATE OF OREGON

REGISTERED PROFESSIONAL ENGINEER
 DAVID A. DAHMEN
 No. 17918
 State of California
 Expires 04/15/11

PACIFIC CONSULTING ENGINEERS
 2150 BELL AVE. SUITE 145
 SACRAMENTO, CALIFORNIA 95638
 PH: (916) 564-6028

STATE APPROVAL

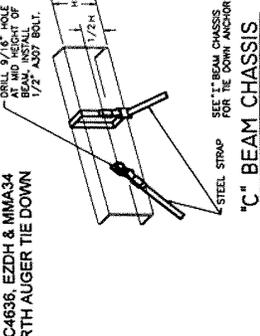
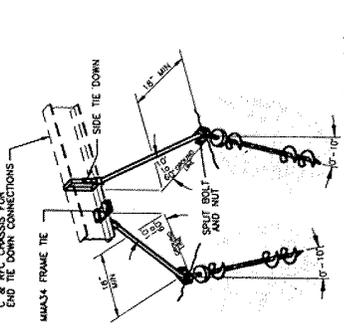
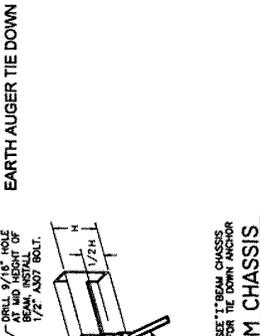
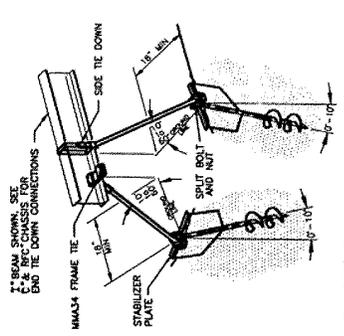
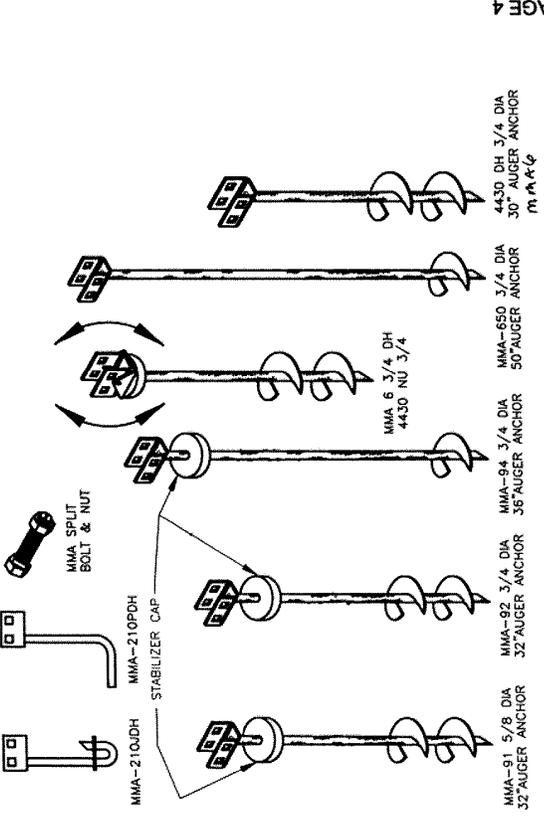
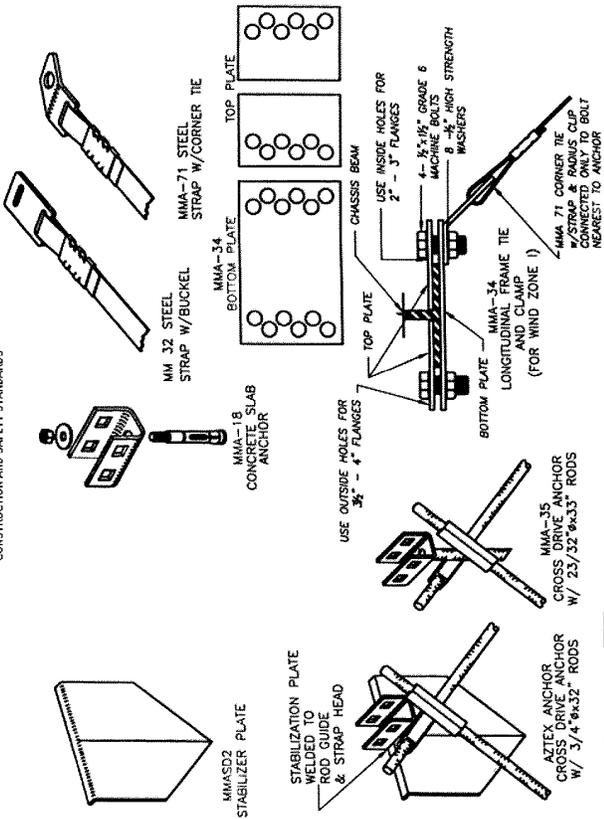
ENGINEERED TIE-DOWN SYSTEM
 APPROVED

Approved does not substitute or approve any combination or modification from requirements of applicable State laws and regulations.

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

By: *Michael D. Deha*
 FTS 119
 This Plan Approval Expires 4/15/11
 Renewal 4 pages

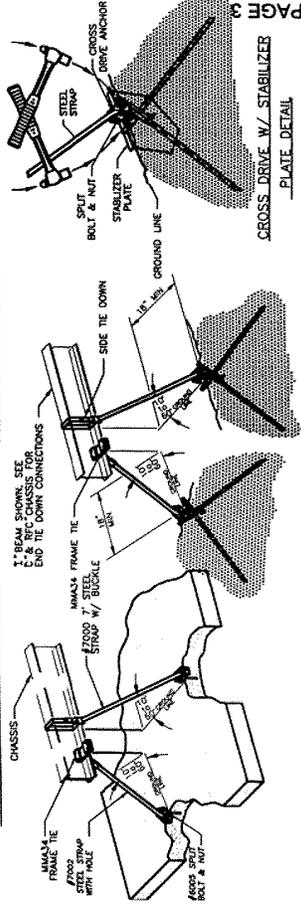




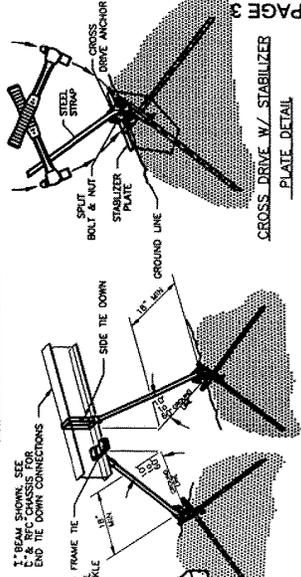
INSTALLATION INSTRUCTIONS

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

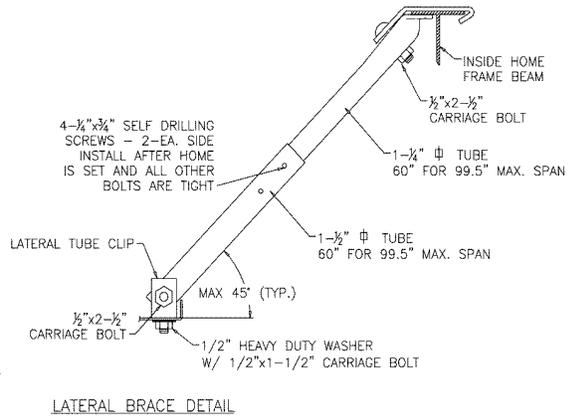
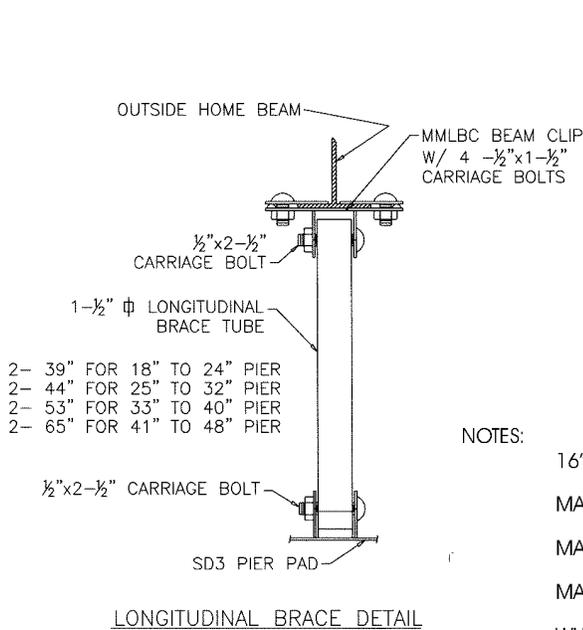
CONCRETE TIE DOWN



CROSS DRIVE TIE DOWN



LONGITUDINAL AND LATERAL BRACING SYSTEM



NOTES:

16" PINS MUST BE USED IN CLASS 4 SOILS.

MAXIMUM PIER HEIGHT- 48"

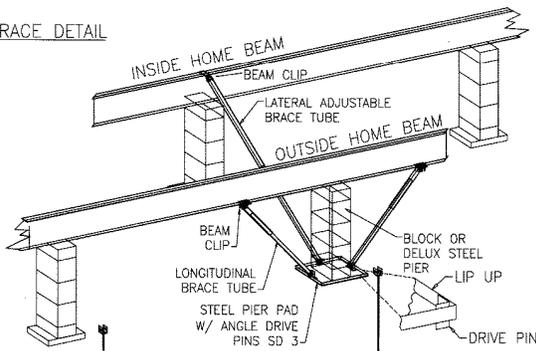
MAXIMUM SIDEWALL HEIGHT 96"

MAXIMUM BEAM SPACING 99.5"

WHEN USING LONGITUDINAL BRACES, 2ND PIER IN FROM THE END OF THE HOME
MAY BE USED TO MAKE ROOM FOR BRACE TUBES.

LATERAL BRACE DETAIL

LONGITUDINAL & LATERAL BRACING SYSTEM
DETAIL ASSEMBLY DRAWING



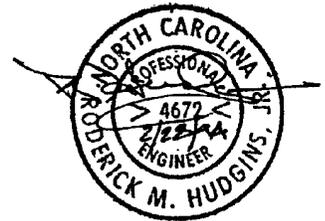
SPECIAL INSTRUCTIONS

ALABAMA - MAX PIER HEIGHT 32"
*HUD LABEL HOMES ONLY

NOTE: 1/2" BOLTS ARE GRADE 5

MINUTE MAN ANCHORS
10/10/01
REV 3/6/02

Minute Man anchors, inc.



NOTE:

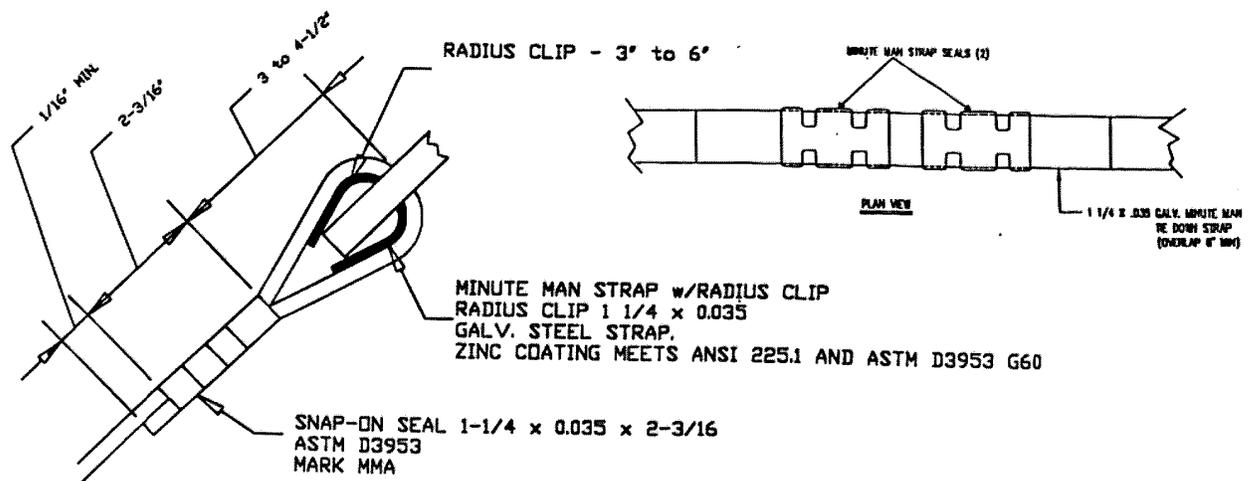
All LLBS Systems are shipped with complete installation instructions.
See these instructions for System Locations in Zones I, II, III, FL.

APPROVED BY



“SUGGESTED RECOMMENDATIONS WHEN USING CRIMPING SEALS”

1. The strap must be identified “MINUTE MAN ANCHORS INC. **CERTIFIED ANSI 225.1 AND ASTM D3953.**”
2. WHEN EXTENDING OR SPLICING TWO STRAPS, OVER LAP APPROX. 6”, USE TWO SEALS FULLY CRIMPING EACH SEAL TWICE TO BOTH STRAPS.
3. WHEN STRAPPING TO AN APPLIANCE SUCH AS SLOT IN A VERTICLE TIE OR A HOOK OR A BUCKLE WE SUGGEST THAT YOU USE A SHORT PIECE OF STRAP (RADIUS CLIP) BENT 180 degrees IN DIRECT CONTACT WITH THE APPLIANCE. (This will act as a cushion, reinforce and prevent sharp bends in the strap.) NEXT INSERT THE STRAP BENDING IT OVER 180 degrees BACK TO THE STRAP. USING ONE SEAL, PLACE BOTH STRAPS INTO SEAL AND CRIMP TWICE.
4. SEALS MUST ALWAYS BE CRIMPED TWICE.
5. PLEASE NOTE: TWO SEALS REQUIRED WHEN SPLICING TWO STRAPS. ONE SEAL WHEN BENDING 180 degrees.

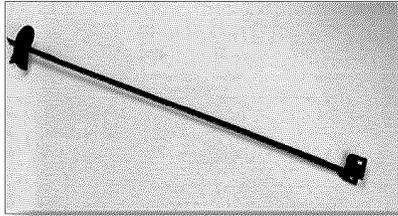


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CONSTRUCTION AND SAFETY STANDARDS

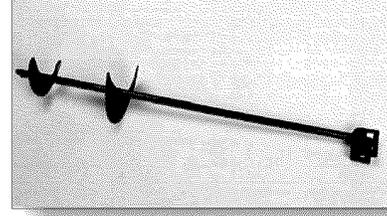
Apr 15, 2011

SINGLE DISK ANCHORS



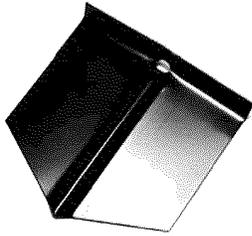
650, 636, 760, 1060 DH Anchor

DOUBLE DISK ANCHORS



4430, 4636 DH Anchor

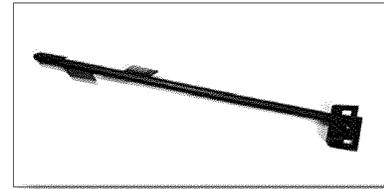
STABILIZERS



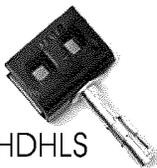
Available Painted
Black or
Galvanized
as required
in Florida

DRIVE ANCHORS

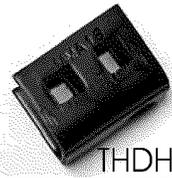
36X And 48X Cross Drive Anchors
24" Barbed Rock Anchor



CONCRETE ANCHORS



THDHLS



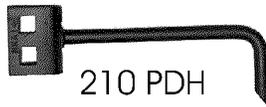
THDH



210 JDH
W/Swivel Head



210 DH



210 PDH
Painted or Galv.

NU-CONCEPT ANCHOR

Patented

Packaged 16 to a box and includes Grad #5 bolts and nuts.
Total Weight: 25 lbs.

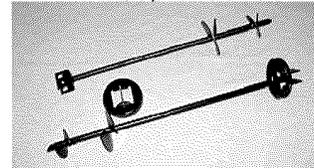


N C 1 Swivel
Stabilizer Cap



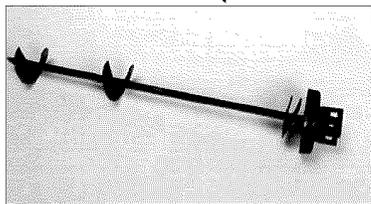
Anchor w/cap
attached

Full view of anchor
with cap and
with cap attached



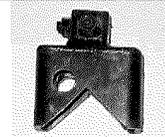
Item#	Description
1311	4636 7/8" DH
1312	4636 7/8" DH W/Cap
2211	NU Concept Cap

E-Z ANCHORS (Patented)



4430, 4636, 636, 650, DH Anchor
6650, 8860 VDH Anchor

All Anchors
Available
Painted or
Galvanized



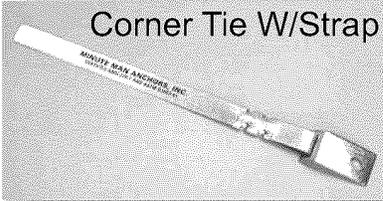
Nu-Concept
Drive Adapter

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CONSTRUCTION AND SAFETY STANDARDS

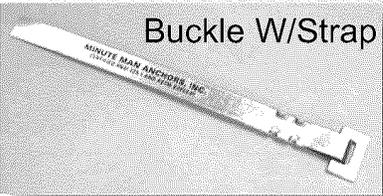
Galvanized Steel Strapping



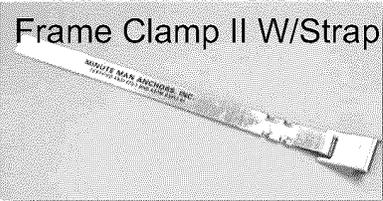
Corner Tie W/Strap



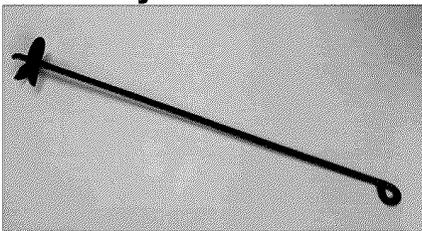
Buckle W/Strap



Frame Clamp II W/Strap



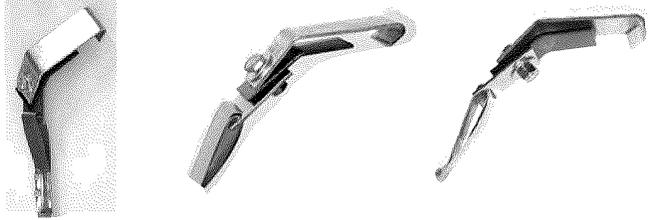
Eye Anchors



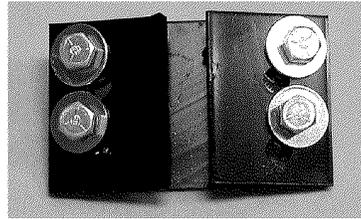
Available in various sizes

Locking Frame Clamp II

Several different strap lengths available



Longitudinal Frame Tie

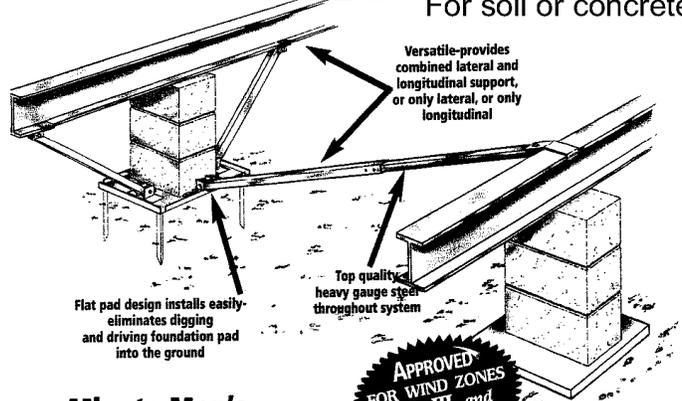


Available w/4 bolts for Wind Zone I and w/8 bolts for Wind Zone III
Use with corner tie strap for end ties.

The Minute Man Foundation System for All Wind Zones Saves Time & Money!

LLBS

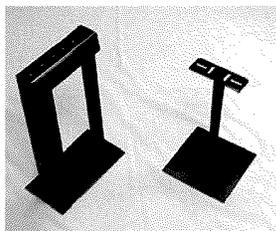
For soil or concrete



Minute Man's superior design outperforms other brands in so many ways:

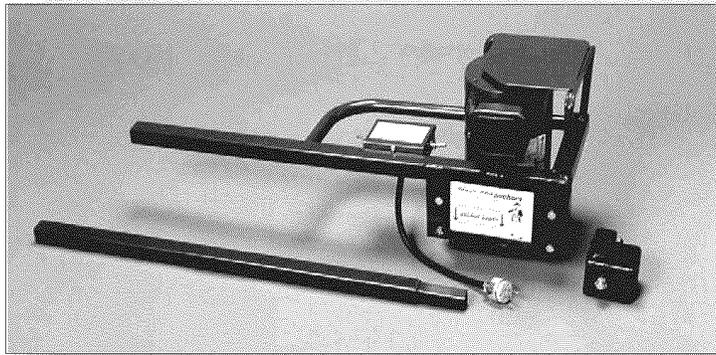


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CONSTRUCTION AND SAFETY STANDARDS
APR 15, 2011



AWNING ANCHORS

Item#	Description	Item#	Description
6010	Z bar Awning Anchor	6031	18" Long Buckle Anchor
6020	H bar Awning Anchor	6040	30" Short Buckle Anchor
6030	18" Short Buckle Anchor		



MINUTE MAN DRIVE MACHINE

The Minute Man Drive Machine features:

- One-half horse power motor
- 17- ¼ rpms
- 115 Volt 60 cycle, 9 amp
- Motor on/off switch with forward/reverse
- 90 day limited warranty against manufacture defects.

Item#	Description
2730	Drive Machine
2741	Adapter

RIDGID 700 DRIVE W/CASE

The Ridgid 700 Portable Power Drive features:

- One-half horse power motor
- 26 rpms
- 115 Volt
- Case and all accessories are included
- No warranty

Item#	Description
2760	Ridgid Drive Machine



Accessories



2250 Main Beam Jacking Plate

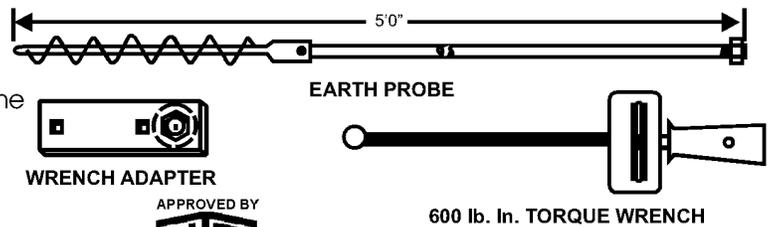


2010 Slotted Strap Bolt and Nut

SOIL TEST PROBE

The purpose of the Soil Test Probe is to determine the soil conditions below the surface near the anchor's helical plate. This will insure the use of the proper anchor for the soil condition.

Item#	Description
2100	SOIL TEST PROBE KIT



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 CONSTRUCTION AND SAFETY STANDARDS



Installation Manual Addendum

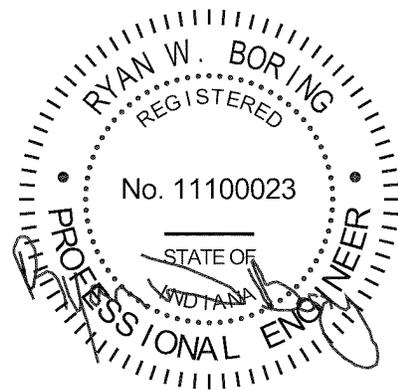
Subject: Special Foundation Systems – Oliver Technologies 1100 Foundation Systems

This letter is intended to serve as an addendum to the Legacy Housing Installation Manual as it pertains to foundations. Legacy Housing has determined that Oliver Technologies 1100 Systems are acceptable for use on their homes in Wind Zones 1, 2, and 3 under the following conditions:

- Maximum sidewall height =90"
- Main I-beam spacing =99.5"
- Maximum eave projection =8"
- Single Wide home widths from 139" to 210"
- Double Wide home widths from 277" to 420"
- Maximum roof pitch < 20°
- Maximum prier height =36"
- All foundation systems are installed per manufacturer's installation instructions

In addition to the Oliver Technologies 1100 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 Oliver Technologies 1100 System.

The minimum number of systems & anchoring required is shown on the charts on page I-C-41.



Jun 25, 2019

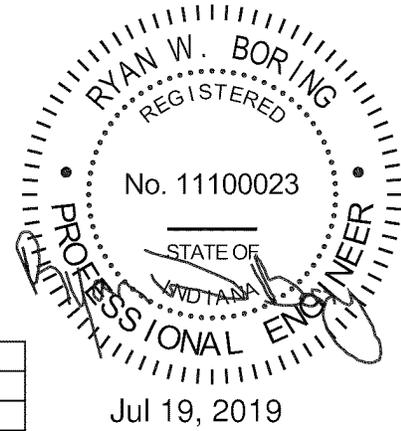
I-C-40

Legacy Housing Corporation

Oliver 1100 "V"

Used with Concrete Footers or Tested Metal Pad

Max Wall Height: 7.5
 Roof Pitch: under 20 degrees
 I-Beam spacing: 79.5 for 139.5" Singlewide, 99.5 for all others
 Max Blocking height: 48 "



Wind Zone 1 **Length: max 84 ft**

	Single Wides				Double Wides		
	Home Width (in)				Home Width (ft)		
	139.5	163.0	187.5	210.0	23.08	31.08	35.00
Strap Spacing(ft):	14.0	0.0	0.0	0.0	0	0	0
# of Oliver 1100 IC "V" system:	2	2	2	2	2	2	2

Wind Zone 2 **Length: up to 56 ft**

	Single Wides				Double Wides		
	Home Width (in)				Home Width (ft)		
	139.5	163.0	187.5	210.0	23.08	31.08	35.00
Strap Spacing(ft):	9.6	11.2	12.1	12.9	9.30	10.00	10.30
# of Oliver 1100 IC "V" system:	2	2	2	2	2	2	2

Wind Zone 2 **Length: 57ft - 84 ft**

	Single Wides				Double Wides		
	Home Width (in)				Home Width (ft)		
	139.5	163.0	187.5	210.0	23.08	31.08	35.00
Strap Spacing(ft):	9.6	11.2	12.1	12.9	9.30	10.00	10.30
# of Oliver 1100 IC "V" system:	4	4	4	4	4	4	4

Wind Zone 3 **Length: up to 48 ft**

	Single Wides				Double Wides		
	Home Width (in)				Home Width (ft)		
	139.5	163.0	187.5	210.0	23.08	31.08	35.00
Strap Spacing(ft):	7.1	7.9	8.4	8.7	5.80	5.60	5.50
# of Oliver 1100 IC "V" system:	2	2	2	2	2	2	2

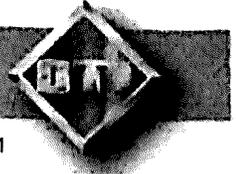
Wind Zone 3 **Length: 49ft - 84 ft**

	Single Wides				Double Wides		
	Home Width (in)				Home Width (ft)		
	139.5	163.0	187.5	210.0	23.08	31.08	35.00
Strap Spacing(ft):	7.1	7.9	8.4	8.7	5.80	5.60	5.50
# of Oliver 1100 IC "V" system:	4	4	4	4	4	4	4

- If vertical straps are required (1) must be installed within 2' of each of the corners
- Vertical straps to be attached with anchor rated at 1250lb design load, 1875lb ultimate load (BP10 anchor or equal per installation manual)
- Systems are to be installed at opposite corners.
- Footers to be minimum 2900 cu. In. (i.e. 22"x22"x6") per Oliver installation instructions.
- See Oliver 1100 IC "V" installation instructions for locations of straps, systems and other system requirements.
- Use Minimum Unit Width (Smaller Unit Width is worst case)

- Ultimate and design load were pulled directly from Radco test report RAD-3236.
 - Ultimate load: 26,000 lb
 - Design load: 16,702 lb





Installation Instructions for 1100 "V" Series All Steel Foundation System

SPECIAL CIRCUMSTANCES: *If following conditions occur - STOP!* Contact Oliver Technologies at 1-800-284-7437 for further instructions:

- a) Pier (system) height exceeds 48"
- b) Roof eaves exceed 16"
- c) Roof pitch greater than 7/12
- d) Location is within 1500 feet of coastline
- e) Soil conditions less than 4B
- f) Thick and wide I Beam attachments are available.

INSTALLATION OF GROUND PAN FOR DIRT SET (IV)

- 1) Remove weeds and debris in an approximate three foot square to expose firm, level undisturbed soil or controlled fill for each ground pan. The 1100 V Pan is equivalent to a 21 x 21 footing. Top of ground pan (C) must be installed at ground level or per local jurisdiction.
- 2) Place center ground pan (C) directly below chassis I-beam. Press or drive pan completely into soil until flush with or below soil.

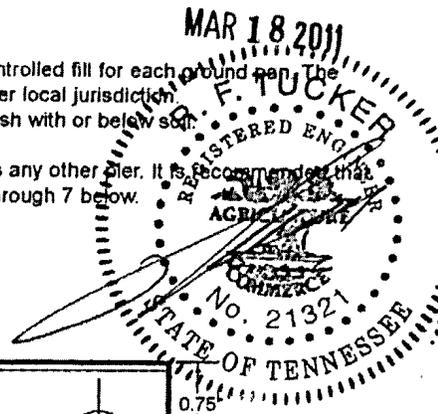
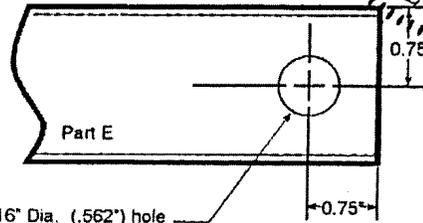
SPECIAL NOTE: The longitudinal "V" brace system serves as a pier under the home and should be loaded as any other pier. It is recommended that after leveling piers, and one-half inch (1/2") before home is lowered completely onto piers, complete items 3 through 7 below.

INSTALLATION OF LONGITUDINAL "V" BRACE SYSTEM

- 3) Select the correct square tube brace (E) length for set-up (pier) height at support location.

PIER HEIGHT (Approx. 40-60 degrees Max.)	1.5" Tube Length
14" to 18"	20"
18" to 25"	28"
24" to 35"	39"
30" to 40"	44"
36" to 48"	54"

PIER HEIGHT = the dimension from the top of the pan to the bottom of the I-Beam



- 4) Install both of the 1.5" square tubes (E) into the "V" bracket (J), insert carriage bolt and leave nut loose for final adjustment.
- 5) Place I-beam connector (F) loosely on the bottom flange of the I-beam.
- 6) Attach the selected 1.5" tubes (E) to the I-beam connectors (F) and fasten loosely with bolts and nuts. **NOTE:** The ground pan must be level in both directions to ensure the angle markings on the center point connector are correct from the horizontal plane of the pan. The angle is not to exceed 60 degrees and not less than 40 degrees. The "V" bracket (J) is stamped with the angles to verify correct degree. Use proper length tube or cut and drill tube to achieve proper length. (The tube may be cut using any appropriate steel cutting method such as steel saw, cutting torch, etc. New holes must be drilled to the dimension and at the location as shown for part (E).
- 7) Using standard hand tools, tighten all nuts and bolts. When connecting the brace tube to the model 1100-10-P I-beam connector bracket, tighten at least one and a half to two full turns past hand tight.

INSTALLATION OF (LATERAL) TELESCOPING TRANSVERSE ARM SYSTEM (1100 ITV)

- 8) Select the correct transverse arm (H). The 60" sections are standard. The 72" sections are used on frame widths greater than 99.5".
- 9) Install the 1.5" transverse brace (H) to the ground pan connector (D) with the bolt and nut.
- 10) Slide 1.25" transverse brace into the 1.5" brace and attach to adjacent I-beam connector (I) with bolt and nut.
- 11) Secure 1.5" transverse arm to 1.25" transverse arm using four (4) 1/4" - 14 x 3/4" self-tapping screws in pre-drilled pilot holes.

INSTALLATION USING CONCRETE (ICV)

The concrete footer, runner or slab may be of any shape, that has a minimum of 2900 cu. in., with a minimum depth of 3.5" (dry set) or 6" (wet set), at each system location. The surface of the footing shall be large enough to support the pier load and allow at least 4" from the concrete bolt to the edge of the concrete (ie. 22"x22"x6" footer). The concrete shall be a minimum of 2500 psi mix (pre-blended sacked concrete mix is acceptable). Special inspection of footing is not required. If the 1100 ITC transverse system, (D (W or D) bracket only) is to be installed without the use of the 1100 ILC (V) longitudinal system (J (W or D) bracket), it MUST be installed within 18" of pier.

NOTE: The bottom of all footings, pads, slabs and runners must be per local jurisdiction.

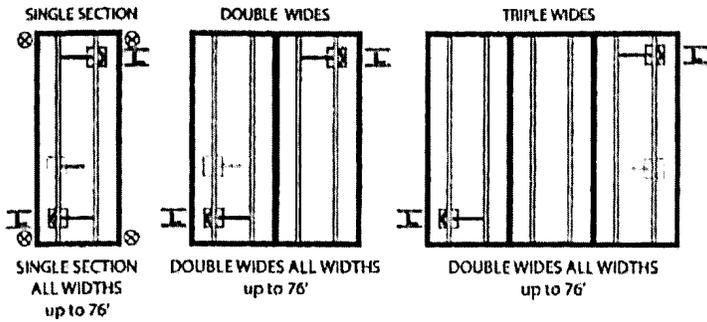
LONGITUDINAL (V)

When using the 1100 wet set J(W) bracket, simply install the bracket in runner/footer OR when installing in cured concrete, use the 1100 dry set J(D) bracket. The 1100 dry set J(D) bracket is attached to the concrete using (2) 1/2" X 3" concrete wedge bolts. Place the bracket in desired location. Mark bolt hole locations, then using a 1/2" masonry bit, drill a hole to a minimum depth of 3". Be sure all dust is blown out of the holes. Place wedge bolts into drilled holes, then place 1100 J(D) bracket onto wedge bolts and start wedge bolt nuts. Take a hammer and lightly drive the wedge bolts down by hitting the nut (Do not hit the top of threads on bolt). Complete by tightening the nuts.

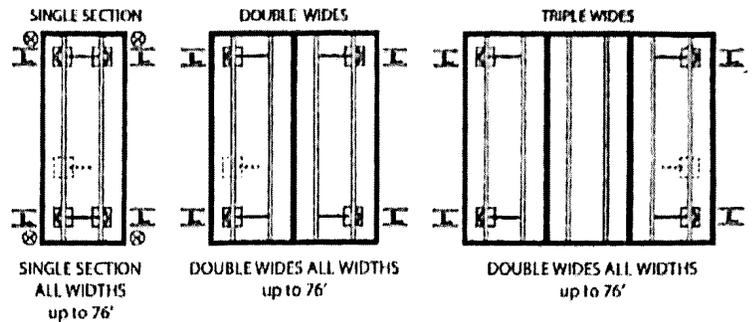
LATERAL (Transverse Arm)

For wet set installation set the transverse connector bracket D(W) into runner/footer at desired location. For dry set installations, the transverse connector bracket D(D) is attached to the concrete using (2) 1/2" X 3" concrete wedge bolts. Mark bolt hole locations, then using a 1/2" masonry bit, drill a hole to a minimum depth of 3". Be sure all dust is blown out of the holes. Place wedge bolts into drilled holes, then place transverse connector bracket J(D) bracket onto wedge bolts and start wedge bolt nuts. Take a hammer and lightly drive the wedge bolts down by hitting the nut (Do not hit the top of threads on bolt.) Complete by tightening the nuts.

**REQUIRED NUMBER AND LOCATION OF MODEL
1100 "V" SERIES BRACES FOR 4/12 & 5/12**



**REQUIRED NUMBER AND LOCATION OF MODEL
1100 "V" SERIES BRACES FOR 6/12 & 7/12**



LEGEND:

1. - - Approximate location of the system (See note H)
2. - - Location of ASF Model 1100 "V" (Lateral and Longitudinal Bracing) or 1100 T (Lateral only)
3. - - Location of additional ASF Model 1100 T "V" System (Lateral only) for homes exceeding 76' in length or with roof pitch between 4.37/12 (20 degrees) and 5/12, the additional system is to be installed at approximately the midpoint of the house and may be installed at either exterior beam.
4. - - Installation of single wide homes require two (2) anchors per side located not more than ten (10) feet from each end (with a minimum of 3150 load rating)
5. - - Location of additional ASF Model 1100 T "V" System (Lateral only) for homes exceeding 76' in length, sidewall height exceeding 96' or with roof pitch between 6/12 & 7/12 the additional system is to be installed at approximately the midpoint of the house and may be installed at either exterior beam.

(Length of house is actual box size)

NOTE:

- a) Installation of the longitudinal system eliminates the need for the longitudinal anchors.
- b) Installation of the transverse system eliminates the need for all anchors, diagonal frame ties and stabilization plates except when noted. (Legend #5 & note C)
- c) All other home manufacturer's instructions for installation of stabilizing devices must be followed, including installation of vertical tie-down anchors, and mating line column, shear wall or center-line tie-down anchors. NOTE WIND ZONE II: ALL VERTICAL ANCHORS (NOT TO EXCEED 8' SPACING) MUST BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS!
- d) If the home manufacturer's installation instructions are not available, the home must be installed in accordance with any state promulgated rules or as required by the authority having jurisdiction.
- e) If bolts, nuts and tech screws are lost, they may be replaced as long as they meet or exceed the specs for OTI ASFS hardware.
- f) When the length of home exceeds 76', sidewall height exceeds 96' or the roof pitch is between 4.37/12 (20 degrees) and 5/12, add 1 transverse system (see location diagrams above) 6/12: a total of 4 Transverse & 3 Longitudinal systems are needed & 7/12: a total of 5 Transverse & 3 Longitudinal systems are needed. (Longitudinal portion only required when longitudinal bracing is required by home manufacturer).
- g) An alternative method using the 1100 CVD anchors (dry set) or 1100 CVW (wet set) may be used on a footing size of 16" diameter X 24" depth. These brackets are designed for lateral and longitudinal protection.
- h) It is recommended that the systems be installed at the 2nd pier in from each end of the house. However, they may be installed at any location at least 2 feet, but not more than 1/4 the house length, in from the ends of the home.

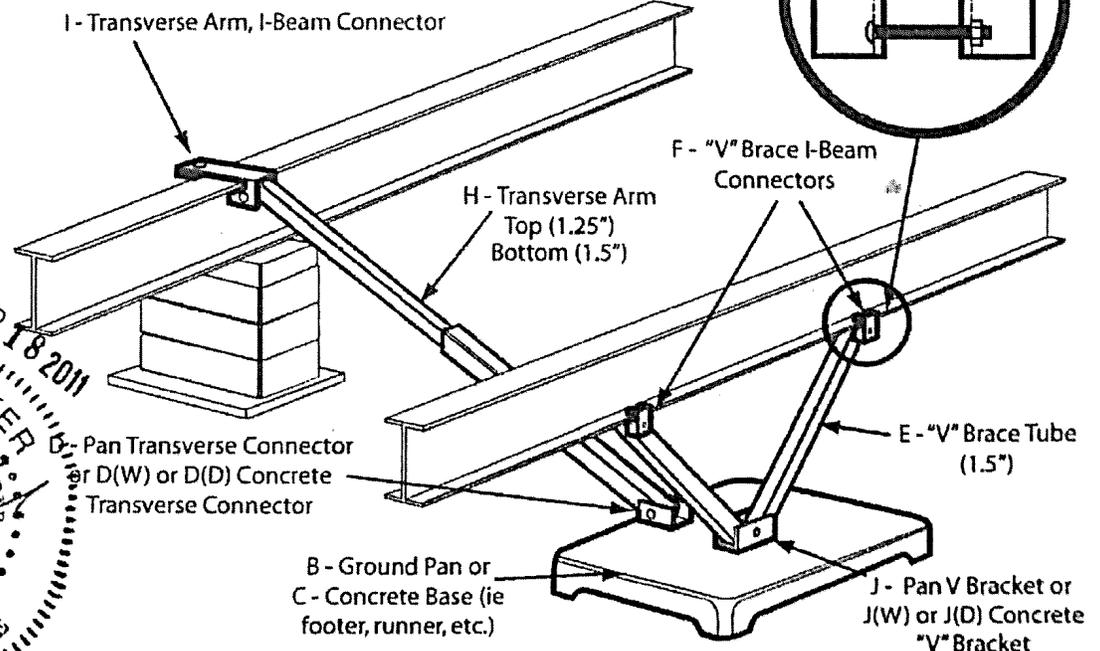
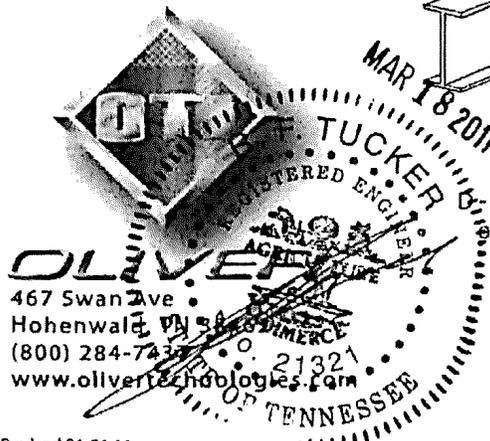
STATE OF MICHIGAN ONLY: As required by Section 1805.2 of the 200 Michigan Building Code, the depth of the footer shall be a minimum depth of 42 inches below grade, except that the authority having jurisdiction may approve a lesser depth based on known prevailing soil and weather conditions, or as provided by the exception under Section 1805.2.1 of the Code.

STATE OF ALABAMA ONLY: Maximum pier height is limited to 32" with pier defined in the Alabama Regulation as "that portion of the support system between the top of the footing and the bottom of the pier cap." The State of Alabama limits the use of this system to H.U.D labeled homes.

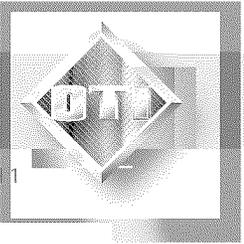
STATE OF NORTH CAROLINA ONLY: Tubing must be galvanized and, when the manufacturer's installation instructions are not available, vertical wall tie-downs must be installed not to exceed 8-feet on center. (Wind Zone II)

STATE OF IDAHO ONLY: Concrete must be a minimum of 8" in depth.

APPROVED BY
REVISED
8/27/2019
NA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

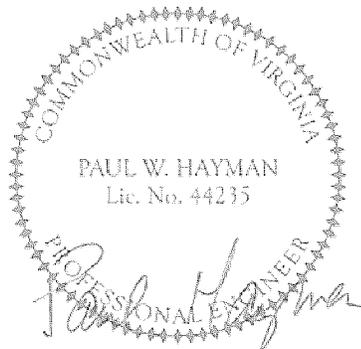
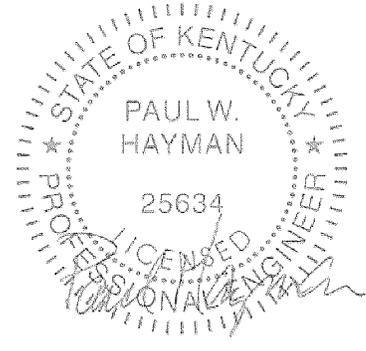


I-C-43

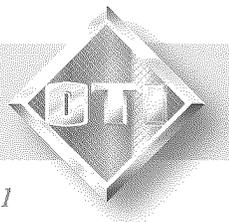


Installation Instructions for Anchors & Components

APPROVED BY



I-C-44

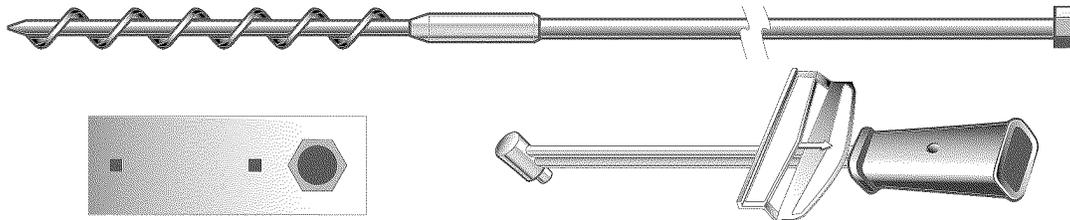


GROUND ANCHOR INSTALLATION INSTRUCTIONS

- NOTE: 1) The tensioning bolt can be inserted in the head from either side.
 2) In areas of severe cold weather, where possible damage could occur from frost heave, the home owner should be prepared to adjust tension on the straps to take up slack.

Ground anchors come in a variety of lengths and designs. Always test the soil with a “soil test probe” prior to any anchor installation. This will determine the proper anchor for the soil condition.

WARNING! Prior to any anchor installation, determine that the anchor location around the home will not be close to any underground electrical cables, water lines or sewer pipes. Failure to determine the location of electrical cable may result in serious injury or death.



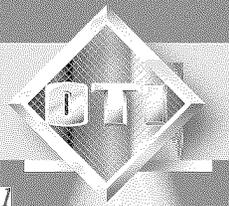
SOIL CLASSIFICATION CHART

SOIL CLASS	SOIL DESCRIPTION	TEST VALUE	RECOMMENDED ANCHOR	RECOMMENDED STABILIZING DEVICES
1	Crystalline bedrock	N/A	OT36CDP	N/A
2	Sedimentary and foliated rock	550 in. lbs.	OT3044AP *OT3044BP *OT3646BP	11" 
3	Sandy gravel and/or gravel (GW and GP)	350 to 550 in. lbs.	OT3044AP *OT3044BP (C/Z) *OT3646BP (C/Z) OT4244BP OT486A OT486B	11" 
4a	Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM AND GC)	276 to 350 in. lbs.*	*OT3646BP (C/Z) OT4244BP OT486AP OT486BP OT486A (Galv.) OT486B (Galv.)	11" 17" (Galv.) 
4b	Clay, sandy clay, silty clay, clayey silt, silt and sandy silt (CL, ML, MH and CH)	175 to 275 in. lbs.**	OT607B (Galv.)	17" (Galv.) 

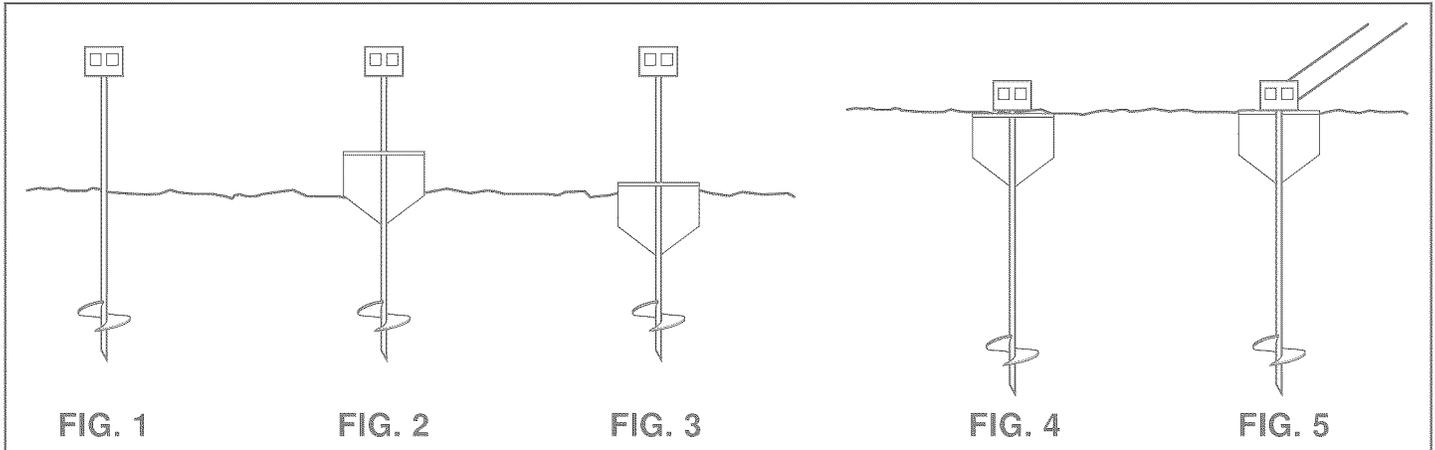
*These anchors can be used with Quick Cap/Anchor model # OTCAP1
 **Below 175 in. lbs., a professional engineer should be consulted.

REMEMBER: Each State, County, or Municipality may require a specific anchor from the groups shown for each soil classification. Check State & local regulations first.

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



INSTALLATION INSTRUCTIONS OTI AUGER ANCHOR

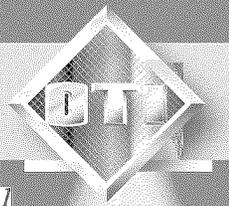


1. Attach anchor to machine (two person operation). Place anchor in proper position in line with the strap.
2. Install the anchor into the ground leaving 14" - 16" of the rod exposed. (FIG. 1)
3. Place the stabilizing plate in front of the shaft in the direction of pull. Always remove vegetation under the stabilizing plate. (FIG. 2)
4. Drive the stabilizing plate into the ground (FIG. 3)
5. The anchor is then turned into the ground to a point where the bottom of the tension head is at or slightly below ground level. Engineered to allow ground anchor to be installed at a slight back angle of 10 degrees. (FIG. 4)
6. Use Galvanized Strapping page for installation instructions for proper tensioning on anchor and stabilizer plate (FIG. 5)



IMPORTANT NOTES

- Anchors must be approved by the authority having jurisdiction.
- Anchors must be installed in the correct soil types (classes 2-3-4).
- When the rod is installed vertically with no stabilizer plate, the maximum allowable working load on a single vertical tie is 3150 lbs.
- When the anchor rod is installed vertically with an OTMSP2P stabilizer plate, the maximum allowable working load on a single vertical tie (or the maximum allowable working resultant load of two ties) is 3150 lbs. between 45 and 90 degrees from horizontal.



QUICK ANCHOR INSTALLATION INSTRUCTIONS MODEL# OTCAP1

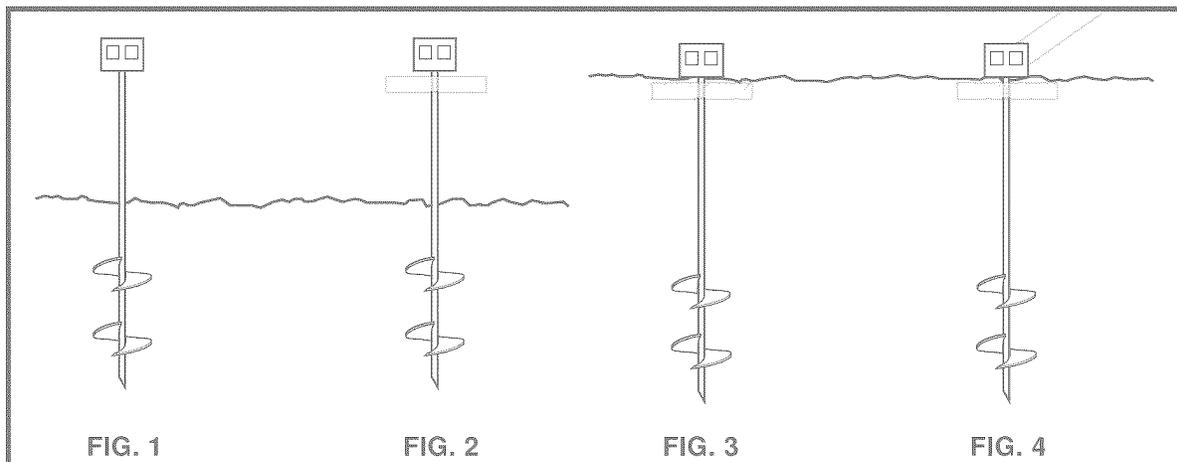
OTI Anchor Model #'s OT3044BP and OT3044BPC (welded cap)

OT3646BP and OT3644BPC (welded cap)

1. Attach anchor to drive machine (two person operation). Place anchor in proper position in line with strap.
2. Install the anchor into the ground leaving 14" to 16" of rod exposed. (Fig. 1)
3. Slide the slotted end of the "Quick Cap" over the exposed anchor rod. (Fig. 2)
*Always remove grass, sod, or loose vegetation under the "Quick Cap."
4. The anchor is then turned into the ground to a point where the bottom of the tension head is at or slightly below ground level. (Fig. 3) Quick Cap slot must be at least 90 degrees away from direction of pull. (Fig. 4) The Quick Cap was engineered to allow ground anchor to be installed at a slight back angle of 10 degrees.
5. Use installation instructions on galvanized strapping page for proper tensioning of anchor and stabilizing device.

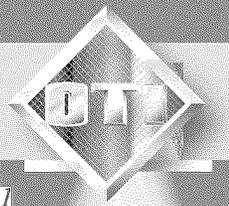


PATENT # 6,298, 611B1



IMPORTANT NOTES

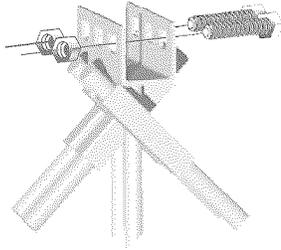
- Anchors must be approved by the authority having jurisdiction.
- Anchors must be installed in the correct soil types (Classes 2, 3, or 4).
- OT3646BP: In class 4, the soil torque value must be 276 in. lbs. or greater at the stabilizer device depth and the soil torque value must be 276 in. lbs. or greater at the bottom helix depth. In class 3 soil: OT3646BP or OT3044BP, the soil torque value must be 350 in. lbs. or greater at the stabilizer device depth and the soil torque value must be 350 in. lbs. or greater at the helix depth.
- When the rod is installed vertically with no stabilizer plate, the maximum allowable working load on a single vertical tie is 3150 lbs.
- When using a fixed or attachable cap stabilizer, the maximum allowable working load on a single tie (or the maximum allowable working resultant load of two ties) is 3150 lbs between 45 and 90 degrees from horizontal.



GROUND ANCHOR INSTALLATION INSTRUCTIONS

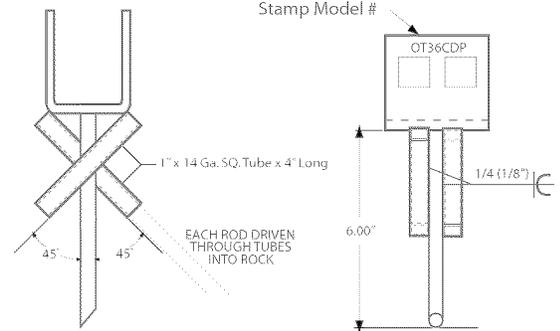
CROSS DRIVE ROCK ANCHOR (Model# OT36CDP)

1. Drill a 5/8" diameter hole 5 1/2" deep, on a 90 degree angle on center of anchor location, for pilot stud into hole.
2. Drill two - 3/4" diameter holes in rock at 45 degree angles, using anchor head as a location guide.
3. Place rod through the top of (1) square tube and into hole.
4. Rod must be driven into rock at least 24" in order to achieve minimum allowable pullout resistance.
5. Place the second rod through the top of the remaining tube.
6. Distance from the square tubing to the rock surface shall not exceed 1".



APPROVED FOR SOLID ROCK ONLY

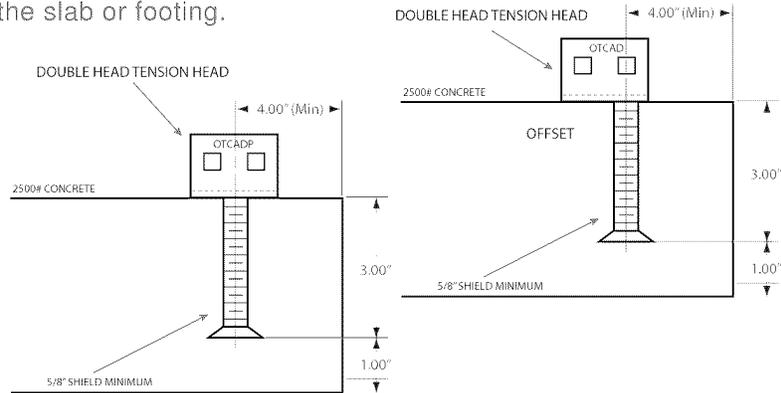
NOTE: The maximum allowable working load of a single tie (or the maximum allowable resultant load of 2 ties) is 3150 lbs. between 45 and 90 degrees from horizontal.



CONCRETE DRY SET INSTALLATION (Model# OTCADP (Center) or OTCAD (Offset))

1. Drill a 21/32" diameter hole 4" minimum from the edge of the slab or footing.
2. Place tension head on slab and install 5/8" diameter bolt. (Tighten bolt per manufacturers instructions.)

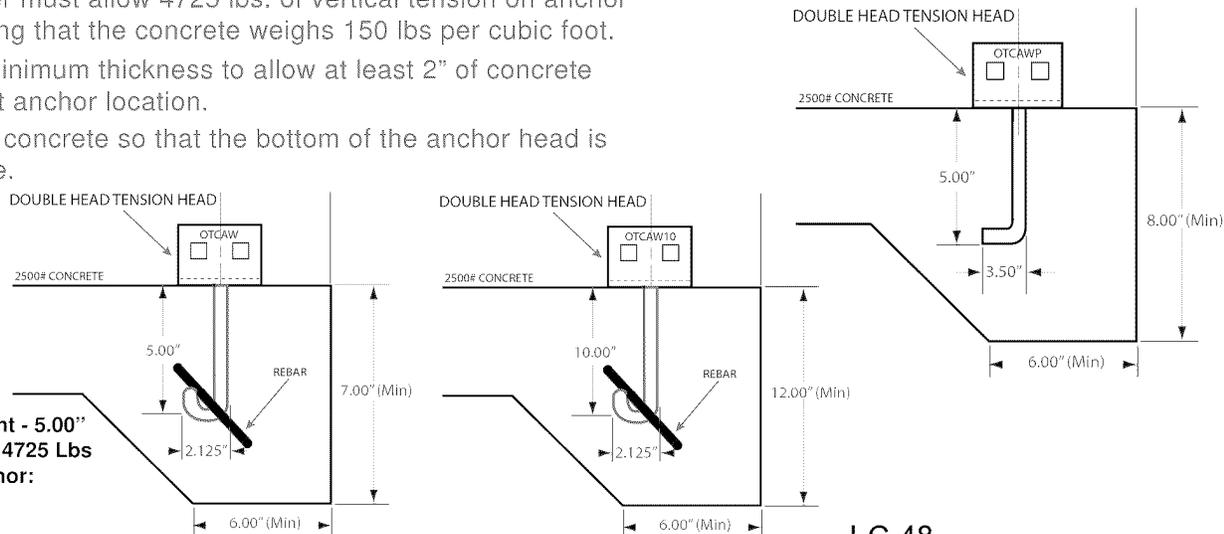
- A. Maximum load per anchor = 4725 lbs
- B. Minimum slab area per anchor:
 - 4" slab - 95 sf
 - 6" slab - 65 sf
 - 8" slab - 48 sf



CONCRETE WET SET INSTALLATION (Model# OTCAWP, OTCAW or OTCAW10)

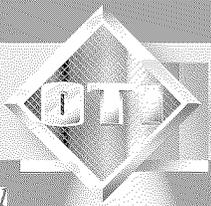
1. Concrete slab or footer must allow 4725 lbs. of vertical tension on anchor without lifting, assuming that the concrete weighs 150 lbs per cubic foot.
2. Concrete must be a minimum thickness to allow at least 2" of concrete below bottom of rod at anchor location.
3. Insert anchor into wet concrete so that the bottom of the anchor head is flush with the concrete.

- A. Minimum anchor embedment - 5.00"
- B. Maximum load per anchor - 4725 Lbs
- C. Minimum slab area per anchor:
 - 4" slab - 95 SF
 - 6" slab - 65 SF
 - 8" slab - 48 SF



NOTE: OTCAW & OTCAW10 are rebar anchors

I-C-48

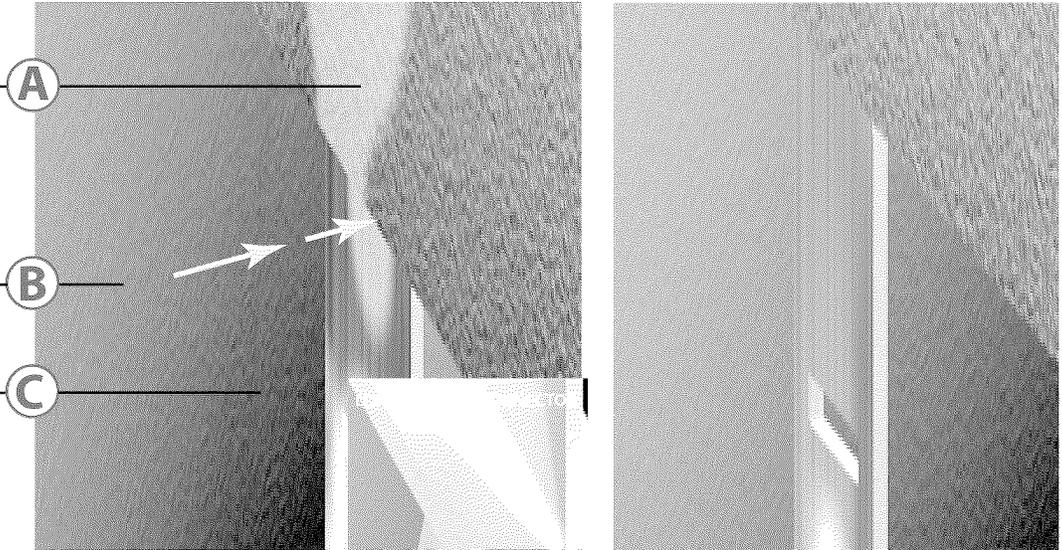


SIDEWALL AND LONGITUDINAL FRAME CONNECTORS MODEL# OTQC or OT 2002

Typical sidewall or longitudinal bracket installed by home manufacturer.

Bolt and Nut

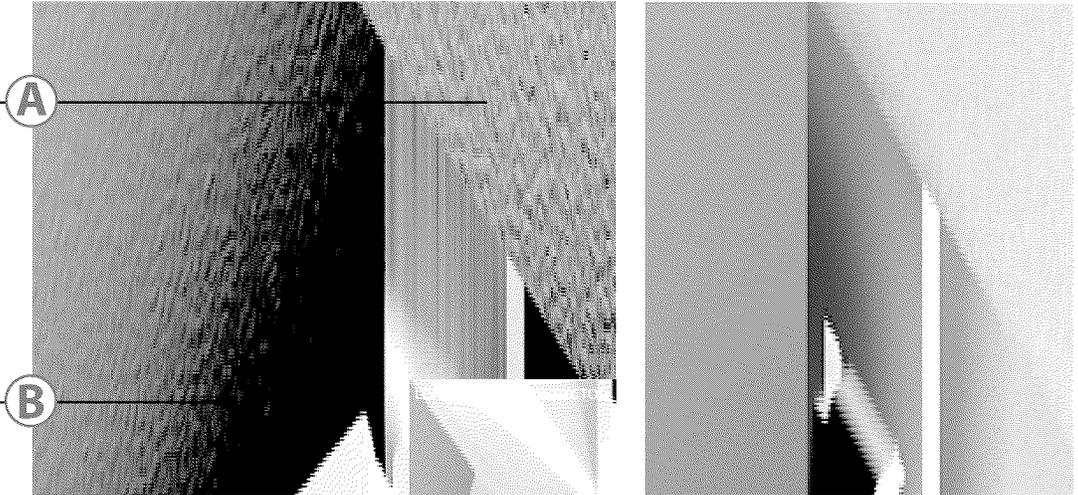
Quick Connector with factory installed strap.



STEP 1: Locate the sidewall or longitudinal bracket installed by home manufacturer, insert bolt through hole in Quick Connector then through hole in bracket.
STEP 2: Place nut on bolt and tighten. **STEP 3:** Refer to strapping page for proper installation of strap.

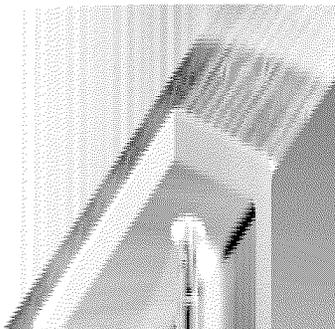
Typical sidewall or longitudinal bracket installed by home manufacturer.

Quick Connector with factory installed strap.



STEP 1: Locate the sidewall or longitudinal bracket installed by home manufacturer, insert Quick Connector into bracket slot at 45 degree angle.
STEP 2: Turn Quick Connector until locked into position. **STEP 3:** Refer to strapping page for proper installation of strap.

Model # OTSWB



STEP 1: Locate the outside rim joist underneath the home.

STEP 2: Position the Sidewall Bracket so that the two (2) holes are centered on the joist and the strap slot is facing towards the outside of the home.

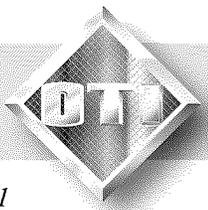
STEP 3: Mark the center of both holes and pre-drill two (2) pilot holes using a 15/64" drill bit.

STEP 4: Using a 9/16" socket install two (2) 3/8" - 7 x 3" Lag screws into the two (2) pre-drilled holes to secure the Sidewall Bracket.

STEP 5: Refer to anchor and strapping installation instructions for proper installation to anchor and strap.

NOTE: The maximum allowable working load capacity of the OTSWB is 3150 lbs and shall withstand 50% overload (4125 lbs).





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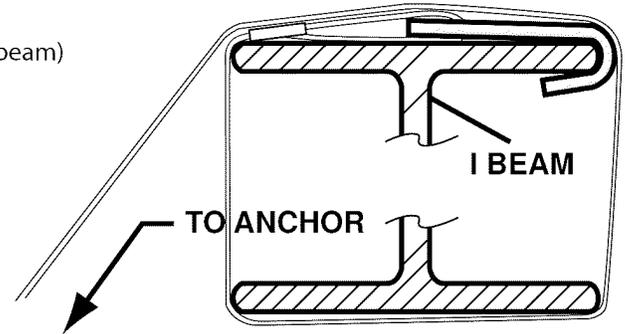


I-BEAM FRAME CONNECTORS

FRAME TIE (OTFT-1)

- STEP 1:** Attach frame clamp (hook) inside top flange of home frame.
STEP 2: Place strap between the frame and home as shown. (wrapping I-beam)
STEP 3: Pull strap tight and attach to the anchor tension head. (Refer to strapping page for proper installation of strap.)
- NOTE:** The frame tie has an allowable working load of 3150 lbs., with no more than 2% elongation and shall withstand a 50% overload (4725 lbs. total)

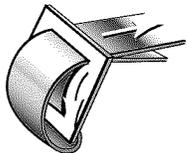
Enlarged End View of I-Beam Floor



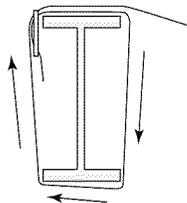
OTFT-1 with factory installed strap

DOUBLE SLOTTED BUCKLE (OTST-1)

INSTALLATION INSTRUCTIONS



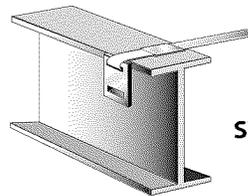
- STEP 1:** Thread frame tie strap through buckle as shown.
STEP 2: Thread long end of strap between the frame and floor of home.
STEP 3: Ensure proper strap tension. (Refer to strapping page for proper installation of strap.)



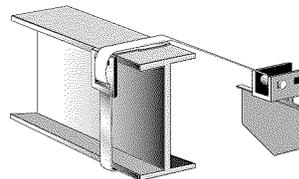
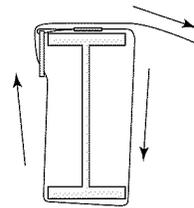
NOTE: The maximum allowable working load capacity of the strap woven through the slots in the buckle is 3150 lbs., with no more than 2% elongation and shall withstand a 50% overload (4725 lbs. total)

FACTORY CRIMPED DOUBLE SLOTTED BUCKLE (OTST-1)

INSTALLATION INSTRUCTIONS

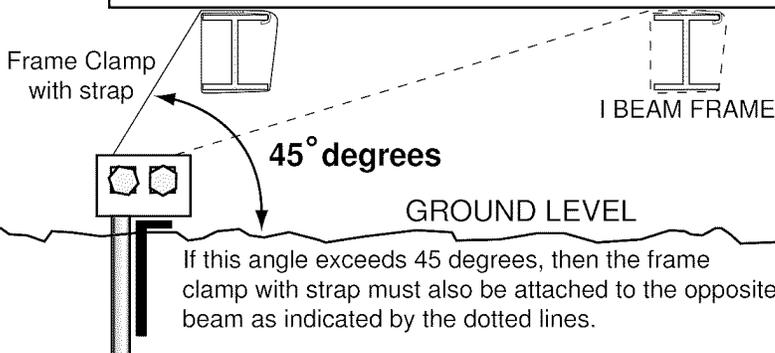


- STEP 1:** Install strap by pushing the end of the strap between the inside of the frame I-beam and the floor.
STEP 2: Position the buckle at the upper end of the I-beam frame. Wrap the end of the strap through the slot in the buckle as shown. Push the end of the strap in between the I-beam and floor.

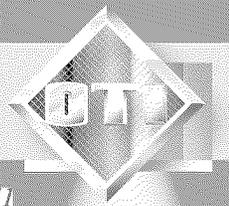


NOTE: The maximum allowable working load capacity of the strap woven through the slots in the buckle is 3150 lbs., with no more than 2% elongation and shall withstand a 50% overload (4725 lbs. total)

MANUFACTURED HOME



- 1) The tensioning bolt can be inserted in the head from either side.
- 2) In areas of severe cold weather where possible damage could occur from frost heave, the homeowner should be prepared to adjust tension on the straps to take up slack.



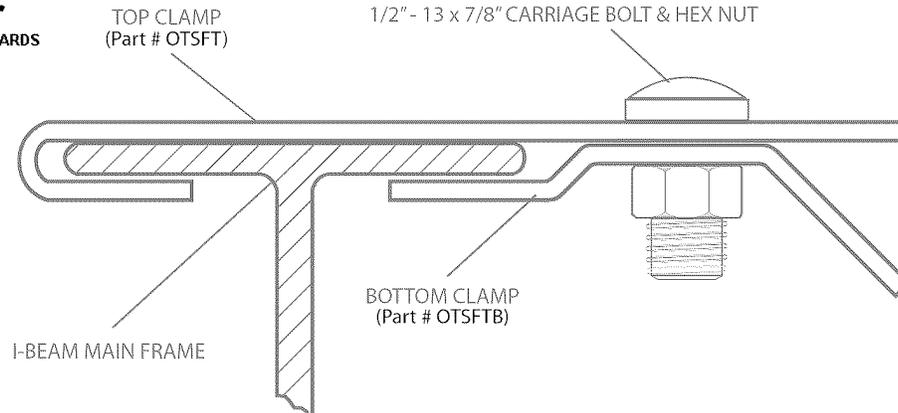
APPROVED BY



SWIVEL FRAME TIE

Model # OTSFT

PATENT # 6,928,783,B2



STEP 1: Place top clamp over the top of the I-Beam.

STEP 2: Place the carriage bolt in the first exposed hole closest to the I-Beam. (Top clamp works on I-Beam sizes 2 3/4" through 4".) (Part # EXTOTSFT extended top clamp works on I-Beam sizes 7" - 9")

STEP 3: Attach the bottom clamp (with pre fabricated strap) by tightening the carriage bolt and hex nut.

STEP 4: The Swivel Frame Tie and attached strap should be installed perpendicular to the I-Beam when possible, however there is an allowance of 7.5 degrees in either direction from perpendicular.

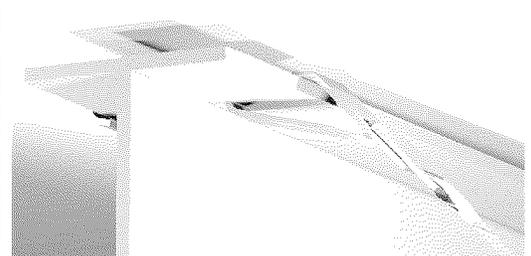
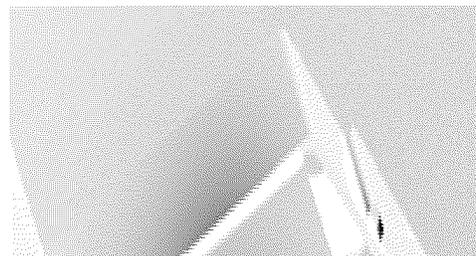
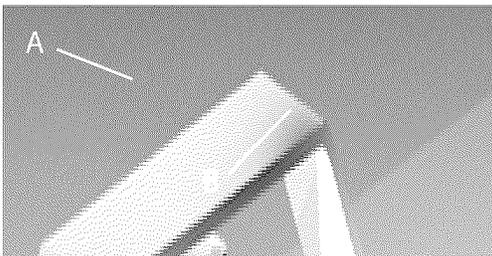
NOTE: The maximum allowable working load capacity of the OTSFT is 3150 lbs., with no more than 2% elongation and shall withstand 50% overload (4725 lbs).

OTI anchors and components will perform at this design load regardless of the wind pressures and distance from the coastline, provided that the number, location and spacing of the components is such that the design load of 3150 is not exceeded.

Fastener required to assemble both parts 1/2" - 13 x 7/8" carriage bolt and hex nut (abstract of SAE J429 1985) coating ASTM standard B633-85 (re-approved 1994).

SWIVEL FRAME TIE

Model # 2001



A = Top jaw (OT2001UJ)
Extended Top Jaw (OT2001LUJ)

B = Bottom jaw (OT2001L) of Swivel Clamp
with factory installed strap

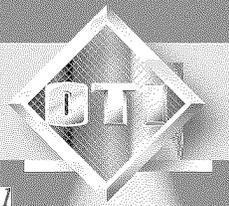
STEP 1: Slide top jaw over top flange on the I-Beam then pull to secure.

STEP 2: Insert bottom jaw into slot of top jaw at a 45 degree angle.

STEP 3: Rotate bottom jaw into lock position with top jaw.

STEP 4: Refer to strapping page for proper installation of strap.

NOTE: This frame clamp (Part # OT2001UJ) was designed to be used on 2 3/4" (2.75") minimum flange width and 4" maximum flange width. The bottom jaw of the clamp can swivel up to 10 degrees maximum. Frame Clamp (Part # OT2001LUJ) for a double beam (2) - 4" flange welded beams application.



INSTALLATION INSTRUCTIONS MODEL # OTLT LONGITUDINAL BEAM CONNECTOR Use with OTQC (Quick Connector Strap)

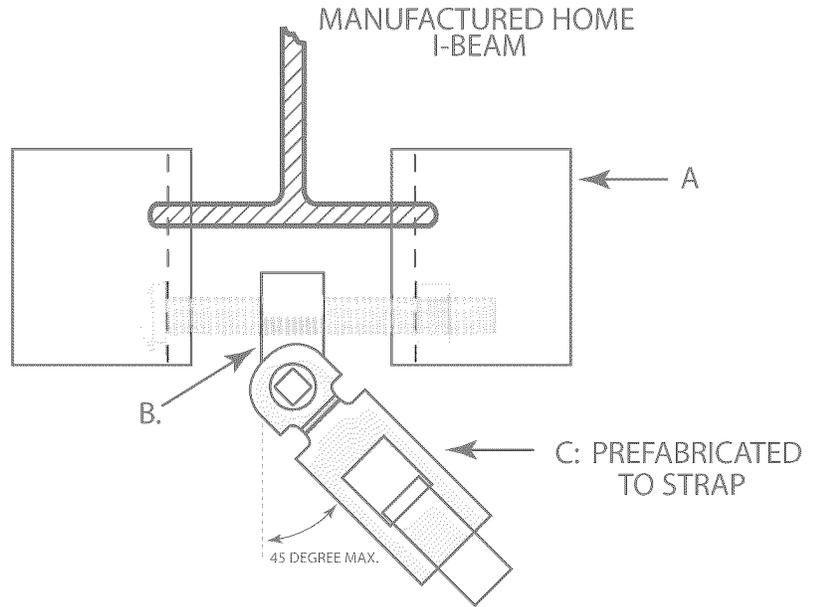
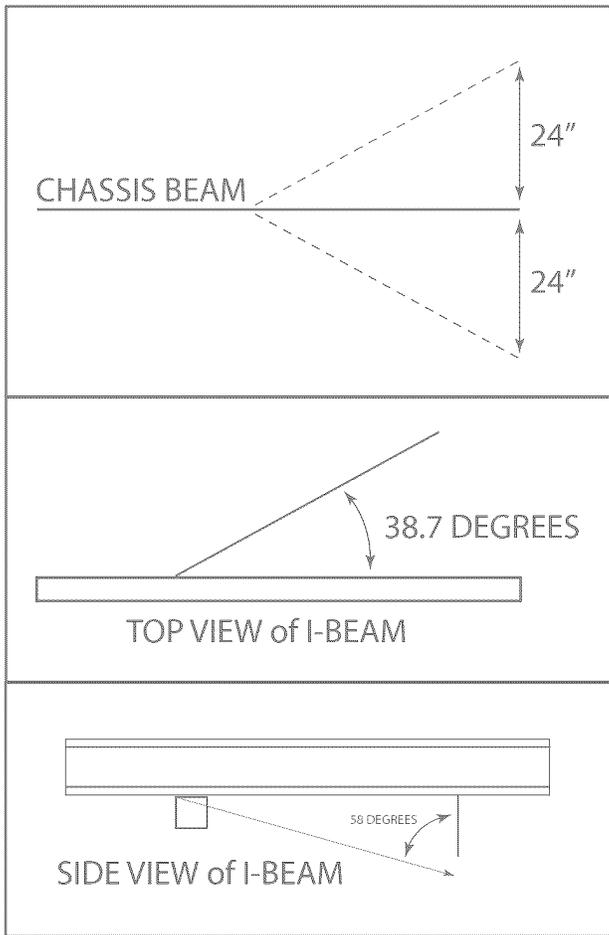


STEP 1: Attach the longitudinal beam connectors (A) on the bottom flange of the I-beam, tighten beam connectors with carriage bolt & nut 2 1/2 turns past hand tight.

STEP 2: Slide clip (B) over bolt and attach swivel clamp (C) with 1 1/2" carriage bolt & nut and tighten with standard hand tools.

STEP 3: Refer to anchor and strapping installation instructions for proper installation to anchor and strap.

- NOTE:**
- 1) End tie-downs shall be located within 24" of either side of chassis beam axis as refer to "*" below.
 - 2) Brackets need to be connected to I-Beam at proper distance from anchor so that correct strap angle can be achieved.
 - 3) TEXAS: OTLT must be installed a minimum of 58 degrees from vertical.



Patent # 6,725,613B2

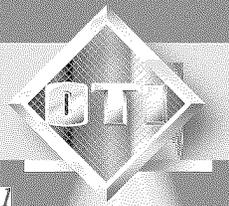
*When following the Texas Generic Standards, the installer must use the numbers and angles of longitudinal ties specified by the Texas Generic Standards. These standards describe longitudinal angles measured only from the vertical ties angled downward from the I-beam. The Texas Generic Standards do not allow longitudinal ties to also be angled sideways.

*When following the home installation instructions, the installer must use the numbers and angles of the longitudinal ties specified by the home installation instructions. The longitudinal tie angles shall not exceed the limits of these OTLT instructions.

TABLE 1

The maximum allowable working load capacity of the OTQC is 3150 lbs., with no more than 2% elongation and shall withstand 50% overload (4725 lbs.)

Fastener required to assemble both parts (1) 4" and (1) 1 1/2" - 13 x 7/8" carriage bolt & hex nut. (abstract of SAE J429 1985) coating ASTM standard B633-85 (re-approved 1994)

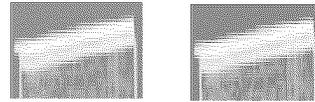


INSTALLATION INSTRUCTIONS GALVANIZED STRAPPING and SPLIT BOLTS



STRAP SPLICE

To lengthen strap in the field, a double crimp seal is required. Overlap strap and use two crimp seals evenly spaced, with 2 crimps per seal.

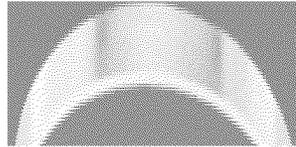


2 Seals - 2 Crimps per seal

Seals specifications: Type 1, Finish B, Grade 1, Semi-open crimp seals

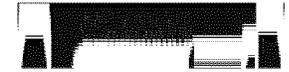
Certified Galvanized Strapping

HUD requires that certified strapping must meet ASTM specification. OTI strapping is marked every 12 inches.



Oliver Technologies, Inc.
Certified TO
ANSI A225.1 ASTM D3953-91

Material: Type 1, Finish B, Grade 1
Dimension of strapping: 1 1/4" width,
.035 thickness + or - .005



SPLIT BOLT

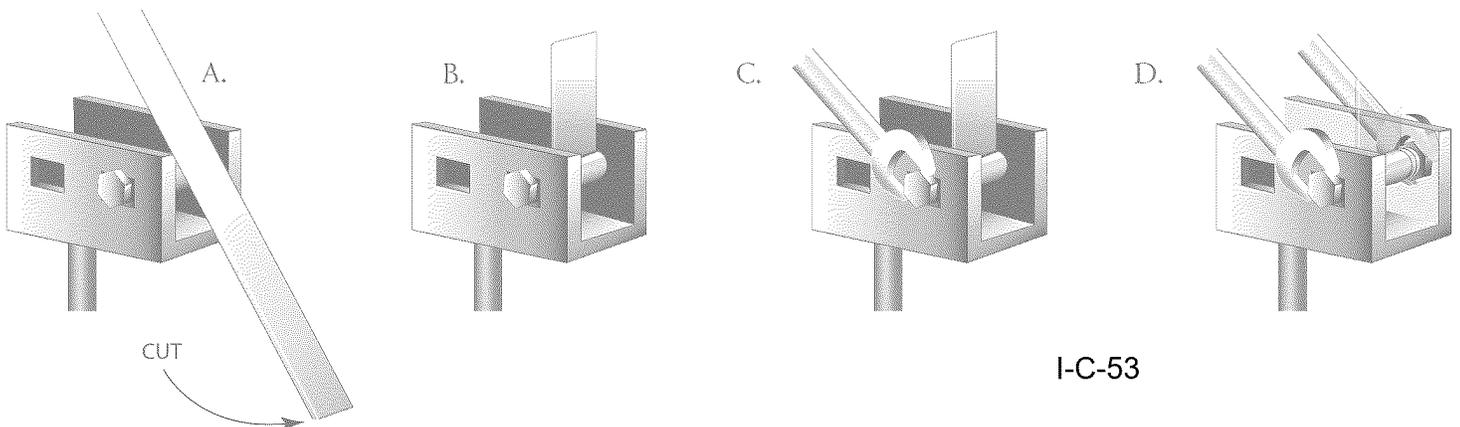
Galvanized split bolt:
5/8"x3"x5/8" sq. shoulder
with hexagon head, Standard
national thread, shaft saw cut.

1. ENSURE PROPER STRAP TENSION:

- Insert split bolt into anchor head, attach loosely. Pull strap past bolt and cut strap leaving approximately 12" of strap to wrap onto bolt.
- Insert the strap end into the slot in bolt until flush with opposite side of bolt.
- Using 15/16" wrench or socket; turn the bolt, winding the strap so that a minimum of four to five complete turns are made and the strap is adequately tensioned so that the anchor is firmly against the stabilizing device in direction of pull. All slack must be removed.
- Hold the bolt under tension while tightening the nut, drawing the head of the bolt into the recess, continue to tighten the nut until securely fastened.

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

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



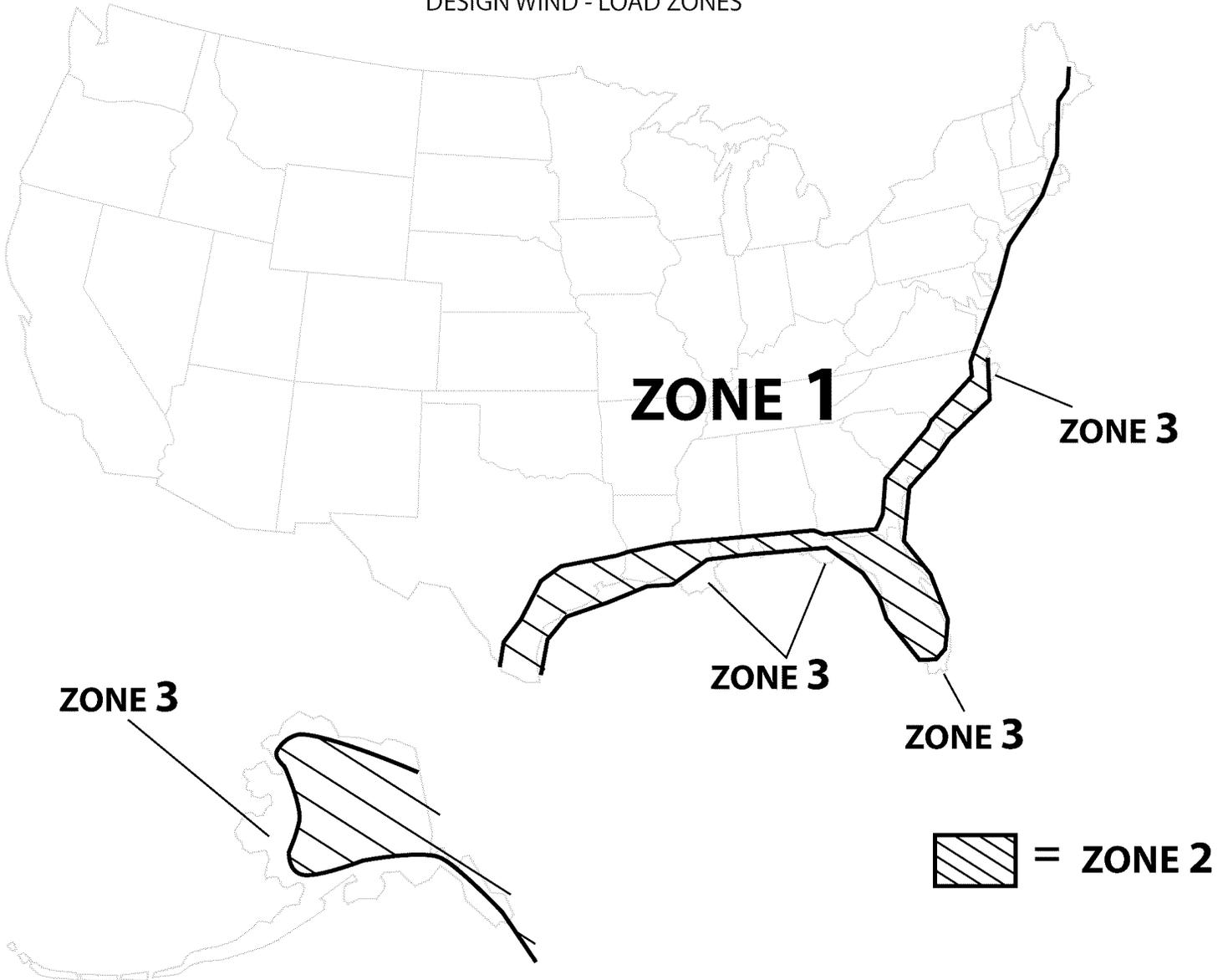
I-C-53



WIND ZONE MAP

DESIGN WIND - LOAD ZONES

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NIA 7/22/2019
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 CONSTRUCTION AND SAFETY STANDARDS



NOTE: psf = pounds per square foot

DESIGN WIND LOADS			
STANDARD WIND	ZONE 1	15 psf HORIZONTAL	9 psf UPLIFT
HURRICANE	ZONE 2	+ 39 psf HORIZONTAL	27 psf UPLIFT
HURRICANE	ZONE 3	+ 47 psf HORIZONTAL	32 psf UPLIFT



Installation Manual Addendum

Oct 16, 2025

Subject: Special Foundation Systems – Tie Down Engineering Xi2-24 Foundation Systems

This letter is intended to serve as an addendum to the Legacy Housing Installation Manual as it pertains to foundations. Legacy Housing has determined that Tie Down Engineering’s Xi2-24 Systems are acceptable for use on their homes in Wind Zones 1, 2, and 3 under the following conditions:

- Maximum sidewall height = 90”
- Main I-beam spacing = 99.5”
- Maximum eave projection = 12”
- Single Wide home widths from 132” to 176”
- Double & Triple Wide home widths – 2 or 3 x132 to 2 or 3 x 176”
- Maximum roof pitch <20 degrees
- Maximum prier height = 36”
- All foundation systems are installed per manufacturers installation instructions

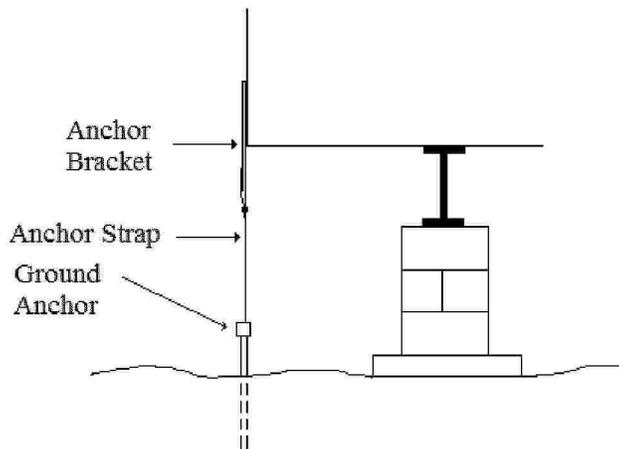
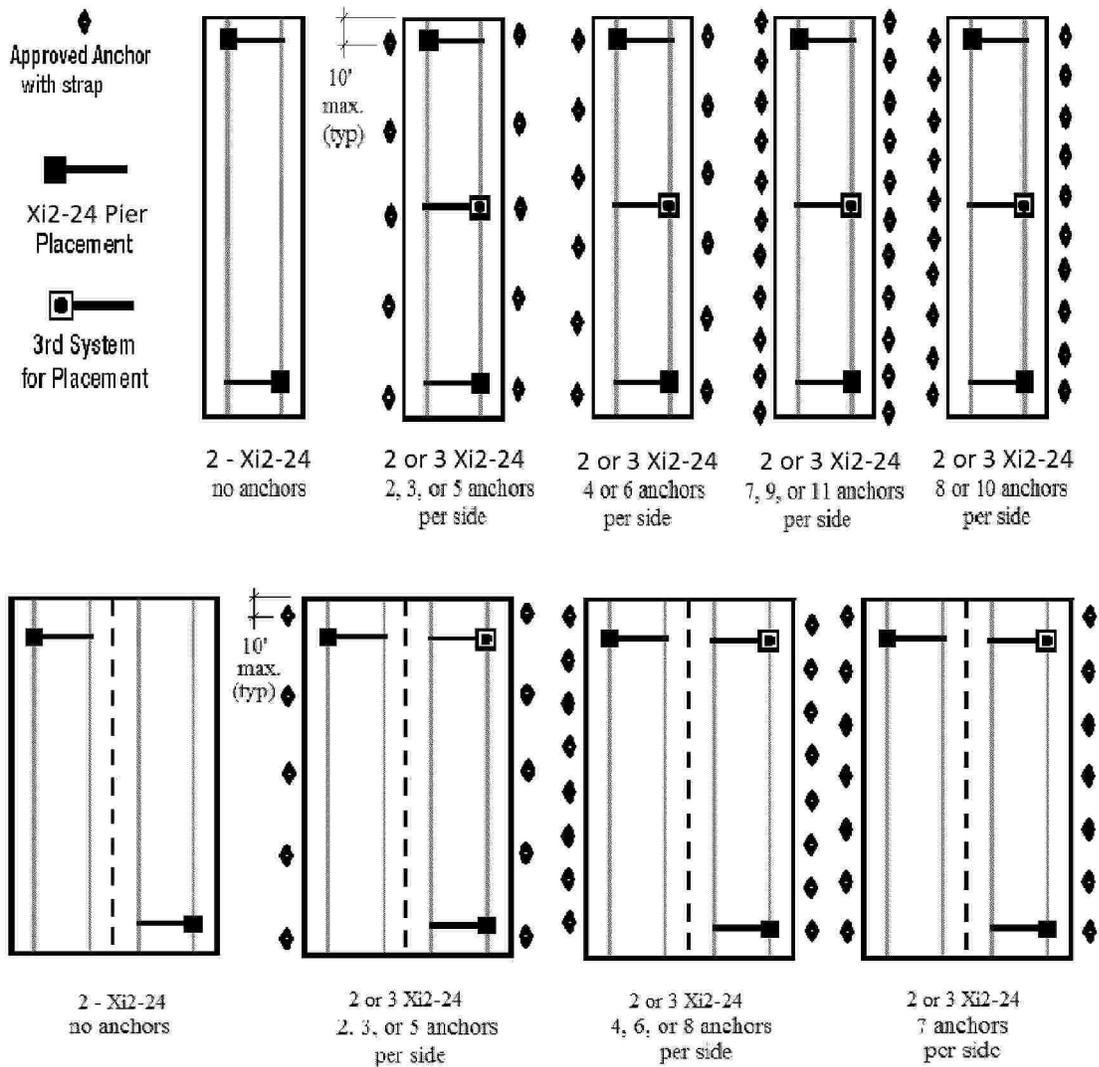
In addition to the Xi2-24 Foundation Systems, ground anchors and strapping (3150 lbs. allowable load) may need to be installed vertically to the sidewall, evenly spaced along the home (beginning no more than two feet from either end of the home) to restrain against uplift and over turning forces. No additional anchoring of the main beams is required when using the Xi2-24 System.

The minimum number of systems & anchoring required as follows:

Xi2-24 Foundation System									
2400 min. lbs. Bracket *									
	Max. Box	Xi2-24	No. of Anchors		Max. Box	Xi2-24	No. of Anchors		
	Length	Systems	on Each Side		Length	Systems	on Each Side		
Single Wides				Triple Wides					
WZ1	80 ft.	2	2	WZ1	80 ft.	2	0		
WZ2	44 ft.	2	4	WZ2	64 ft.	2	3		
	60 ft.	2	5		80 ft.	2	4		
	72 ft.	2	6						
	80 ft.	2	7						
WZ3	48 ft.	3	5	WZ3	52 ft.	3	5		
	52 ft.	3	6		64 ft.	3	6		
	64 ft.	3	7			72 ft.	3	7	
	72 ft.	3	8				80 ft.	3	8
	80 ft.	3	9						
Double Wides									
WZ1	80 ft.	2	0						
WZ2	52 ft.	2	3						
	72 ft.	2	4						
	80 ft.	2	5						
WZ3	48 ft.	3	4						
	56 ft.	3	5						
	68 ft.	3	6						
	80 ft.	3	7						

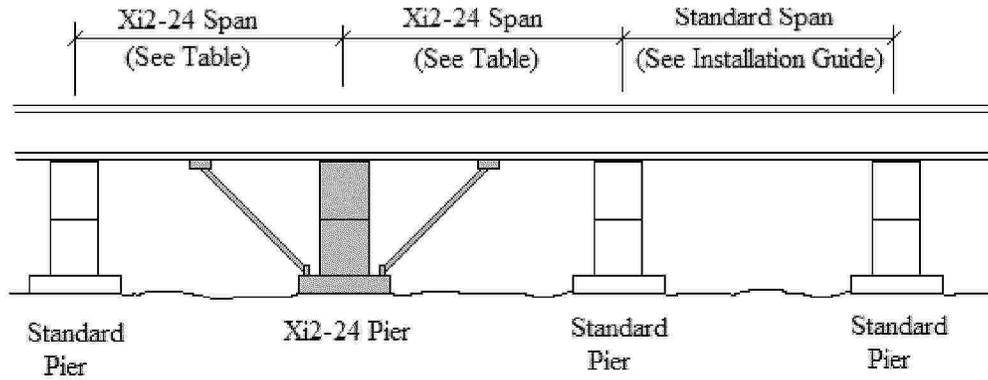
* - Bracket may be Tie Down "Marriage Wall Bracket" #59699

The Xi2-24 Foundation Systems & ground anchors shown in the table shall be located as shown below:



Typical Anchor at Sidewall Detail

APPROVED BY
NIA INC. 12/2/2025
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS



Xi2-24 Pier Span to Adjacent Piers

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

Xi2-24 Pier Span to Adjacent Piers			
Min. Soil Bearing	Min. Footing Size	Section Width	
		132 in. - 144 in.	145 in. - 176 in.
1000 psf	21 in. x 21 in.	n/a	n/a
	24 in. x 24 in.	n/a	n/a
	30 in. x 30 in.	n/a	n/a
	36 in. x 36 in.	4'-11"	n/a
1500 psf	21 in. x 21 in.	n/a	n/a
	24 in. x 24 in.	n/a	n/a
	30 in. x 30 in.	6'-0"	4'-6"
	36 in. x 36 in.	10'-0"	10'-0"
2000 psf	21 in. x 21 in.	n/a	n/a
	24 in. x 24 in.	n/a	n/a
	30 in. x 30 in.	10'-0"	10'-0"
	36 in. x 36 in.	10'-0"	10'-0"
2500 psf	21 in. x 21 in.	n/a	n/a
	24 in. x 24 in.	7'-9"	5'-9"
	30 in. x 30 in.	10'-0"	10'-0"
	36 in. x 36 in.	10'-0"	10'-0"
3000 psf	21 in. x 21 in.	4'-10"	3'-8"
	24 in. x 24 in.	10'-0"	10'-0"
	30 in. x 30 in.	10'-0"	10'-0"
	36 in. x 36 in.	10'-0"	10'-0"
4000 psf	21 in. x 21 in.	10'-0"	10'-0"
	24 in. x 24 in.	10'-0"	10'-0"
	30 in. x 30 in.	10'-0"	10'-0"
	36 in. x 36 in.	10'-0"	10'-0"



Special Foundation Systems – Tie Down Engineering Xi2-24 Foundation System
Page 4 Oct 16, 2025

As stated in the Tie Down Engineering installation instructions the Xi2-24 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 Xi2-24 piers exceed those for the standard piers as shown in the *Legacy Housing Installation Guide*. The footings in the table above for the Xi2-24 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 *Legacy Housing 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 impose 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 Legacy Housing 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 *Legacy Housing Installation Guide* for all other applicable set up requirements not covered by this letter. Please contact us for any questions or additional information.

Sincerely,

Leslie C Jones Jr.

Leslie C Jones, Jr
Director of Engineering
Legacy Housing, LTD



Oct 17, 2025
Detail 4 Eng.
F-15577

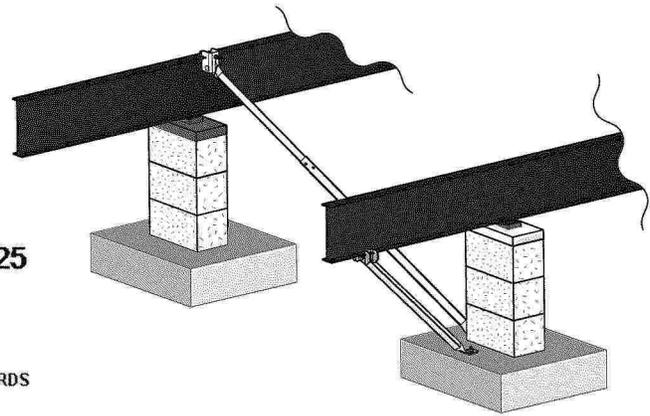
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FEDERAL MANUFACTURED HOME
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Xi2-24 Concrete Foundation System Installation Instructions for Wind Zone I, II & III Except Florida and California

Effective November 3, 2025

US Patent No.11,898,318

The Xi2-24 System Instructions use the lateral and longitudinal struts to replace normal lateral frame tie and longitudinal end tie anchorage and stabilizer plates. In addition the system requires a minimum amount of uplift anchors in Zone I for enhanced wind protection. Check zone charts for details



Installation Requirements

- Install in any type soil, 4B (175-275 lbs.) or better.
- Main rail spacing must be 75.5" – 99.5", 112" exception with proper strut.
- Maximum pier height at system 48", with 6" maximum rise from location of system to end of home. For all other piers use the home manufacturers set up instructions.
- Maximum vertical projection at sidewall is 9' wall and roof rim (9' wall and 12" eave). Higher walls may be used, when possible for design loads to be adjusted accordingly. For 10' walls, check with Tie Down.
- Longitudinal strut angle no more than 50 degrees and no less than 25 degrees. The longitudinal component of the Xi2 system replaces end frame ties. Check manufacturers requirements.
- For roof slopes greater than 20 degrees, (4.37" in 12" pitch) see page 3.
- Two systems designed to work with each other must be placed as evenly as possible. Measuring from the center of the block/pier, systems are to be placed a minimum of 2' to a recommended maximum of 10' (when needed may be a maximum of 1/4 the length of the home) from each end of home as shown on pier placement chart. Components of the Xi2 system such as the longitudinal strut and connecting hardware, may extend beyond pier location and can face in or out as long as both systems share the same direction, both either facing in or both facing out.
- This System only replaces normal lateral frame tie and or longitudinal end tie anchorage, with minimum uplift anchorage for Wind Zone I. Wind Zones II & III (100+ mph) require additional vertical sidewall anchorage for high wind areas. The home manufacturer may require additional vertical anchor ties that are unique to the home's design. These locations may include shear walls, marriage line ridge beam supports, and rim plates. Check the Manufacturers installation instructions for set-up requirements.
- **Footer Requirement:** Must be large enough for the pier load at that location and be a minimum of 22" wide by 6" deep with anchor wedge bolts a minimum of 4" from any edge or 18" wide by 12" deep with anchor wedge bolts a minimum of 1-1/2" from edge. Strip footings minimum of 18" wide by 14' long by 6" deep or 27" wide by 14' long by 4" deep.
- Poured concrete must be 2,500 PSI minimum at 28 days. Bottom of footers must be below the frost line or a minimum of 4" below finished grade. Check with authorities for local requirements (LAHJ).



Nov 20, 2025
Detail 4 Eng.
F-15577



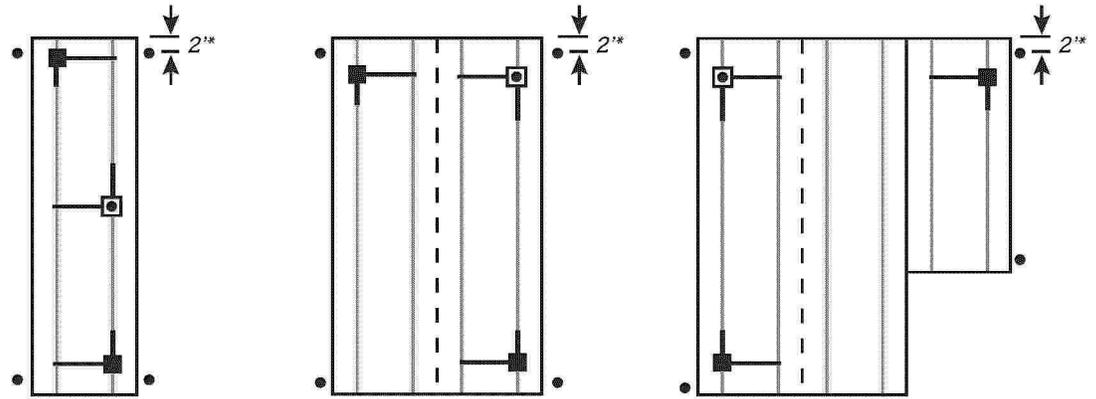
Up To Date
Concrete
Installation Manual

Instruction #08462 (D2043 - Rev. 9/23/25)

Xi2 Lateral Stabilization

- Approved Anchors must begin within 2' of the end of home*.
- Xi2 System Placement
- 3rd System for placement

*See anchor chart below



Wind Zones I & II

Single Section Home
 0 - 76' Box 2 Xi2 Systems
 Over 76' Box 3 Xi2 Systems

Double Section Home
 0 - 76' Box 2 Xi2 Systems
 Over 76' Box 3 Xi2 Systems

Triple Section Home
 0 - 76' Box 2 Xi2 Systems
 Over 76' Box 3 Xi2 Systems

Wind Zones III

Single Section Home
 0 - 64' Box 2 Xi2 Systems
 Over 64' Box 3 Xi2 Systems

Double Section Home
 0 - 64' Box 2 Xi2 Systems
 Over 64' Box 3 Xi2 Systems

Triple Section Home
 0 - 64' Box 2 Xi2 Systems
 Over 64' Box 3 Xi2 Systems

Wind Zone I Uplift Anchors Chart

Home Section	Home Width	4:12		5:12		6:12-7:12	
		Home Length	Anchors Per Side	Home Length	Anchors Per Side	Home Length	Anchors Per Side
Single	12 ft. up to 140 in.	up to 63 ft.	3	up to 55 ft.	4	up to 45 ft.	4
		64 ft. to 90 ft.	4	56 ft. to 74 ft.	5	46 ft. to 62 ft.	5
				75 ft. to 90 ft.	6	63 ft. to 78 ft.	6
Double	14 ft.-18 ft. 156 in. to 210 in.	up to 73 ft.	3	up to 58 ft.	4	up to 47 ft.	4
		74 ft. to 90 ft.	4	59 ft. to 78 ft.	5	48 ft. to 64 ft.	5
				79 ft. to 90 ft.	6	65 ft. to 81 ft.	6
Triple	20 ft. to 32 ft. 2 x 118 in. to 2 x 186 in. 20' (2 x 118 in.) 24 ft. to 32 ft. 2 x 140 in. to 2 x 186 in.	up to 90 ft.	2			82 ft. to 90'	7
		up to 90 ft.	2	up to 90 ft.	3	up to 90 ft.	4
				up to 90 ft.	2	up to 90 ft.	3
Triple	36 ft. to 48 ft. 3 x 140 in. to 3 x 186 in.	up to 90 ft.	2	up to 90 ft.	2	up to 90 ft.	2



IMPORTANT: System Uplift Anchors are to be installed to the bottom of the rim joist with 3150lb. bracket and lag bolts, not I-beam. The corner anchors should be installed within 2' of the end of the home and any additional anchors installed as evenly as possible per side.

Note: In the event that the home has a solid foundation wall at the sidewall, instead of a bracket at the sidewall as described previously, the bracket can be relocated to a floor joist a maximum of 10" from the sidewall and connected with a vertical strap to a ground anchor, as long as the following limitations to the regular anchor spacings are observed.

- Single Sections: 5/12 Max roof slope -add one bracket and anchor, evenly spaced per side.
- 7/12 Max roof slope -add two brackets/anchors evenly spaced per side.
- Doubles and Triple sections – no additional anchors required.

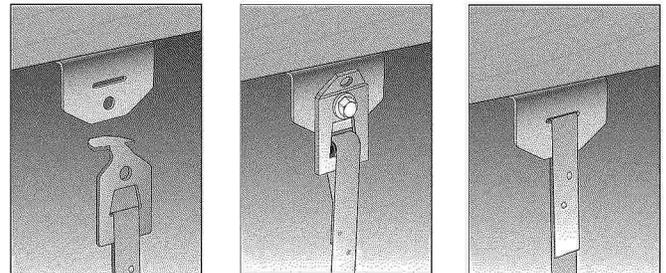
Alternative Concrete Footing Anchor method:

Anchors can be installed in the poured footings a minimum of 18"x18"x48" or 24"x24"x36" deep. Required uplift anchors would be installed in the footings with straps installed vertically to the I beam.

Uplift Rim Joist Bracket

Bracket attaches to the bottom of rim joist with (2) 1/2"-3.25" lag bolts with minimum 3" threads. Bracket can face inward or outward.
Install lag bolts into 2 pre drilled 5/16" holes.

Strap can either be bolted with swivel to end of bracket, slid through swivel connector or through the slot in the bracket and crimped to fit. Strap angle must be 75 deg. to 90 deg.



Xi2-24 System Requirements for Roof Pitches Higher than 20 degrees

Additional Systems:

On a single section home, the 3rd system is placed in the middle of the home. When using 3 or 4 systems (double and triple sections), install on opposite corners. If needed, a 5th system would be in the center of the unit on either side.

Xi2 Longitudinal Stabilization for Wind Zones II & III

When using longitudinal stabilization only, in higher wind zones, Systems must be spaced as evenly as possible, no more than 10' from the end of the home. Longitudinal Struts DO NOT replace anchors on single section homes.

NOTE: (2) Longitudinal struts required on each end for Wind Zones II & III.

NOTE: On triple section homes in Wind Zones II & III an additional longitudinal system is required. It should be installed on the center section.

Length (Feet)	Wind Zone I				Wind Zone II				Wind Zone III			
	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12
34	2	2	2	2	2	2	2	2	2	2	3	3
36	2	2	2	2	2	2	2	3	2	2	3	3
38	2	2	2	3	2	2	2	3	2	3	3	3
40	2	2	2	3	2	2	2	3	3	3	3	3
42	2	2	3	3	2	2	3	3	3	3	3	3
44	2	2	3	3	2	2	3	3	3	3	3	3
46	2	3	3	3	2	3	3	3	3	3	3	4
48	2	3	3	3	3	3	3	3	3	3	3	4
50	3	3	3	3	3	3	3	3	3	3	3	4
52	3	3	3	3	3	3	3	3	3	3	4	4
54	3	3	3	3	3	3	3	3	3	3	4	4
56	3	3	3	3	3	3	3	3	3	3	4	4
58	3	3	3	3	3	3	3	3	3	3	4	4
60	3	3	3	3	3	3	3	3	3	3	4	5
62	3	3	3	3	3	3	3	3	4	4	4	5
64	3	3	4	4	3	3	4	4	4	4	4	5
66	3	3	4	4	3	3	4	4	4	4	4	5
68	3	4	4	4	3	4	4	4	4	4	5	5
70	3	4	4	4	3	4	4	4	4	4	5	5
72	3	4	4	4	4	4	4	5	4	4	5	5
74	4	4	4	5	4	4	4	5	4	5	5	5
76	4	4	4	5	4	4	4	5	4	5	5	6
78	4	4	4	5	4	4	4	5	4	5	5	6
80	4	4	4	5	4	4	4	5	4	5	5	6

Xi2-24 Foundation System Installation for Concrete

Step 1 – Concrete Footer

- Build footer according to State Local, or Home Manufacturer's guidelines.
- **For Dry Set:** Depending on depth of footer, measure 1 1/2" from edge or 4" from edge of footer and drill a 1/2" x 3" hole on the side of the block under the beam for longitudinal and a hole at the end of the block for the lateral going across to the other beam. Place a nut and washer on the very top of anchor wedge bolt leaving no threads showing. Using a hammer, tap the bolts until snug in the hole, remove nut and washer and attach strut and pan washer to anchor bolt, followed by the washer and nut. Tighten wedge bolt to slab.

Note: Once the wedge bolts are set, proceed with standard installation steps.

- **For Wet Set:** Follow steps for dry set except instead of drilling a hole in the footing insert the J bolt into the wet concrete up to the bottom of the threads at the proper placement and allow to dry.

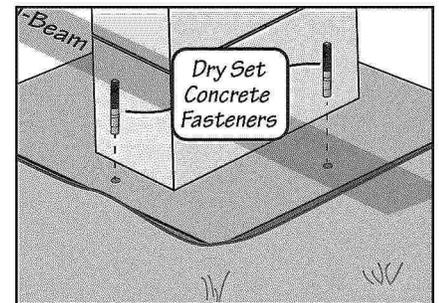


Fig. 3-2

Step 2 – Longitudinal Beam Strut Attachment

- Position Longitudinal beam clamps on both sides of the I-beam. The I-beam frame will slide into the slot on the clamp
- Extend the top of the longitudinal strut (smaller, pressed flat) upward and position it between the two beam brackets as shown in Fig.3-3
Note: The fully extended longitudinal strut must maintain a minimum of 6" to 8" overlap between inner and outer tubes.
- Insert a 4" carriage bolt into the bracket and insert the spacers on each side of the strut before sliding bolt all the way through.
- Attach a flange nut to the carriage bolt. Note: The two "loose" beam clamps will appear to be out of alignment with the frame.
- Do Not tighten beam clamps.

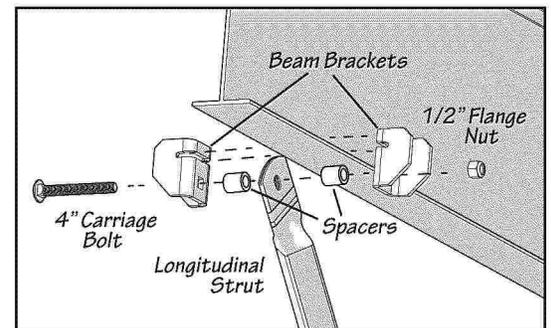


Fig. 3-3

Step 3 – Longitudinal Base Strut Attachment

- Slide the bottom of the longitudinal strut (larger, bent end) over the concrete wedge bolt on the footer.
- Slide a pan washer over the wedge bolt and install a flange nut over the wedge bolt as shown right in Fig.4-1
- Using a 3/4" deep socket/impact driver, tighten the flange nut on the footer.
- Using a 3/4" deep socket/impact driver, tighten the flange nut on the beam clamp.

Step 4 – Strut Fasteners

- Secure the extended Longitudinal Strut by installing 4 self tapping screws in the 4 holes in the outer longitudinal tube as shown in Fig 4-4. Attach 2 screws per side.

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Step 5 - Longitudinal Strut

- Slide the end of the longitudinal strut over the wedge bolt on the footer.
- Slide a pan washer over the wedge bolt, install a flange nut over the wedge bolt as show right in Fig. 4-1
- Using a 3/4" deep socket/impact driver, tighten the flange nut on the footer.
- Pull outward on the longitudinal beam clamp removing any slack between the clamp and ground pad.
- Using a 3/4" deep socket/impact driver, tighten the flange nut on the beam clamp.

Note: As the bolt/nut tighten, the two beam clamps will begin to crimp the I-beam.

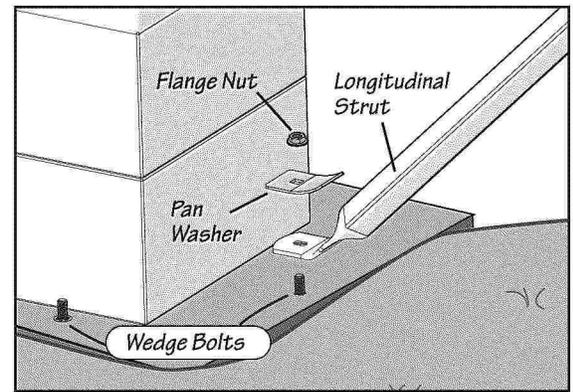


Fig. 4-1

Step 6 - Lateral Strut Beam Attachment

- Extend the lateral strut outward to the opposite side I-beam.
NOTE: The fully extended strut must maintain a minimum 6" to 8" overlap between inner and outer tubes.
- Slide the "J" bolt over the I-beam and between the home frame.
- Slide the beam clamp over the "J" bolt end passing through the top of the beam clamp and slide the clamp over the i-beam frame as shown in Fig. 4-2. Attach flange nut over the "J" bolt and loosely tighten nut.
- Align/insert the lateral strut end in the mounting slot on the bottom of the beam clamp as shown in Fig. 4-2.
- Pass a carriage bolt through the beam clamp and lateral strut coming out the opposite side beam clamp. Loosely tighten flange nut. Do not tighten nut.
- Slide the assembled beam clamp with the mounted lateral strut left or right aligning the strut perpendicular to the pad.
- Once the beam clamp/strut attachment is in its final location, tighten the two flange nuts.

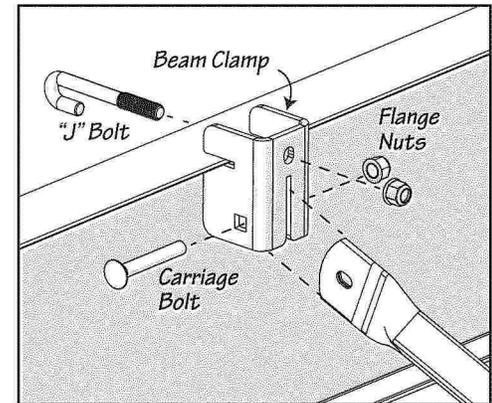


Fig. 4-2

Step 7 - Lateral Strut Base Attachment

- Slide the end of the lateral strut over the carriage bolt on the ground pad.
- Slide a pan washer over the carriage bolt/lateral strut, install a flange nut over the carriage bolt as show right in Fig. 4-3.
- Using a 3/4" deep socket/impact driver, tighten the flange nut on the ground pad.
- Using a 3/4" deep socket/impact driver, tighten the flange nut on the beam clamp.

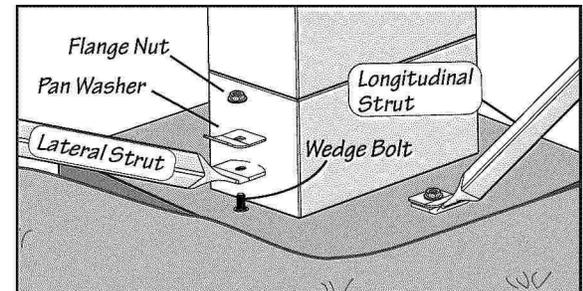


Fig. 4-3

Step 8 - Strut Fasteners

- Secure the extended lateral strut by mounting 4 self tapping screws in the 4 holes in the outer lateral tube as shown in Fig. 4-4. Attach two screws per side.

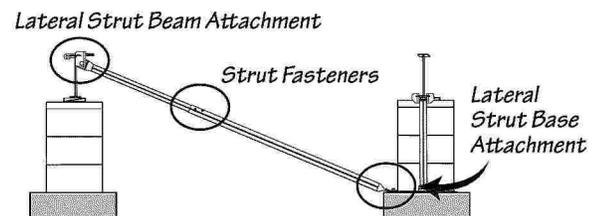


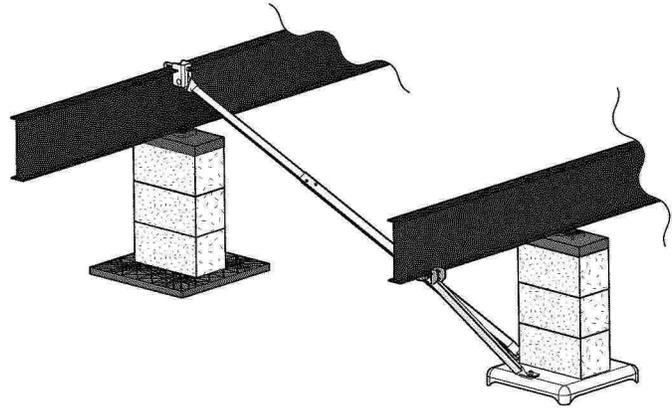
Fig. 4-4

Xi2-24 Ground Foundation System Installation Instructions for Wind Zone I, II & III Except Florida and California

Effective November 3, 2025

US Patent No.11,898,318

The Xi2-24 System Instructions use the lateral and longitudinal struts to replace normal lateral frame tie and longitudinal end tie anchorage and stabilizer plates. In addition the system requires a minimum amount of uplift anchors in Zone I for enhanced wind protection. Check anchor charts for details



Installation Requirements

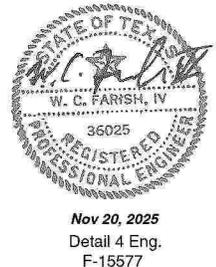
- Install in any type soil, 4B (175-275 lbs.) or better.
- Main rail spacing must be 75.5" – 99.5", 112" exception with proper strut.
- Maximum pier height at system 48", with 6" maximum rise from location of system to end of home. For all other piers use the home manufacturers set up instructions.
- Maximum vertical projection at sidewall is 9' wall and roof rim (9' wall and 12" eave). Higher walls may be used, when possible for design loads to be adjusted accordingly. For 10' walls, check with Tie Down.
- Longitudinal strut angle no more than 50 degrees and no less than 25 degrees. The longitudinal component of the Xi2 system replaces end frame ties. Check manufacturers requirements.
- The Xi2-24 System is installed on or under one of the pier footers required by manufacturers set up instructions, no other base pad required. If home is already set, a new pier can be added between existing piers as long as the other requirements are met.
- For roof slopes greater than 20 degrees, (4.37" in 12" pitch) see page 3.
- Two systems designed to work with each other must be placed as evenly as possible. Measuring from the center of the block/pier, systems are to be placed a minimum of 2' to a recommended maximum of 10' (when needed may be a maximum of 1/4 the length of the home) from each end of home as shown on pier placement chart. Components of the Xi-24 system such as the longitudinal strut and connecting hardware, may extend beyond pier location and can face in or out as long as both systems share the same direction, both either facing in or both facing out.
- Although soil is the recommended base for the Xi-2 pan, properly selected and installed gravel may also be used. The gravel must be smooth (not crushed rock), clean, 3/8" diameter maximum, installed and compacted as necessary. Installing incorrect gravel may not allow the system to obtain full design capacity.
- This System only replaces normal lateral frame tie and or longitudinal end tie anchorage, with minimum uplift anchorage for Wind Zone I. Wind Zones II & III (100+ mph) require additional vertical sidewall anchorage for high wind areas. The home manufacturer may require additional vertical anchor ties that are unique to the home's design. These locations may include shear walls, marriage line ridge beam supports, and rim plates. Check the Manufacturers installation instructions for set-up requirements.



WARNING: This product can expose you to chemicals including Nickel, which is known to the State of California to cause cancer. For more information go to: www.P65Warnings.ca.gov

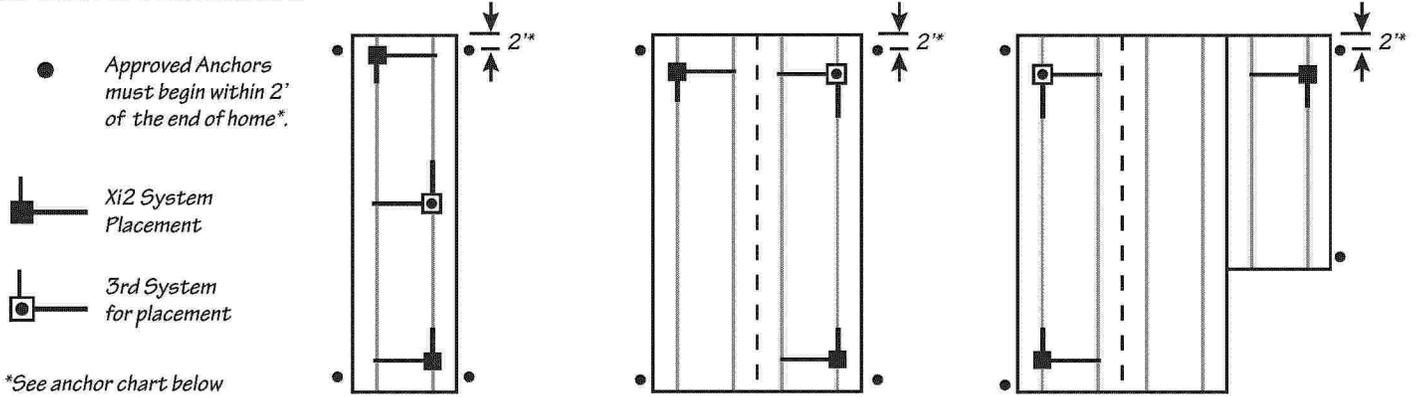


Up To Date
Ground Install
Instructions



Instruction #08463 (D2044 - Rev. 9/23/25)

Xi2 Lateral Stabilization



Wind Zones I & II

Single Section Home
 0 - 76' Box 2 Xi2 Systems
 Over 76' Box 3 Xi2 Systems

Double Section Home
 0 - 76' Box 2 Xi2 Systems
 Over 76' Box 3 Xi2 Systems

Triple Section Home
 0 - 76' Box 2 Xi2 Systems
 Over 76' Box 3 Xi2 Systems

Wind Zones III

Single Section Home
 0 - 64' Box 2 Xi2 Systems
 Over 64' Box 3 Xi2 Systems

Double Section Home
 0 - 64' Box 2 Xi2 Systems
 Over 64' Box 3 Xi2 Systems

Triple Section Home
 0 - 64' Box 2 Xi2 Systems
 Over 64' Box 3 Xi2 Systems

Wind Zone I Uplift Anchors Chart

Home Section	Home Width	4:12		5:12		6:12-7:12	
		Home Length	Anchors Per Side	Home Length	Anchors Per Side	Home Length	Anchors Per Side
Single	12 ft. up to 140 in.	up to 63 ft.	3	up to 55 ft.	4	up to 45 ft.	4
		64 ft. to 90 ft.	4	56 ft. to 74 ft.	5	46 ft. to 62 ft.	5
				75 ft. to 90 ft.	6	63 ft. to 78 ft.	6
Double	14 ft.-18 ft. 156 in. to 210 in.	up to 73 ft.	3	up to 58 ft.	4	up to 47 ft.	4
		74 ft. to 90 ft.	4	59 ft. to 78 ft.	5	48 ft. to 64 ft.	5
				79 ft. to 90 ft.	6	65 ft. to 81 ft.	6
Triple	20 ft. to 32 ft. 2 x 118 in. to 2 x 186 in.	up to 90 ft.	2			82 ft. to 90'	7
		up to 90 ft.	2				
Double	20' (2 x 118 in.) 24 ft. to 32 ft. 2 x 140 in. to 2 x 186 in.			up to 90 ft.	3	up to 90 ft.	4
				up to 90 ft.	2	up to 90 ft.	3
Triple	36 ft. to 48 ft. 3 x 140 in. to 3 x 186 in.	up to 90 ft.	2	up to 90 ft.	2	up to 90 ft.	2



IMPORTANT: System Uplift Anchors are to be installed to the bottom of the rim joist with 3150lb. bracket and lag bolts, not I-beam. The corner anchors should be installed within 2' of the end of the home and any additional anchors installed as evenly as possible per side.

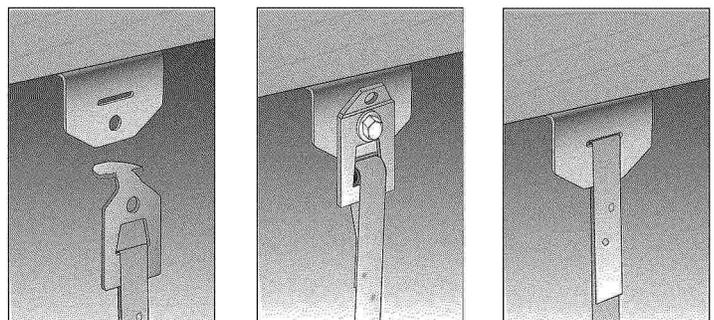
Note: In the event that the home has a solid foundation wall at the sidewall, instead of a bracket at the sidewall as described previously, the bracket can be relocated to a floor joist a maximum of 10" from the sidewall and connected with a vertical strap to a ground anchor, as long as the following limitations to the regular anchor spacings are observed.

- Single Sections: 5/12 Max roof slope -add one bracket anchor, evenly spaced per side.
- 7/12 Max roof slope -add two brackets/anchors evenly spaced per side.
- Doubles and Triple sections – no additional anchors required.

Uplift Rim Joist Bracket

Bracket attaches to the bottom of rim joist with (2) 1/2"-3.25" lag bolts with minimum 3" threads. Bracket can face inward or outward. Install lag bolts into 2 pre drilled 5/16" holes.

Strap can either be bolted with swivel to end of bracket, slid through swivel connector or through the slot in the bracket and crimped to fit. Strap angle must be 75 deg. to 90 deg.



Xi2-24 System Requirements for Roof Pitches Higher than 20 degrees

Additional Systems:

On a single section home, the 3rd system is placed in the middle of the home. When using 3 or 4 systems (double and triple sections), install on opposite corners. If needed, a 5th system would be in the center of the unit on either side.

Xi2 Longitudinal Stabilization for Wind Zones II & III

When using longitudinal stabilization only, in higher wind zones, Systems must be spaced as evenly as possible, no more than 10' from the end of the home. Longitudinal Struts DO NOT replace anchors on single section homes.

NOTE: (2) Longitudinal struts required on each end for Wind Zones II & III.

NOTE: On triple section homes in WZ II & III an additional longitudinal system is required. It should be installed on the center section.

Fig. 3-1

Length (Feet)	Wind Zone I				Wind Zone II				Wind Zone III			
	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12
34	2	2	2	2	2	2	2	2	2	2	3	3
36	2	2	2	2	2	2	2	3	2	2	3	3
38	2	2	2	3	2	2	2	3	2	3	3	3
40	2	2	2	3	2	2	2	3	3	3	3	3
42	2	2	3	3	2	2	3	3	3	3	3	3
44	2	2	3	3	2	2	3	3	3	3	3	3
46	2	3	3	3	2	3	3	3	3	3	3	4
48	2	3	3	3	3	3	3	3	3	3	3	4
50	3	3	3	3	3	3	3	3	3	3	3	4
52	3	3	3	3	3	3	3	3	3	3	4	4
54	3	3	3	3	3	3	3	3	3	3	4	4
56	3	3	3	3	3	3	3	3	3	3	4	4
58	3	3	3	3	3	3	3	3	3	3	4	4
60	3	3	3	3	3	3	3	3	3	3	4	5
62	3	3	3	3	3	3	3	3	4	4	4	5
64	3	3	4	4	3	3	4	4	4	4	4	5
66	3	3	4	4	3	3	4	4	4	4	4	5
68	3	4	4	4	3	4	4	4	4	4	5	5
70	3	4	4	4	3	4	4	4	4	4	5	5
72	3	4	4	4	4	4	4	5	4	4	5	5
74	4	4	4	5	4	4	4	5	4	5	5	5
76	4	4	4	5	4	4	4	5	4	5	5	6
78	4	4	4	5	4	4	4	5	4	5	5	6
80	4	4	4	5	4	4	4	5	4	5	5	6

Xi2-24 Foundation System Installation for Ground Pads

Step 1 - Ground Pad

- Stand the ground pad on its side. Slide a carriage bolts through the pan washers passing through the ground pad as shown right in Fig 3-1.
- *Note: The curved side of the pan washer must be positioned away from the curved edge of the ground pad, as illustrated in Figure 3-2.**
- Attach two star washers over the carriage bolts on top of the ground pan, securing both bolts in place as in Fig 3-2.
- Clear all organic matter and debris from the pad site.
- Place pad centered under I-beam.
- Press or drive pan into ground until the top of the pan is level and flush with prepared surface.
- Stack the pier blocks as needed.

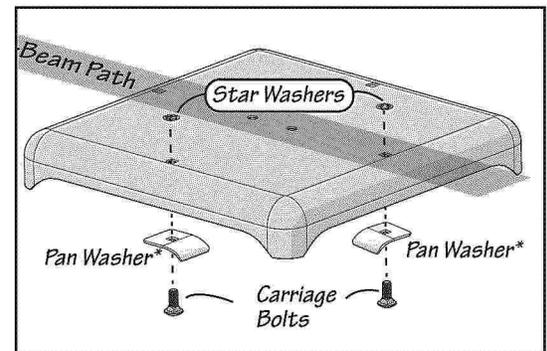


Fig. 3-2

Step 2 - Longitudinal Beam Strut Attachment

- Position Longitudinal beam clamps on both sides of the I-beam. The I-beam frame will slide into the slot on the clamp.
- Extend the top of the longitudinal strut upward and position it between the two beam brackets as shown right in Fig 3-3. **Note:** The fully extended Longitudinal Strut must maintain a minimum of 6" to 8" overlap between inner and outer tubes.
- Insert a 4" carriage bolt through the bracket and insert the spacers on each side of the strut before sliding bolt all the way through.
- Attach a flange nut to the carriage bolt. **Note:** the two "loose" beam clamps will appear to be out of alignment with the frame.
- Do Not tighten beam clamps.

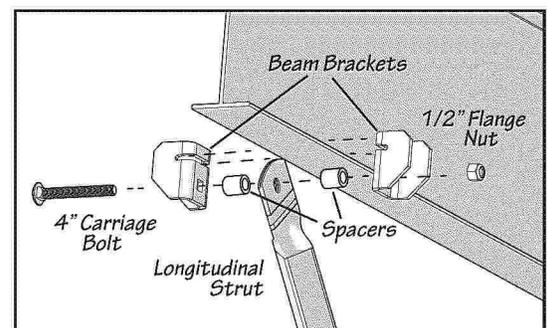


Fig. 3-3

Step 3 - Longitudinal Base Strut Attachment

- Slide the end of the Longitudinal strut over the carriage bolt on the ground pad.
- Slide a pan washer over the carriage bolt/longitudinal strut, install a flange nut over the carriage bolt as shown in figure 4-3.
- Using a 3/4" deep socket/impact driver, tighten the flange nut on the ground pad.
- Using a 3/4" deep socket/impact driver, tighten the flange on the beam clamp.

Step 4 - Longitudinal Strut Fasteners

- Secure the extended Longitudinal Strut by installing 4 self tapping screws in the 4 holes in the outer Longitudinal tube as shown in Fig. 4-4. Attach 2 screw per side.

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I-C-65

Step 5 - Lateral Strut Beam Attachment

- Extend the lateral strut outward to the opposite side I-beam.
- **NOTE: The fully extended strut must maintain a minimum 6" to 8" overlap between inner and outer tubes.**
- Slide the "J" bolt over the I-beam and between the home frame.
- Slide the beam clamp over the "J" bolt end passing through the top of the beam clamp and slide the clamp over the I-beam frame as shown in Fig. 4-2. Attach flange nut over the "J" bolt and loosely tighten nut.
- Align/insert the lateral strut end in the mounting slot on the bottom of the beam clamp as shown in Fig. 4-2.
- Pass a carriage bolt through the beam clamp and lateral strut coming out the opposite side beam clamp. Loosely tighten flange nut. Do not tighten nut.
- Slide the assembled beam clamp with the mounted lateral strut left or right aligning the strut perpendicular to the pad.
- Once the beam clamp/strut attachment is in its final location, tighten the two flange nuts.

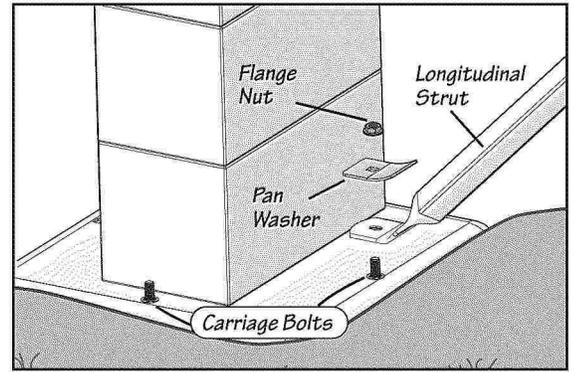


Fig. 4-1

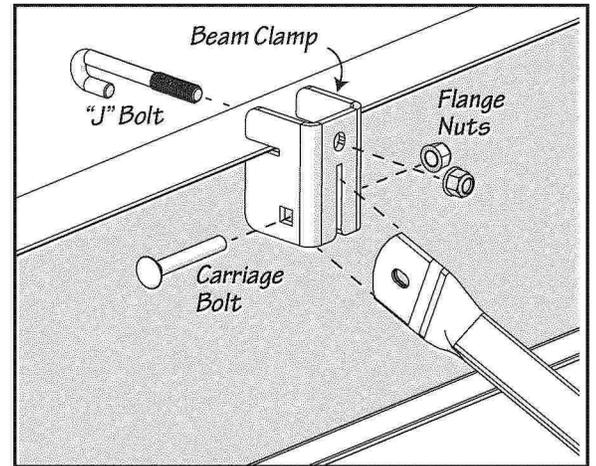


Fig. 4-2

Step 6 - Lateral Strut Base Attachment

- Slide the end of the lateral strut over the carriage bolt on the ground pad.
- Slide a pan washer over the carriage bolt/lateral strut, install a flange nut over the carriage bolt as show right in Fig. 4-3.
- Using a 3/4" deep socket/impact driver, tighten the flange nut on the **ground pad**.
- Using a 3/4" deep socket/impact driver, tighten the flange nut on the **beam clamp**.

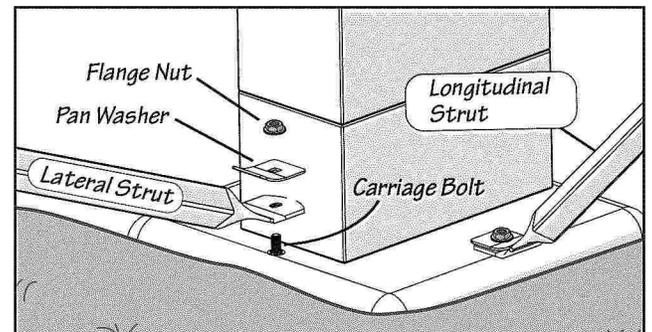


Fig. 4-3

Step 7 - Strut Fasteners

- Secure the extended lateral strut by mounting 4 self tapping screws in the 4 holes in the outer lateral tube as shown in Fig. 4-4. Attach two screws per side.



Lateral Strut Beam Attachment

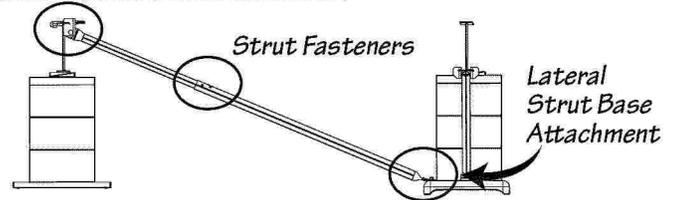


Fig. 4-4

I-C-66

TIE DOWN

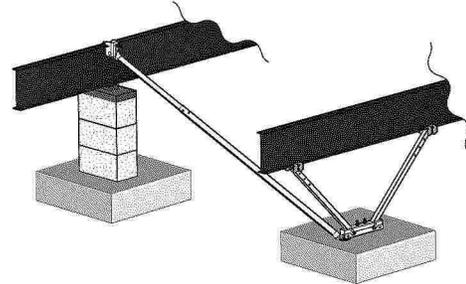
MANUFACTURING INGENUITY

XVC Steel Pier Concrete System Installation Instructions for Wind Zone I, II & III Except Florida and California

Effective November 3, 2025

US Patent No.11,898,318

The XV Steel Pier System replaces the standard pier support and base pad. Installation instructions are for replacing normal lateral frame tie and longitudinal end tie anchorage and plates. In addition, the system requires a minimum amount of uplift anchors in Wind Zone I for enhanced wind protection. Check Anchor charts for details.



Installation Requirements

- Install in type 4B (175-275 lbs.) soil or better.
- Main Rail Spacing must be 75.5" – 99.5", 112" exception with proper strut.
- Maximum pier height must be 48" with 6" maximum rise from the location of the system to the end of the home. For all other piers, use the manufacturers set up instructions.
- Maximum vertical protection at sidewall is 9' wall and 12" eave at roof rim. Higher walls may be used when possible for design loads to be adjusted accordingly. For 10' walls, check with Tie Down.
- Longitudinal strut angles need to be no more than 60 degrees and no less than 40 degrees.
- The XV System is installed on one of the pier footers required by the home manufacturer set up instructions. No other base pad required.
- Two systems designed to work with each other must be placed as evenly as possible. Measuring from the center of the block/pier, systems are to be placed a minimum of 2' and a recommended maximum of 10' (when needed may be a maximum of 1/4 the length of the home) from each end of the home as shown on pier placement chart.
- For roof slopes greater than 20 degrees (4.37" in 12" Pitch), see page 3.
- This system only replaces normal lateral frame tie and or longitudinal end tie anchorage, with minimum uplift anchorage added for Wind Zone I. Wind zones II & III (100+ mph) require additional vertical sidewall anchorage for high wind areas. The home manufacturer may require additional vertical anchor ties that are unique to the homes design. These locations may include shear walls, marriage line ridge beam supports, and rim plates. Check manufacturers installation instructions for set up requirements.

Concrete Installation Requirements

- Poured concrete must be must be 2,500 PSI minimum at 28 days. Bottom of footers must be below the frost line or a minimum of 4" below finished grade. Check with authorities for local requirements (LAHJ).
- **Footer Requirement:** Must to be large enough for the pier load at that location and be a minimum of 22" wide by 6" deep with anchor wedge bolts a minimum of 4" from any edge or 18" wide by 12" deep with anchor wedge bolts a minimum of 1-1/2" from edge. Strip footings minimum of 18" wide by 14' long by 6" deep or 27" wide by 14' long by 4" deep.

XV components exceed HUD code 3280.306 g "Anchoring equipment exposed to weathering shall have a resistance to weather deterioration at least equivalent to that provided by a coating of zinc on steel of not less than 0.30 ounces per square foot of surface coated. The XV Foundation System by Tie Down complies with 24CFR Part 3280 & 3285 when installed in accordance with the instructions provided by Tie Down.



Online Co
Installatio



WARNING: This product can expose you to chemicals including Nickel, which is known to the State of California to cause cancer. For more information go to: www.P65Warnings.ca.gov

Instruction #08460 (D2041 -

Nov 20, 2025
Detail 4 Eng.
F-15577

TIE DOWN

MANUFACTURING INGENUITY

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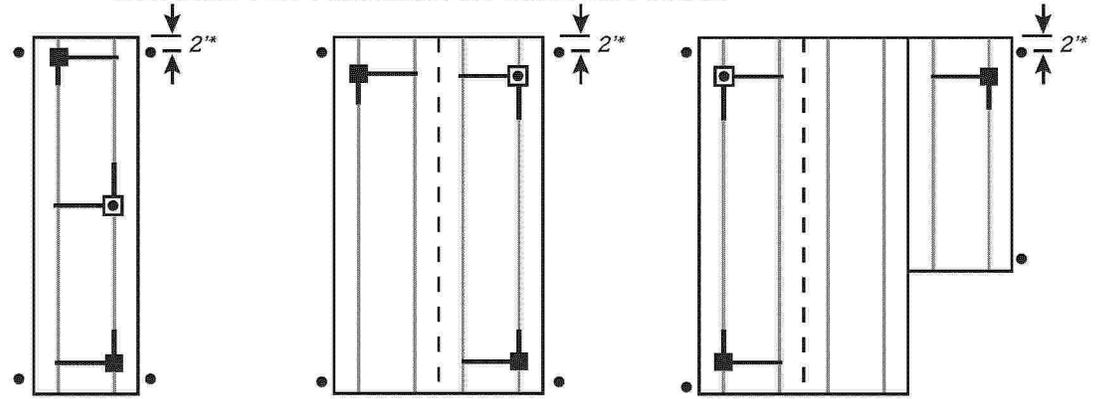
VVC Steel Pier Placement for Concrete Footers

● Approved Anchors must begin within 2' of the end of home*.

■ Xi2 System Placement

□ 3rd System for placement

*See anchor chart below



Wind Zones I & II

Single Section Home
0 - 76' Box 2 Xi2 Systems
Over 76' Box 3 Xi2 Systems

Double Section Home
0 - 76' Box 2 Xi2 Systems
Over 76' Box 3 Xi2 Systems

Triple Section Home
0 - 76' Box 2 Xi2 Systems
Over 76' Box 3 Xi2 Systems

Wind Zones III

Single Section Home
0 - 64' Box 2 Xi2 Systems
Over 64' Box 3 Xi2 Systems

Double Section Home
0 - 64' Box 2 Xi2 Systems
Over 64' Box 3 Xi2 Systems

Triple Section Home
0 - 64' Box 2 Xi2 Systems
Over 64' Box 3 Xi2 Systems

Wind Zone I Uplift Anchors Chart

Home Section	Home Width	4:12		5:12		6:12-7:12	
		Home Length	Anchors Per Side	Home Length	Anchors Per Side	Home Length	Anchors Per Side
Single	12 ft. up to 140 in.	up to 63 ft.	3	up to 55 ft.	4	up to 45 ft.	4
		64 ft. to 90 ft.	4	56 ft. to 74 ft.	5	46 ft. to 62 ft.	5
	14 ft.-18 ft. 156 in. to 210 in.	up to 73 ft.	3	up to 58 ft.	4	up to 47 ft.	4
		74 ft. to 90 ft.	4	59 ft. to 78 ft.	5	48 ft. to 64 ft.	5
Double	20 ft. to 32 ft. 2 x 118 in. to 2 x 186 in.	up to 90 ft.	2	up to 90 ft.	2	up to 90 ft.	4
		up to 90 ft.	2				
	20' (2 x 118 in.) 24 ft. to 32 ft. 2 x 140 in. to 2 x 186 in.			up to 90 ft.	3	up to 90 ft.	3
				up to 90 ft.	2	up to 90 ft.	3
Triple	36 ft. to 48 ft. 3 x 140 in. to 3 x 186 in.	up to 90 ft.	2	up to 90 ft.	2	up to 90 ft.	2



IMPORTANT: System Uplift Anchors are to be installed to the bottom of the rim joist with 3150lb. bracket and lag bolts, not I-beam. The corner anchors should be installed within 2' of the end of the home and any additional anchors installed as evenly as possible per side.

Note: In the event that the home has a solid foundation wall at the sidewall, instead of a bracket at the sidewall as described previously, the bracket can be relocated to a floor joist a maximum of 10" from the sidewall and connected with a vertical strap to a ground anchor, as long as the following limitations to the regular anchor spacings are observed.

Single Sections: 5/12 Max roof slope -add one bracket and anchor, evenly spaced per side.

7/12 Max roof slope -add two brackets/anchors evenly spaced per side.

Doubles and Triple sections – no additional anchors required.

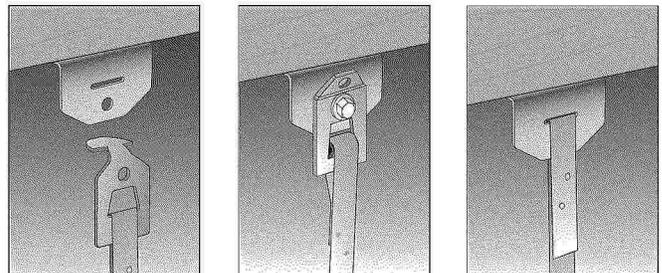
Alternative Concrete Footing Anchor method:

Anchors can be installed in the poured footings a minimum of 18"x18"x48" or 24"x24"x36" deep. Required uplift anchors would be installed in the footings with straps installed vertically to the I beam.

Uplift Rim Joist Bracket

Bracket attaches to the bottom of rim joist with (2) 1/2"-3.25" lag bolts with minimum 3" threads. Bracket can face inward or outward. **Install lag bolts into 2 pre drilled 5/16" holes.**

Strap can either be bolted with swivel to end of bracket, slid through swivel connector or through the slot in the bracket and crimped to fit. Strap angle must be 75 deg. to 90 deg.



XVC Steel Pier Foundation System for Concrete

Xi2-24 System Requirements for Roof Pitches Higher than 20 degrees

Additional Systems:

On a single section home, the 3rd system is placed in the middle of the home. When using 3 or 4 systems (double and triple sections), install on opposite corners. If needed, a 5th system would be in the center of the unit on either side.

Xi2 Longitudinal Stabilization for Wind Zones II & III

When using longitudinal stabilization only, in higher wind zones, Systems must be spaced as evenly as possible, no more than 10' from the end of the home. Longitudinal Struts DO NOT replace anchors on single section homes.

NOTE: On triple section homes in Wind Zones II & III an additional longitudinal system is required. It should be installed on the center section.

Length (Feet)	Wind Zone I				Wind Zone II				Wind Zone III			
	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12
34	2	2	2	2	2	2	2	2	2	2	3	3
36	2	2	2	2	2	2	2	3	2	2	3	3
38	2	2	2	3	2	2	2	3	2	3	3	3
40	2	2	2	3	2	2	2	3	3	3	3	3
42	2	2	3	3	2	2	3	3	3	3	3	3
44	2	2	3	3	2	2	3	3	3	3	3	3
46	2	3	3	3	2	3	3	3	3	3	3	4
48	2	3	3	3	3	3	3	3	3	3	3	4
50	3	3	3	3	3	3	3	3	3	3	3	4
52	3	3	3	3	3	3	3	3	3	3	4	4
54	3	3	3	3	3	3	3	3	3	3	4	4
56	3	3	3	3	3	3	3	3	3	3	4	4
58	3	3	3	3	3	3	3	3	3	3	4	4
60	3	3	3	3	3	3	3	3	3	3	4	5
62	3	3	3	3	3	3	3	3	4	4	4	5
64	3	3	4	4	3	3	4	4	4	4	4	5
66	3	3	4	4	3	3	4	4	4	4	4	5
68	3	4	4	4	3	4	4	4	4	4	5	5
70	3	4	4	4	3	4	4	4	4	4	5	5
72	3	4	4	4	4	4	4	5	4	4	5	5
74	4	4	4	5	4	4	4	5	4	5	5	5
76	4	4	4	5	4	4	4	5	4	5	5	6
78	4	4	4	5	4	4	4	5	4	5	5	6
80	4	4	4	5	4	4	4	5	4	5	5	6



Fig. 3-1

Step 1

- Build footer according to State, Local, or Home Manufacturers guidelines.
- For Dry Set: drill two 1/2"x 3" deep holes in the concrete using holes in the lower tension bracket as a guide (13" apart) . Place nut & washer on anchor, leave enough room for 1 to 2 threads showing on top of bolt. Using a hammer, tap the wedge bolts into hole through bracket, leaving nut & washer flush with bracket. Using a 9/16" socket wrench, tighten wedge/anchor bolt, securing bracket to the concrete.

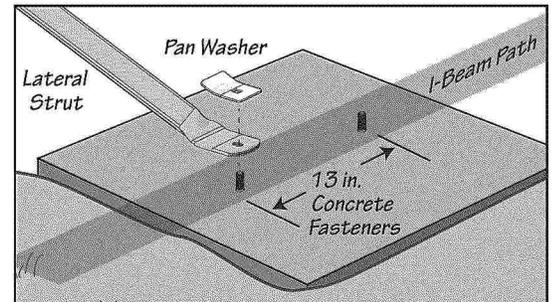


Fig. 3-2

Step 2

- Slide the end of the lateral strut over the outer most concrete anchor.
- Slide the pan washer over the concrete anchor and on top of the lateral strut as shown in Fig. 3-2.

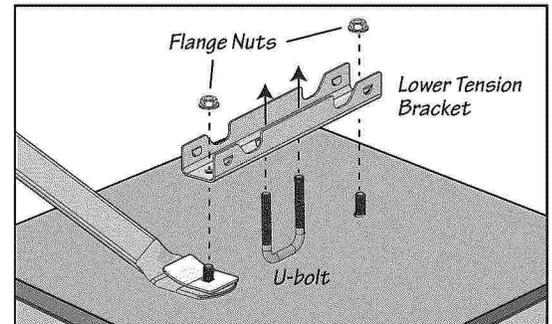


Fig. 3-3

Step 3

- Insert a u-bolt through the lower tension bracket.
- Slide both tension bracket/u-bolt over the two concrete anchors.
- Attach two flange nuts over the lower tension bracket and onto the two concrete anchors as shown right in Fig. 3-2

Step 4

- Position the upper tension bracket just over the u-bolt aligning with the two hole in the center of the bracket.
- Slide the upper bracket over the u-bolt and in between the lower bracket as shown right in Fig. 3-4.
- Lightly attach two flange nuts over the u-bolt, do not tighten flange nuts.

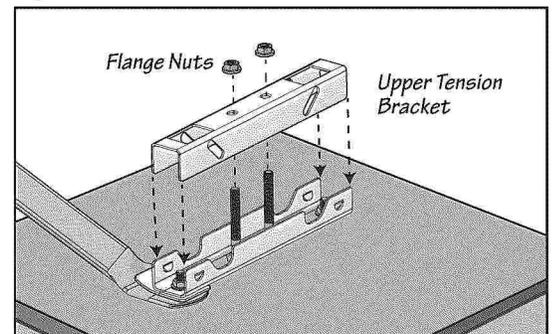


Fig. 3-4

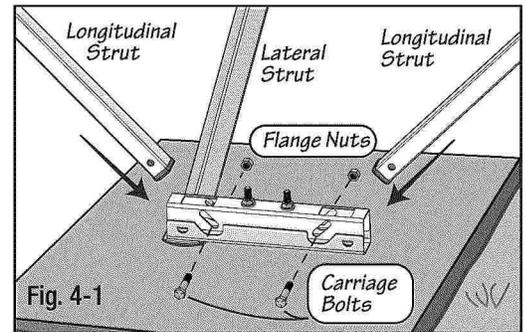
Step 5 - Longitudinal Struts

- Insert the black end caps into the bottom end of two longitudinal struts.

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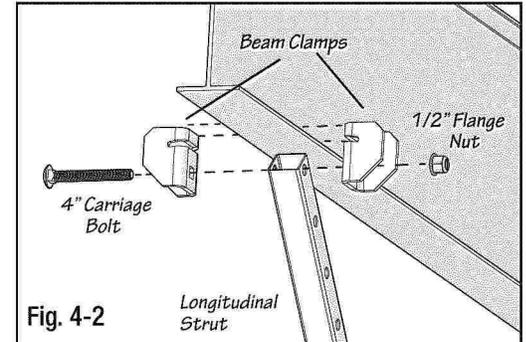
Step 6

- Insert longitudinal struts into the ends of the assembled tension bracket as shown in Fig. 4-1. The struts will hang loose.
- Insert a carriage bolt through one side of the tension bracket, passing the longitudinal strut out the opposite side of the tension bracket.
- Secure the carriage bolt in place with a flange nut. Firmly tighten the flange nut, do not over tighten.
- Repeat for opposite side longitudinal strut as shown in Fig. 4-1.



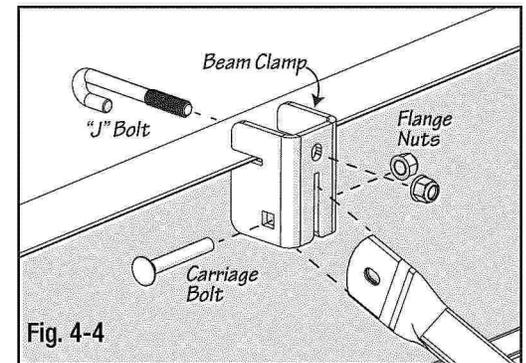
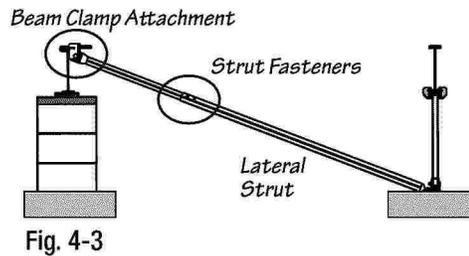
Step 7 - Longitudinal Beam Clamp

- Position two longitudinal beam clamps on both sides of the I-beam. The I-beam frame will slide into the slots on the clamps.
- Raise the longitudinal strut upward and position it between the two beam brackets as shown right in Fig. 4-2.
- Insert a 4" carriage bolt through the clamp, strut, and opposite clamp as shown right.
- Attach a flange nut to the carriage bolt.



Step 8 - Longitudinal Strut

- Pull the beam bracket assembly outward removing any loose slack between the beam clamp and base.
- Using a 3/4" deep socket/impact driver, tighten the flange nut on the beam clamp assembly. Note: As the bolt/nut tighten, the two beam clamps will begin to crimp the I-beam frame.

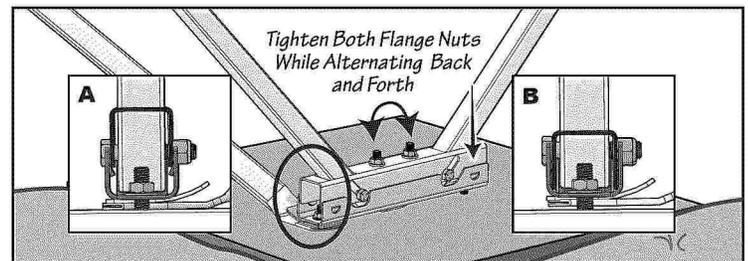


Step 9 - Beam Clamp

- Extend the lateral strut outward to the opposite side I-beam as shown above. **NOTE: The fully extended strut must maintain a minimum 6" to 8" overlap between inner and outer tubes.**
- Slide the "J" bolt over the I-beam and between the home frame.
- Slide the beam clamp over the "J" bolt end passing through the top of the beam clamp and slide the clamp over the I-beam frame as shown in Fig. 4-4. Attach flange nut over the "J" bolt and loosely tighten nut.
- Align/insert the lateral strut end in the mounting slot on the bottom of the beam clamp. As shown right in Fig. 4-4.
- Pass a carriage bolt through the beam clamp and lateral strut coming out the opposite side beam clamp. Loosely tighten flange nut. Do not fully tighten nut.
- Slide the assembled beam clamp with the mounted lateral strut left or right aligning the strut perpendicular to the XV pan/hardware.
- Once the beam clamp/strut attachment is in its final location, tighten the two flange nuts.

Step 10 - XV Base Final Tensioning

- Using a 3/4" deep socket/ impact driver, tighten the two flange nuts on top of the tension bracket, alternating between the two legs.
- As the flange nuts tighten, the upper tension bracket will compress downward into the lower tension bracket as shown in Fig 4-5 "A".
- Continue tightening while alternating the flange nuts until the upper bracket fully compresses into the lower tension bracket as shown in Fig. 4-5 "B"



Step 11 - Strut Fasteners

- Secure the extended lateral strut by mounting 4 self tapping screws in the 4 holes in the outer lateral tube as shown in Fig. 4-3. Attach two screws per side.

TIE DOWN

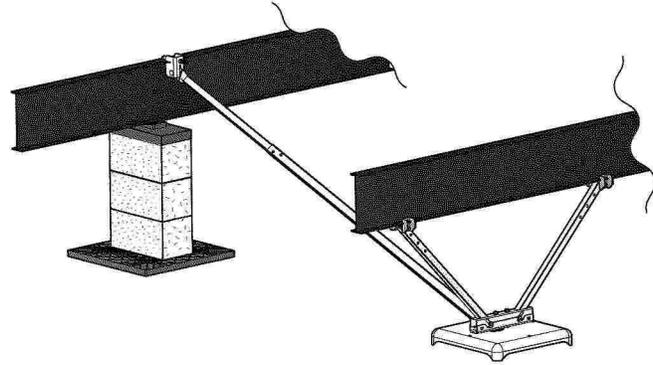
MANUFACTURING INGENUITY

XVG Steel Pier Ground System Installation Instructions for Wind Zone I, II & III Except Florida and California

Effective November 3, 2025

US Patent No.11,898,318

The XV Steel Pier System replaces the standard pier support and base pad. Installation instructions are for replacing normal lateral frame tie and longitudinal end tie anchorage and plates. In addition, the system requires a minimum amount of uplift anchors in Wind Zone I for enhanced wind protection. Check Anchor charts for details.



Ground Installation Requirements

- Install in type 4B (175-275 lbs.) soil or better.
- Main rail spacing must be 75.5" - 99.5". An exception could be made at 112" with the proper strut.
- Maximum pier height must be 48" with 6" maximum rise from the location of the system to the end of the home. For all other piers, use the manufacturers set up instructions.
- Maximum vertical projection at sidewall is 9' wall and 12" eave at roof rim. Higher walls may be used when possible for design loads to be adjusted accordingly. For 10' walls, check with Tie Down.
- Longitudinal strut angles need to be no more than 60 degrees and no less than 40 degrees.
- The XV System is installed on one of the pier footers required by the home manufacturer set up instructions. No other base pad required.
- Two systems designed to work with each other must be placed as evenly as possible. Measuring from the center of the block/pier, systems are to be placed a minimum of 2' and a recommended maximum of 10' (when needed may be a maximum of 1/4 the length of the home) from each end of the home as shown on pier placement chart.
- For roof slopes greater than 20 degrees (4.37" in 12" Pitch), see page 3.
- Although soil is the recommended base for the XV pan, properly selected and installed gravel may also be used. The gravel must be smooth (not crushed rock), clean, 3/8" diameter maximum, installed and compacted as necessary. Installing the incorrect gravel may not allow the system to obtain full design capacity.
- This system only replaces normal lateral frame tie and or longitudinal end tie anchorage, with minimum uplift anchorage added for Wind Zone I. Wind zones II & III (100+ mph) require additional vertical sidewall anchorage for high wind areas. The home manufacturer may require additional vertical anchor ties that are unique to the homes design. These locations may include shear walls, marriage line ridge beam supports, and rim plates. Check manufacturers installation instructions for set up requirements.

XV components exceed HUD code 3280.306 g "Anchoring equipment exposed to weathering shall have a resistance to weather deterioration at least equivalent to that provided by a coating of zinc on steel of not less than 0.30 ounces per square foot of surface coated. The XVG Foundation System by Tie Down complies with 24CFR Part 3280 & 3285 when installed in accordance with the instructions provided by Tie Down.



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WARNING: This product can expose you to chemicals including Nickel, which is known to the State of California to cause cancer. For more information go to: www.P65Warnings.ca.gov

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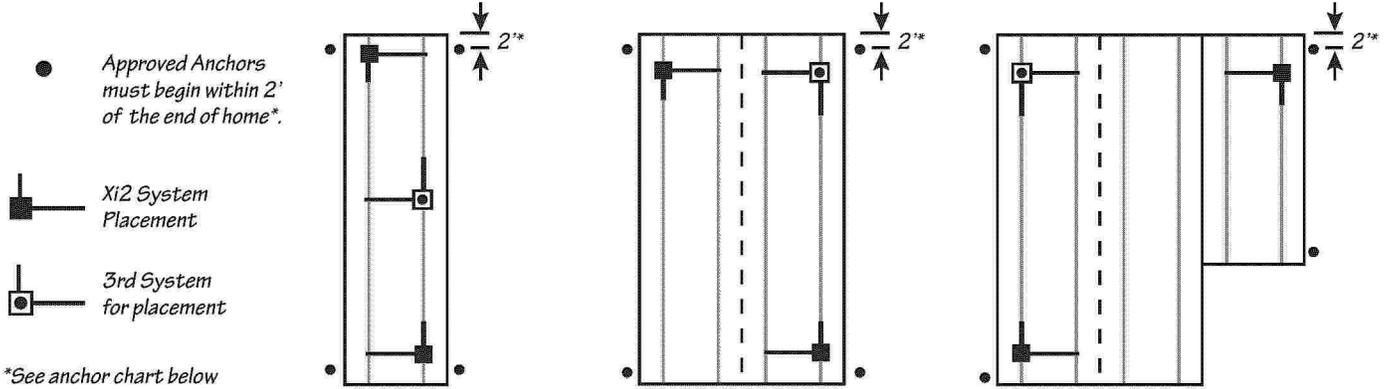
Instruction #08461 (D)

Nov 20, 2025
Detail 4 Eng.
F-15577

TIE DOWN
MANUFACTURING INGENUITY

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XVG Steel Pier Placement



Wind Zones I & II

Single Section Home
 0 - 76' Box 2 Xi2 Systems
 Over 76' Box 3 Xi2 Systems

Double Section Home
 0 - 76' Box 2 Xi2 Systems
 Over 76' Box 3 Xi2 Systems

Triple Section Home
 0 - 76' Box 2 Xi2 Systems
 Over 76' Box 3 Xi2 Systems

Wind Zones III

Single Section Home
 0 - 64' Box 2 Xi2 Systems
 Over 64' Box 3 Xi2 Systems

Double Section Home
 0 - 64' Box 2 Xi2 Systems
 Over 64' Box 3 Xi2 Systems

Triple Section Home
 0 - 64' Box 2 Xi2 Systems
 Over 64' Box 3 Xi2 Systems

Wind Zone I Uplift Anchors Chart

Home Section	Home Width	4:12		5:12		6:12-7:12	
		Home Length	Anchors Per Side	Home Length	Anchors Per Side	Home Length	Anchors Per Side
Single	12 ft. up to 140 in.	up to 63 ft.	3	up to 55 ft.	4	up to 45 ft.	4
		64 ft. to 90 ft.	4	56 ft. to 74 ft.	5	46 ft. to 62 ft.	5
				75 ft. to 90 ft.	6	63 ft. to 78 ft.	6
Double	14 ft.-18 ft. 156 in. to 210 in.	up to 73 ft.	3	up to 58 ft.	4	up to 47 ft.	4
		74 ft. to 90 ft.	4	59 ft. to 78 ft.	5	48 ft. to 64 ft.	5
				79 ft. to 90 ft.	6	65 ft. to 81 ft.	6
Triple	20 ft. to 32 ft. 2 x 118 in. to 2 x 186 in. 20' (2 x 118 in.) 24 ft. to 32 ft. 2 x 140 in. to 2 x 186 in.	up to 90 ft.	2			up to 90 ft.	4
			2	up to 90 ft.	3	up to 90 ft.	3
				up to 90 ft.	2	up to 90 ft.	2



IMPORTANT: System Uplift Anchors are to be installed to the bottom of the rim joist with 3150lb. bracket and lag bolts, not I-beam. The corner anchors should be installed within 2' of the end of the home and any additional anchors installed as evenly as possible per side.

Note: In the event that the home has a solid foundation wall at the sidewall, instead of a bracket at the sidewall as described previously, the bracket can be relocated to a floor joist a maximum of 10" from the sidewall and connected with a vertical strap to a ground anchor, as long as the following limitations to the regular anchor spacings are observed.

Single Sections: 5/12 Max roof slope -add one bracket and anchor, evenly spaced per side.

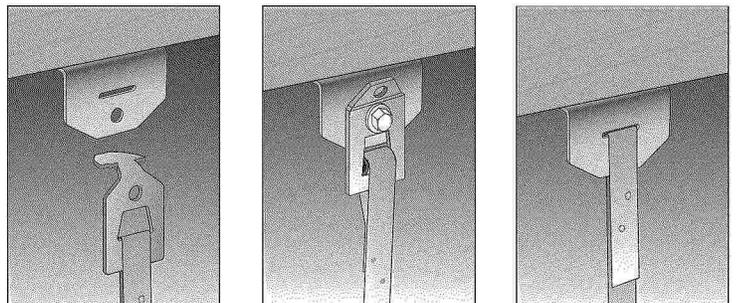
7/12 Max roof slope -add two brackets/anchors evenly spaced per side.

Doubles and Triple sections – no additional anchors required.

Uplift Rim Joist Bracket

Bracket attaches to the bottom of rim joist with (2) 1/2"-3.25" lag bolts with minimum 3" threads. Bracket can face inward or outward. **Install lag bolts into 2 pre drilled 5/16" holes.**

Strap can either be bolted with swivel to end of bracket, slid through swivel connector or through the slot in the bracket and crimped to fit. Strap angle must be 75 deg. to 90 deg.



Xi2-24 System Requirements for Roof Pitches Higher than 20 degrees

Additional Systems:

On a single section home, the 3rd system is placed in the middle of the home. When using 3 or 4 systems (double and triple sections), install on opposite corners. If needed, a 5th system would be in the center of the unit on either side.

Xi2 Longitudinal Stabilization for Wind Zones II & III

When using longitudinal stabilization only, in higher wind zones, Systems must be spaced as evenly as possible, no more than 10' from the end of the home. Longitudinal Struts DO NOT replace anchors on single section homes.

NOTE: On triple section homes in Wind Zones II & III an additional longitudinal system is required. It should be installed on the center section.



Length (Feet)	Wind Zone I				Wind Zone II				Wind Zone III			
	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12
34	2	2	2	2	2	2	2	2	2	2	3	3
36	2	2	2	2	2	2	2	3	2	2	3	3
38	2	2	2	3	2	2	2	3	2	3	3	3
40	2	2	2	3	2	2	2	3	3	3	3	3
42	2	2	3	3	2	2	3	3	3	3	3	3
44	2	2	3	3	2	2	3	3	3	3	3	3
46	2	3	3	3	2	3	3	3	3	3	3	4
48	2	3	3	3	3	3	3	3	3	3	3	4
50	3	3	3	3	3	3	3	3	3	3	3	4
52	3	3	3	3	3	3	3	3	3	3	4	4
54	3	3	3	3	3	3	3	3	3	3	4	4
56	3	3	3	3	3	3	3	3	3	3	4	4
58	3	3	3	3	3	3	3	3	3	3	4	4
60	3	3	3	3	3	3	3	3	3	3	4	5
62	3	3	3	3	3	3	3	3	4	4	4	5
64	3	3	4	4	3	3	4	4	4	4	4	5
66	3	3	4	4	3	3	4	4	4	4	4	5
68	3	4	4	4	3	4	4	4	4	4	5	5
70	3	4	4	4	3	4	4	4	4	4	5	5
72	3	4	4	4	4	4	4	5	4	4	5	5
74	4	4	4	5	4	4	4	5	4	5	5	5
76	4	4	4	5	4	4	4	5	4	5	5	6
78	4	4	4	5	4	4	4	5	4	5	5	6
80	4	4	4	5	4	4	4	5	4	5	5	6

Fig. 3-1

Step 1

- Stand the steel pan on its side. Slide the u-bolt from the underside of the pan passing through to the top.
- Attach two flange nuts over the u-bolt, just enough to prevent the u-bolt from coming loose during pan installation. See Fig. 3-2.
- Clear all organic matter and debris from the pan site.
- Place pan centered under I-beam.
- Press or drive pan into ground until the top of the pan is level and flush with prepared surface.

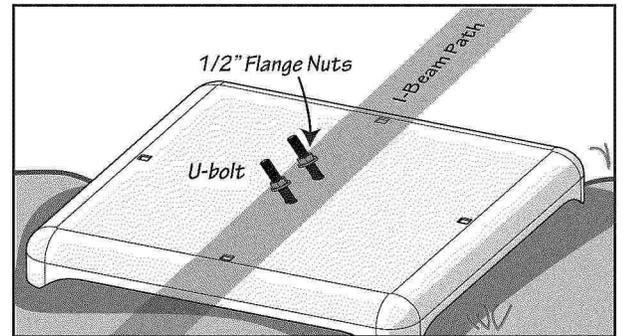


Fig. 3-2

Step 2

- Remove the flange nuts from the U-bolt. Place the U-bolt in a upright position.
- Slide the end of the lateral strut over the outer u-bolt leg as shown in Fig 3-3.
- Slide the pan washer over the u-bolt leg and on top of the lateral strut.
- Slide the lower tension bracket over the u-bolt/pan washer/lateral strut.
- Slide the upper tension bracket over the u-bolt and place it inside the lower tension bracket as shown right in Fig 3-3.
- Attach two flange nuts over the u-bolt and tension bracket. Loosely tighten flange nuts, DO NOT FULLY TIGHTEN NUTS.

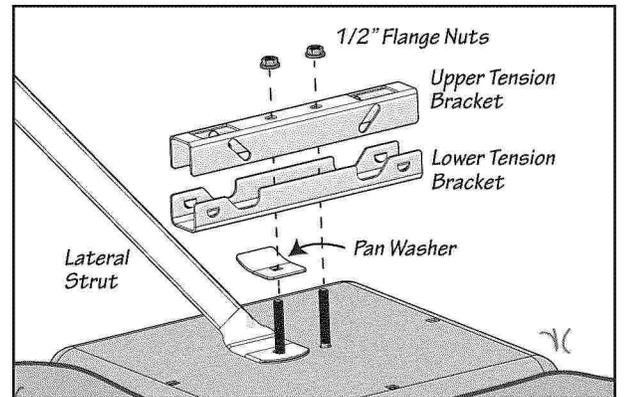


Fig. 3-3

Step 3 - Longitudinal Struts

- Insert the black end caps into the bottom end of two longitudinal struts.
- Insert longitudinal struts into the ends of the assembled tension bracket as shown in Fig. 3-4,. The struts will hang loose.

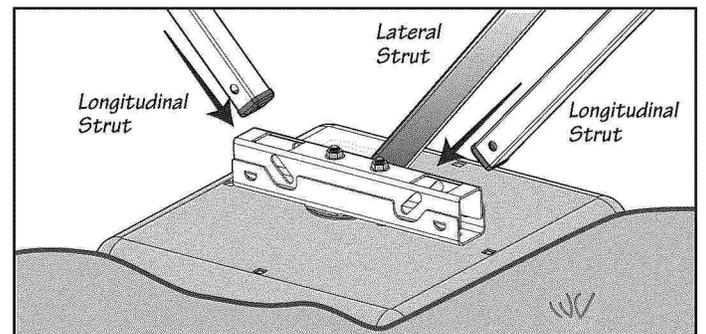
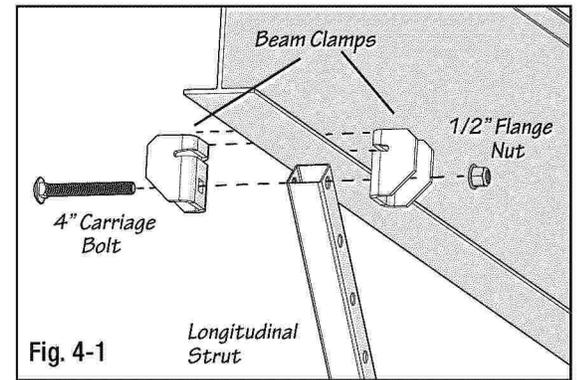


Fig. 3-4

Step 4 - Longitudinal Beam Clamp

- Position two longitudinal beam clamps on both sides of the I-beam. The I-beam frame will slide into the slots on the clamps.
- Raise the longitudinal strut upward and position it between the two beam brackets as shown right in Fig. 4-1.
- Insert a 4" carriage bolt through the clamp, strut, and opposite clamp as shown right.
- Attach a flange nut to the carriage bolt.



Step 5 - Longitudinal Strut

- Pull the beam bracket assembly outward removing any loose slack between the beam clamp and base.
- Using a 3/4" deep socket/impact driver, tighten the flange nut on the beam clamp assembly. Note: As the bolt/nut tighten, the two beam clamps will begin to crimp the I-beam frame.

Step 6 - Beam Clamp

- Extend the lateral strut outward to the opposite side I-beam as shown above. NOTE: The fully extended strut must maintain a minimum 6" to 8" overlap between inner and outer tubes.
- Slide the "J" bolt over the I-beam and between the home frame.
- Slide the beam clamp over the "J" bolt end passing through the top of the beam clamp and slide the clamp over the I-beam frame as shown in Fig. 4-3. Attach flange nut over the "J" bolt and loosely tighten nut.
- Align/insert the lateral strut end in the mounting slot on the bottom of the beam clamp. As shown right in Fig. 4-3.
- Pass a carriage bolt through the beam clamp and lateral strut coming out the opposite side beam clamp. Loosely tighten flange nut. Do not fully tighten nut.
- Slide the assembled beam clamp with the mounted lateral strut left or right aligning the strut perpendicular to the XV pan/hardware.
- Once the beam clamp/strut attachment is in its final location, tighten the two flange nuts.

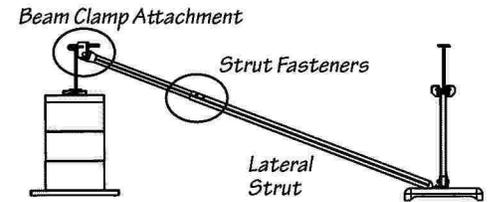


Fig. 4-2

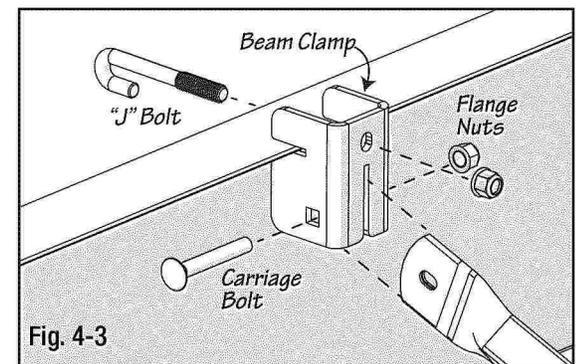


Fig. 4-3

Step 7 - XVG Base Final Tensioning

- Using a 3/4" deep socket/impact driver, tighten the two flange nuts on top of the tension bracket.
- As the flange nuts tighten, the upper tension bracket will compress downward into the lower tension bracket as shown in Fig 4-4 "A".
- Continue tightening the flange nuts until the upper bracket fully compress into the lower tension bracket as shown in Fig. 4-4 "B"

Step 8 - Strut Fasteners

- Secure the extended lateral strut by mounting 4 self tapping screws in the 4 holes in the outer lateral tube as shown in Fig. 4-2. Attach two screws per side.

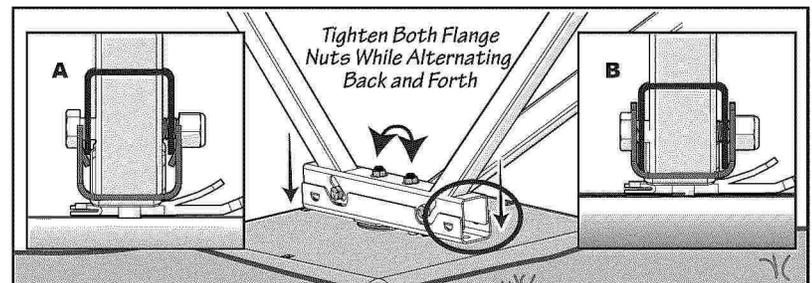


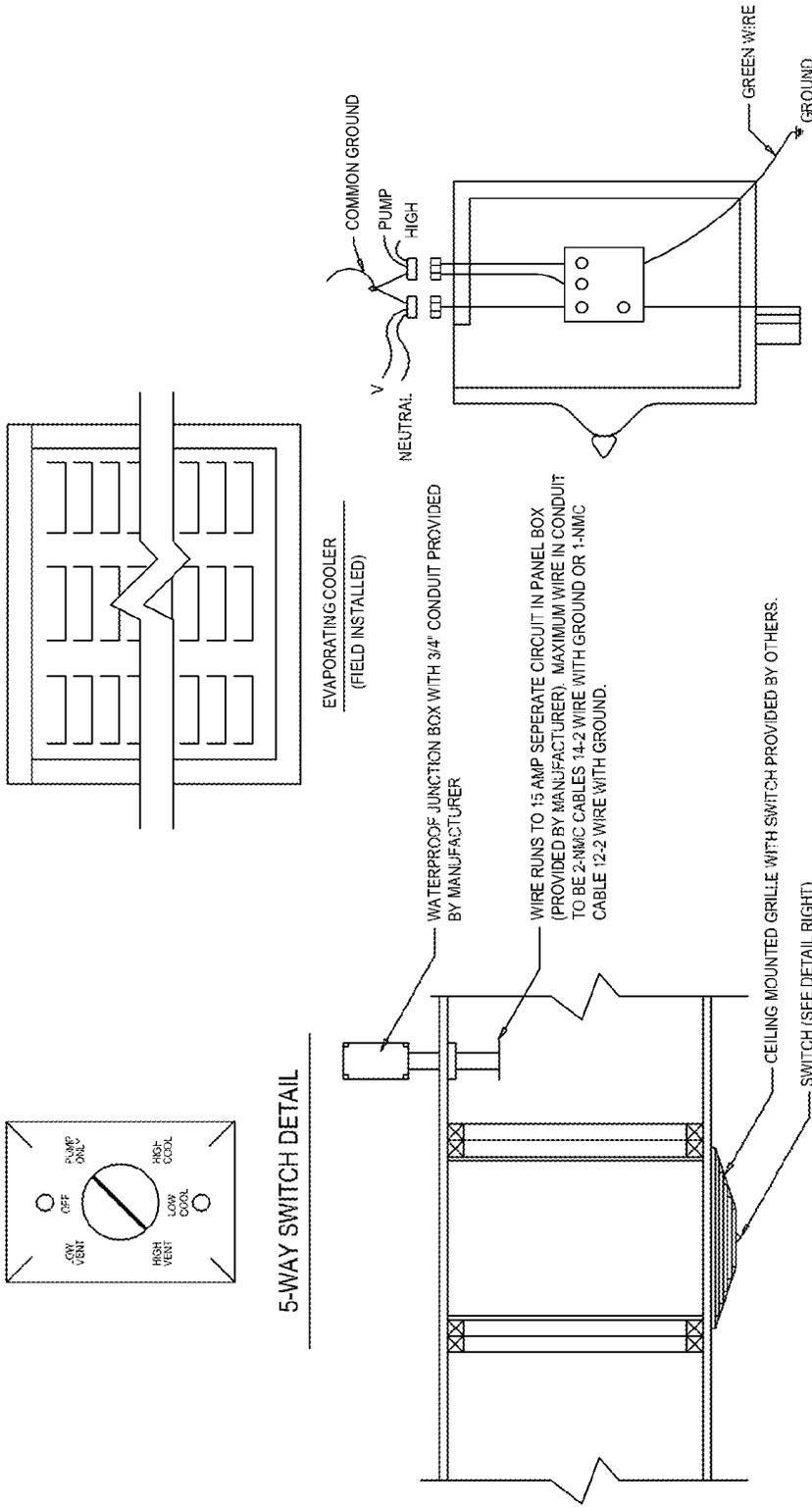
Fig. 4-4

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I-C-74

Appendix D - Evaporating Cooler Installation



NOTES:

1. AT THE MANUFACTURERS OPTION, A 1/4" DIAMETER MINIMUM COPPER OR POLYBUTYLENE TUBING OR EQUIVALENT, WATER LINE WITH SHUT-OFF VALVE MAY BE PROVIDED. THE WATER LINE SHALL TERMINATE IN THE SHAFT AREA AND 12" OF WATER LINE SHALL BE PROVIDED FOR COOLER HOOK-UP. THE SHUT-OFF VALVE SHALL BE LOCATED IN THE WATER-HEATER COMPARTMENT.
2. THE EVAPORATIVE COOLER SHALL BE INSTALLED PER THE COOLER MANUFACTURER INSTALLATION INSTRUCTION
3. THE EVAPORATIVE COOLER MUST BE LOCATED A MINIMUM 3 FEET FROM ANY VENT OR SMOKE DETECTOR.

DESIGN A

Shutters for Wood-Frame Buildings

This design from APA describes how to construct structural panel shutters for attachment to wood-frame buildings.

Steps to Constructing Shutters

1. Review Tables 1 and 2 to determine if stiffeners are needed. Attach stiffeners, if needed, as shown in Figures 5 and A1.
2. Cut APA wood structural panels with adequate edge overlap to receive nails. Orient long panel axis (strength axis) of the panel as shown in Figures 5 and A1.
3. Use a long brad, finishing or casing nails to locate the framing behind the wood siding. The nails used to attach the shims and the shutters must hit the framing to be fully effective.
4. Nail shims to the framing with 12d nails (0.135- x 3-1/4-inch). Use 16d nails (0.135- x 3-1/2-inch) for shims over 3/4 inch thick. For spans up to 5 feet, space the nails 6 (4) inches o.c. at each shim. For spans over 5 feet, space nails 4 (3) inches o.c. at each shim. Stagger nails as shown in Figure A2. Refer to Figures A2 and A3. Shim attachment schedules are based on a mean roof height of 33 feet. Corresponding schedules for a mean roof height of 45 feet are shown in parenthesis, e.g., 12 (8).
5. Attach the shutters with double-headed nails as shown in Figures A2 and A3 for ease of later removal. Use 16d (0.135- x 3-1/2-inch). For nail spacing at each end of the shutter panel, see Tables A1 and A2. Stagger nails spaced 3 inches on center. Nailing the panel on all four sides instead of just the two ends will further limit deflection and maximize strength.

TABLE A1

MINIMUM NAIL SPACING ALONG EACH END OF THE SHUTTER PANEL (Span Ratings 32/16, 40/20, 48/24 plywood or OSB)

Shutter Height (ft)	Mean Roof Height (ft)	
	33	45
5	6" o.c.	4" o.c.
8	3" o.c.	3" o.c.

TABLE A2

MINIMUM NAIL SPACING ALONG EACH END OF THE SHUTTER PANEL (Span Rating 48 oc, 1-1/8" plywood or OSB)

Shutter Height (ft)	Mean Roof Height (ft)	
	33	45
5	4" o.c.	4" o.c.
8	3" o.c.	3" o.c.

6. Any permanently installed hardware, shims or fastening devices must be installed using standard/acceptable methods of waterproofing. All abandoned holes must be sealed.
7. After fabrication, each shutter should be marked for orientation and location to speed installation.
8. If shims are left in place, use galvanized nails and finish like siding or exterior trim.

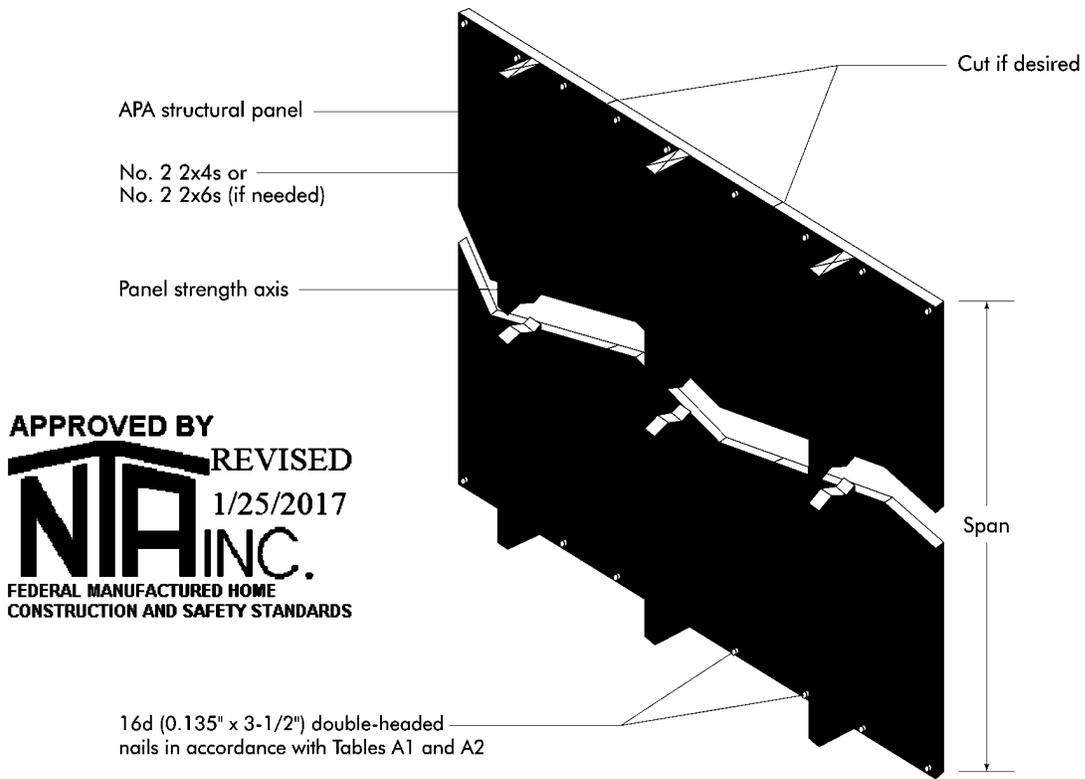
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I-E-1

[RETURN TO INDEX]

FIGURE A1

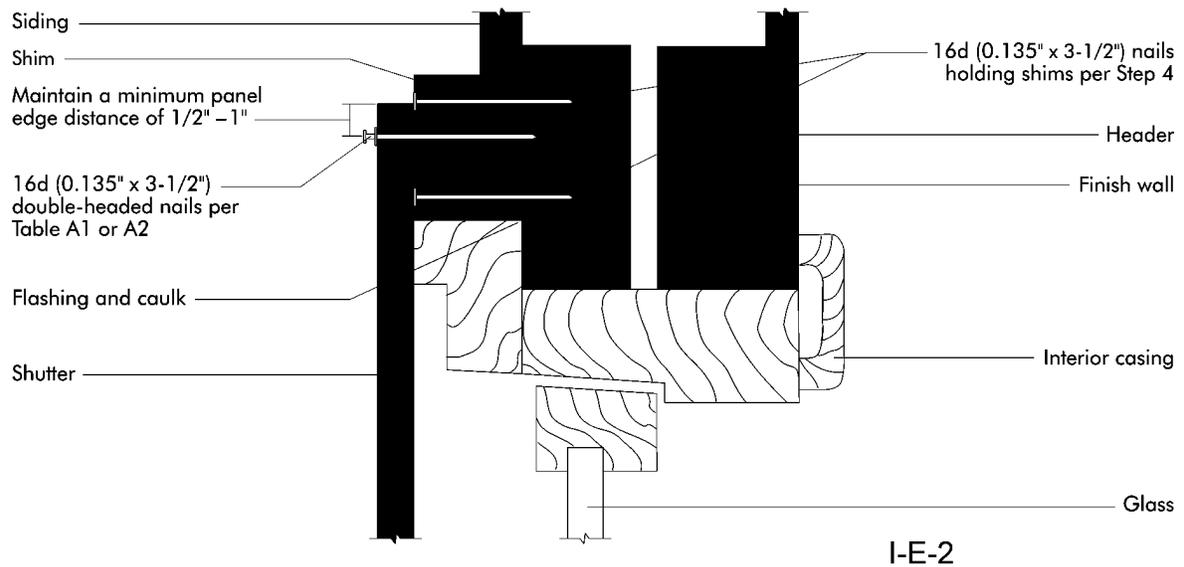
SHUTTER ATTACHMENT – VIEW FROM OUTSIDE



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FIGURE A2

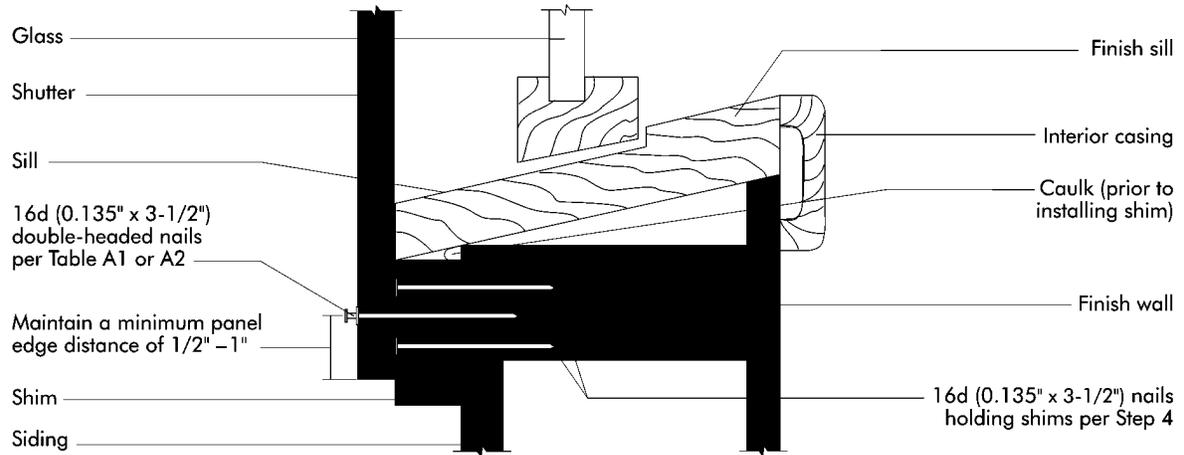
SHUTTER ATTACHMENT – TOP



[RETURN TO INDEX]

FIGURE A3

SHUTTER ATTACHMENT – BOTTOM



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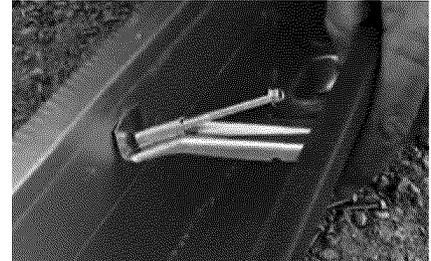
I-E-3

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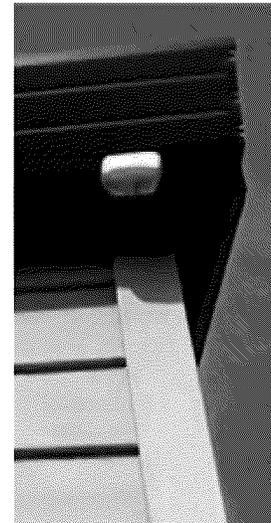
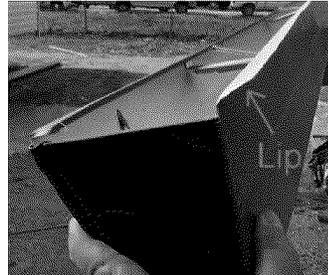
Gutter Installation Instructions

What is needed: A Helper, 2 Ladders, A drill with 4" extension, 1/4" hex bit, hack saw, & 4' level.

1. Lay the gutter on the back side and install the anchor roughly 12" inward from the end of the gutter. The anchor will snap into the front side of the gutter. Set the back of the anchor roughly an inch down from the top of the gutter. Install anchors 24" o.c. down the remainder of the gutter. Be careful with the gutter material. Be sure not to let it get scratched or bent during the installation process.



2. Make sure the lip on the gutter section is placed on top of the decking and under the shingles and underlayment. Be sure to line up the downspout with the corner trim of the home.

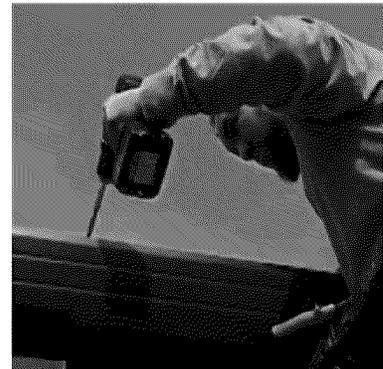


3. If the end of the gutter section is a little long and interferes with the valley of the dormer, notch the corner by using metal snips as shown.



4. Set the torque on the drill about half way so that the screws will not be over driven.

5. Screw the anchor into the fascia on the end of the gutter that will be the highest point of the slope. Adjust the torque setting on the drill as needed at this time.



6. With one person holding the free end of the gutter, the other person checks with a level to make sure the gutter has the proper slope. The slope should be 1/4" drop for every 10' of gutter length. Once the proper slope is obtained, fasten in another anchor as shown in step 5 to maintain the proper slope.



7. Fasten the remaining anchors into the fascia at this time.

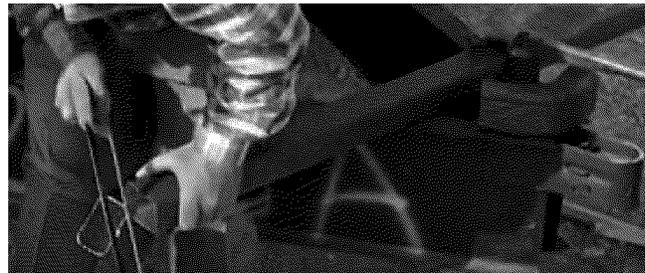
8. Install the offset elbows with the supplied 1” sheet metal screws using 1 screw on each side of the elbow. Slide the elbow over the downspout adapter and make sure the elbow is not crooked before fastening the screws.



9. With one person holding the downspout next to the home, the other person marks where the downspout needs to be cut. The bottom of the downspout needs to be 6” off of the ground. Always cut the bottom of the downspout. Do not cut the top portion of the downspout. The top of the downspout is crimped at the factory to fit into the offset elbows. The downspout will be inset 1” into the offset elbows so be sure to figure the inset into your measurement before cutting the downspout.



10. Cut the bottom of the downspout with the hack saw according to your measurements. Be careful not to apply too much pressure to the downspout when cutting it and holding it in position. It is not difficult to distort the shape of the material.



11. Place the down spout next to the home and verify it is cut to the correct length. Repeat step 10 if necessary to cut off any additional down spout.



12. Slide the bottom elbow into the down spout. Then slide the down spout into the offset elbows at the top.

13. Attach the top & bottom elbows to the down spout with the supplied 1” sheet metal screws using 1 screw on each side of each elbow. (2 screws per elbow total.)



14. Locate the pre-cut down spout hangers in the gutter kit. Place the down spout hanger in the center portion of the down spout with the un-colored side showing outward.

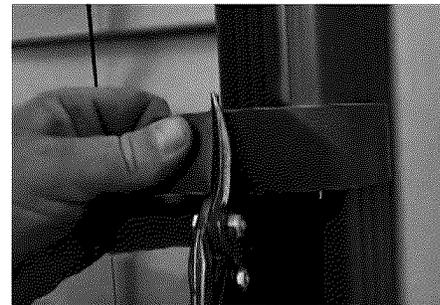
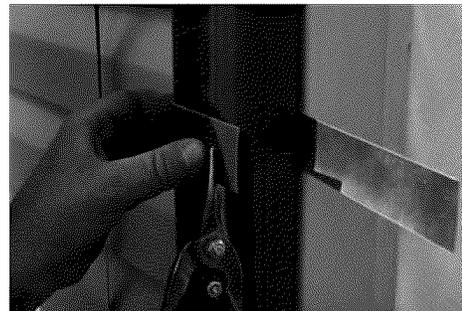
15. Using one of the supplied 2" wood screws, install the down spout to the corner trim of the home.

16. Fold one side of the hanger around the down spout. Use metal snips to cut the hanger so that both sides of the hanger will overlap in the center of the down spout.

17. Install 2 of the supplied 1" sheet metal screws through both sides of the down spout hanger and the down spout. Use the supplied touch up paint to paint the screw heads the same color as the down spout.

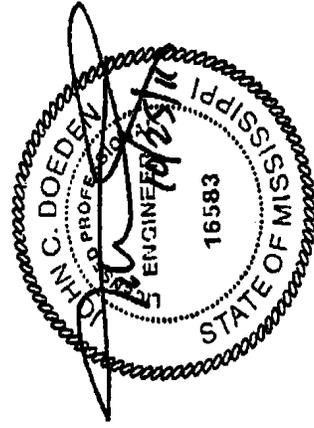
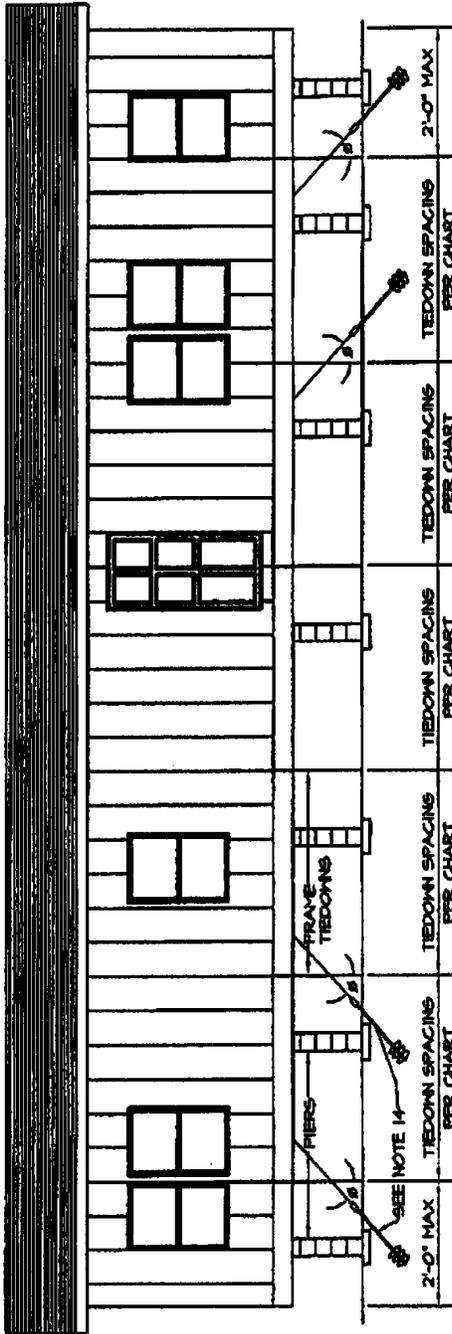
18. On the back side of the longer homes or on a home where no dormer is present, 2 gutters will butt into each other in the center of the home. Be sure that both gutters line up properly at the highest point of the slope in the center of the home. The slope should flow towards the down spouts on the ends of the home. The gutters on the back of the home are installed in the same manner as the steps listed above.

An instructional video for gutter installation can be found here: <https://www.youtube.com/watch?v=ZzbXB8Hb8zM>
Alternatively, type "gutter installation legacy" into either of the Google or Youtube websites or locate the video on <https://legacyhousingusa.com/>.



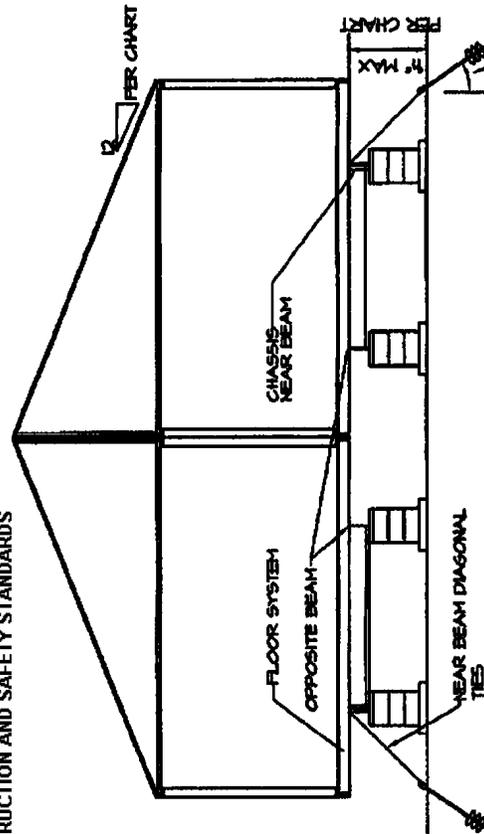
TIEDOWN SYSTEM
TYPICAL DETAILS
WIND ZONE I
FIGURE A7.1.1

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

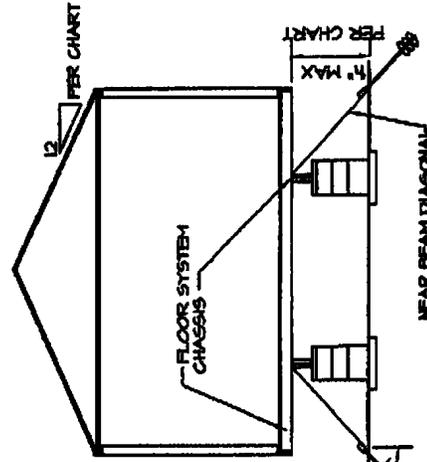


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TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



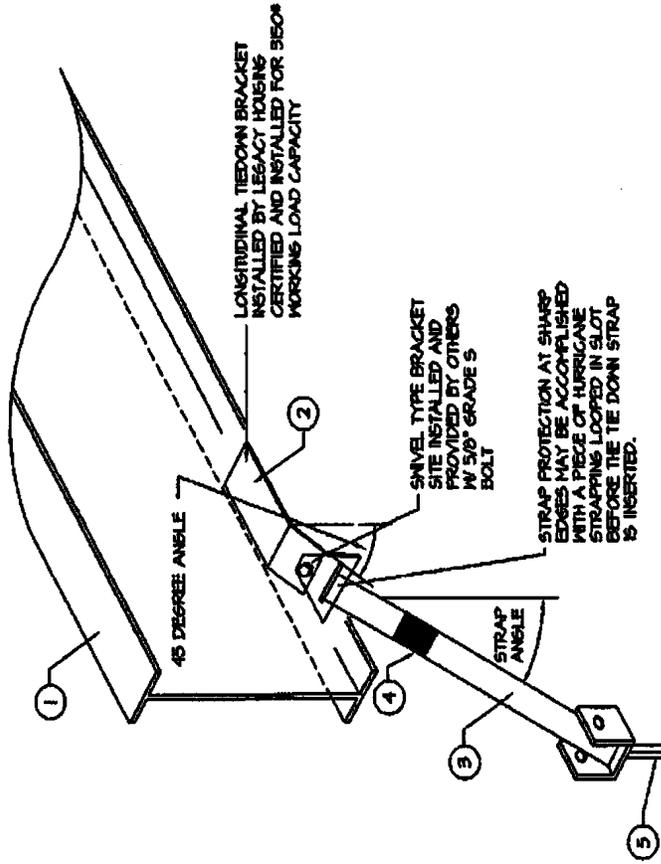
DOUBLE NIDES



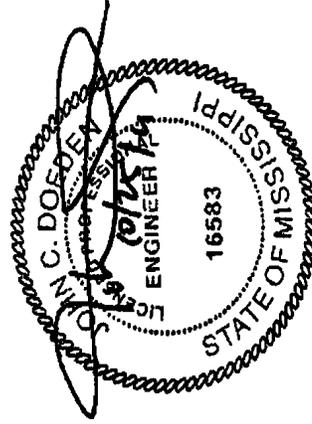
SINGLE NIDES

Optional 96" Sidewall Height

LONGITUDINAL TIEDOWN ATTACHMENT DETAIL
WIND ZONE 1, 2 AND 3
FIGURE A7.4



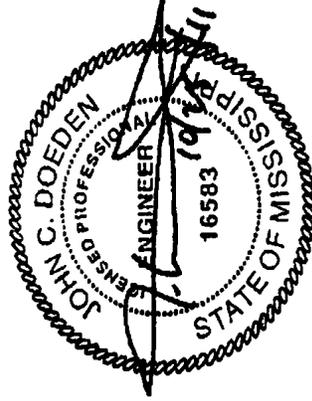
- 1: TYPICAL LONGITUDINAL I-BEAM
- ALTERNATE FACTORY INSTALLED TIEDOWN BRACKET
- 3: TIEDOWN STRAP
- 4: BANDING SEAL
- 5: GROUND ANCHOR - INSTALLED TO FULL DEPTH OF ANCHOR HEAD



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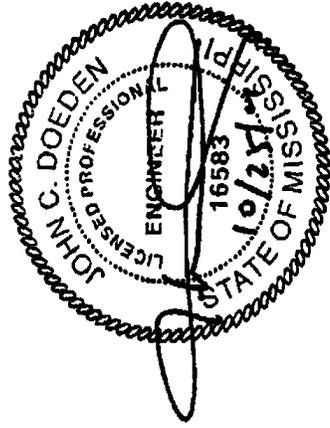
TIEDOWN SYSTEM
GENERAL NOTES
WIND ZONE 1, 2 AND 3
FIGURE A7.2

1. Frame tiedowns shall be installed to properly secure the home.
2. Except as indicated in the chart with a specified vertical tie load, vertical ties are not required for Wind Zone 1 with properly spaced and installed frame tiedowns. When installed, vertical ties may be secured to the same ground anchors as the frame tiedowns. When required the vertical ties are installed by Legacy Housing at the spacing required for frame ties and for the load specified under "Vertical Tie Load" column.
3. For Wind Zones 2 and 3 vertical ties are required at each frame tiedown location. Vertical ties may be secured to the same ground anchor as the frame tiedowns when a double headed anchor is capable of resisting the combined loading.
4. When anchors are not installed at the angle specified in the tables a stabilizer plate must be installed in accordance with the anchor manufacturer's instructions.
5. Frame tiedowns and anchors are not supplied by Legacy Housing.
6. Vertical tiedown brackets are supplied by Legacy Housing and secured along the sidewall to resist the vertical tie load specified at the spacing specified. Anchors, straps and end treatments are to be supplied by others.
7. Ground anchors and frame ties shall be capable of resisting an ultimate 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.
8. 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.
9. Anchors shall be certified for site 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.
10. Ground anchors shall be embedded below the frost line and at least 12" above the water table.
11. Ground anchors shall be installed to their full depth and stabilizer plates should be installed to provide added resistance to overturning or sliding forces.
12. 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 D3543-91, "Standard Specification For Strapping, Flat Steel and Seals".
13. Strapping to be Type 1, Finish B, Grade 1 steel strapping, 1/4" wide and 0.095" in thickness, certified by a Registered Professional Engineer or Architect as conforming with ASTM Standard Specification D3543-91, "Standard Specification For Strapping, Flat Steel and Seals".
14. Longitudinal tiedowns are installed on brackets welded to I-beams at each end. See Figure A7.4. The approved bracket must be attached to the I-beam per certified test reports and details therein or the longitudinal tiedown straps may be looped around a 3/8" diameter bolt inserted in the chassis axle spring hangers.
15. In addition to the vertical and frame tiedowns discussed on this page vertical tiedowns may be required at shearwall locations and at marriage wall column locations. See applicable sections of the Installation Instructions Manual for specific information.
16. Design is based on I-beams spaced 14 1/2" or 94 1/2" (see chart) center to center and centered in unit width. Anchor head may be located a maximum of 6" inside the outside edge of the sidewall. The "Maximum Vertical Distance" indicated in the Wind Zone 1 Tables is the true vertical distance from the anchor head to the top of the I-beam. The "Tie Height" indicated in Wind Zones 2 and 3 Tables is the vertical distance from the anchor head to the top of the I-beam when diagonal comes off the top and to the bottom of the I-beam when it comes off the bottom.

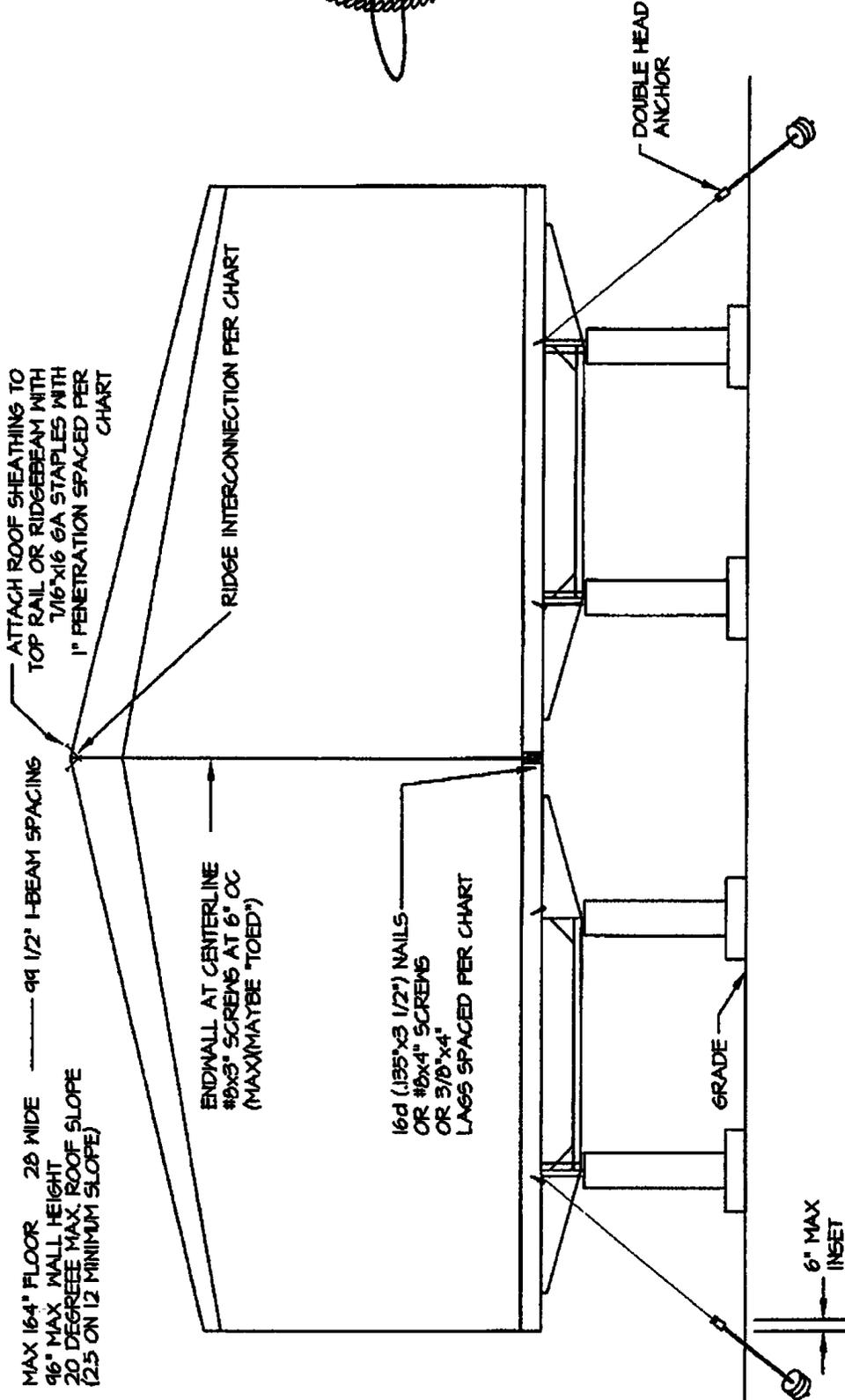


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MAXIMUM FASTENER SPACING CHART 96" SIDEWALL HEIGHT		WIND ZONE
CONNECTION		1
SHEATHING TO TOP RAILS OR RIDGEBEAM		6" O.C.
RIDGE INTERCONNECTION #10x4" SCREWS OR 3/8"x5" LAG SCREWS		12" O.C. 12" O.C.
CENTERLINE STRAPS AT FLOOR		N/A
CENTERLINE FASTENING AT FLOOR	NAILS SCREWS LAGS	24" O.C. 24" O.C. 24" O.C.



LEGACY HOUSING
ON-SITE CONNECTION DETAILS
WIND ZONE 1 (15 PSF LATERAL)
FIGURE A7.6.2



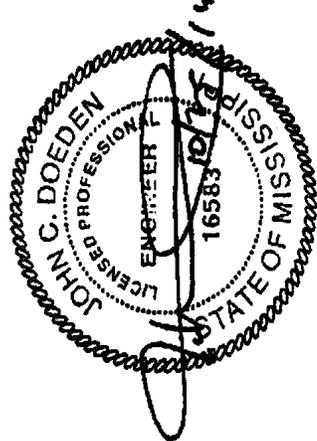
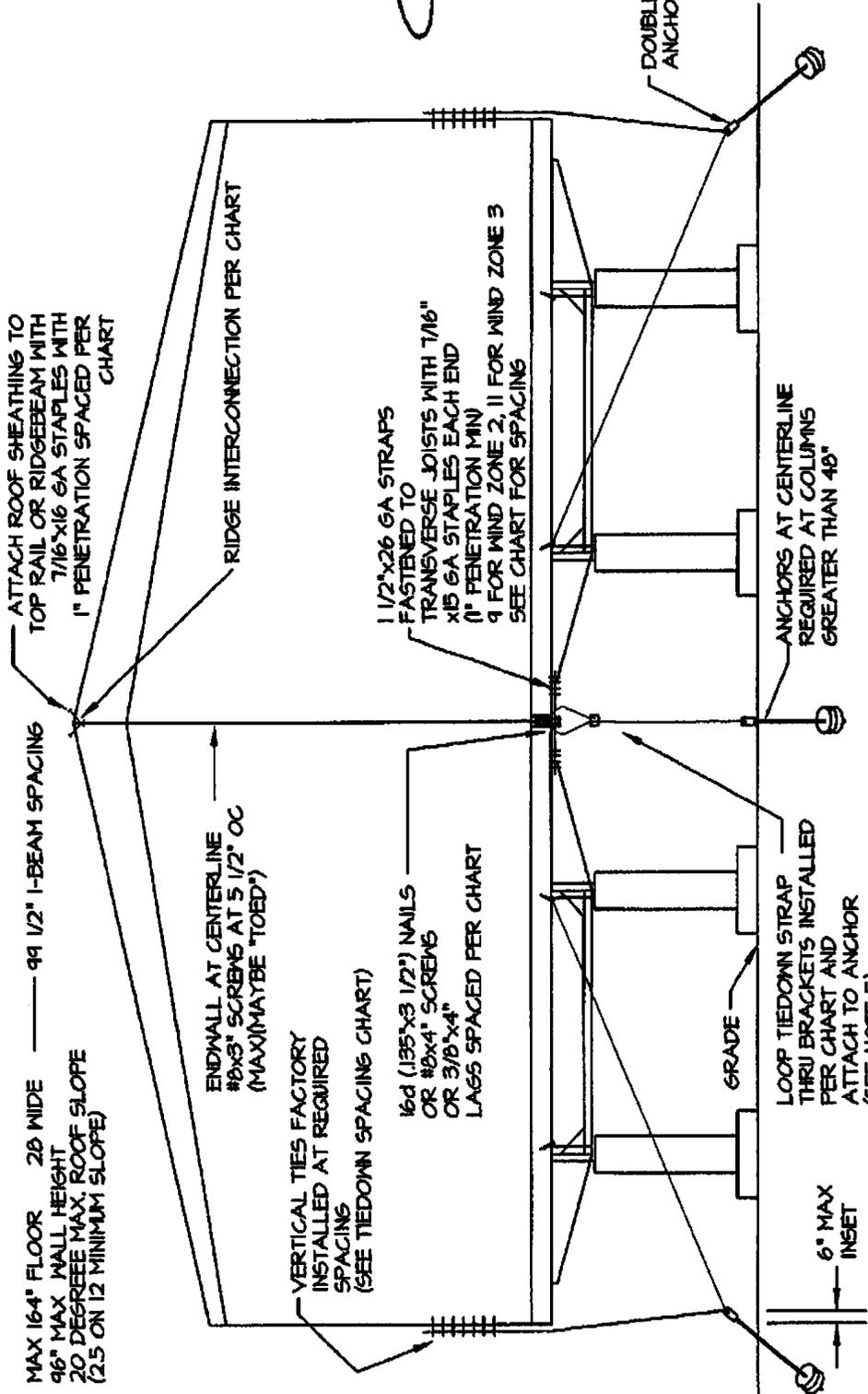
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NOTES:
1. ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 9150# (4125# ULTIMATE).

Optional 96" Sidewall Height

LEGACY HOUSING
ON-SITE CONNECTION DETAILS
WIND ZONE 2 (100 MPH) & WIND ZONE 3 (110 MPH)
FIGURE AT.6.1

MAXIMUM FASTENER SPACING CHART 96" SIDEWALL HEIGHT		WIND ZONE 2	WIND ZONE 3
CONNECTION		4' o.c.	3' o.c.
SHEATHING TO TOP RAILS OR RIDGEBEAM			
RIDGE INTERCONNECTION #10x4" SCREWS OR 3/8"x5" LAG SCREWS		4' o.c. 10" o.c.	6 3/4" o.c. 6 3/4" o.c.
CENTERLINE STRAPS AT FLOOR		96" o.c.	96" o.c.
CENTERLINE FASTENING AT FLOOR	NAILS SCREWS LAGS	15" o.c. 15" o.c. 18" o.c.	12" o.c. 11" o.c. 15" o.c.



- NOTES:
- ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 9150# (4725# ULTIMATE).
 - DOUBLE HEADED ANCHORS TO BE RATED FOR THE COMBINED LOAD AND SHOULD BE INSTALLED WITH STABILIZER PLATES.
 - DIAGONAL TIES TO BE INSTALLED FROM 1-BEAM AT SAME LOCATIONS AS VERTICAL TIES. REFER TO TABLES (FIGURES 5.6.I) STARTING AT 24" FROM EACH END (MAX OPEN END SPACING).
 - MARRIAGE WALL ANCHORS MAYBE SINGLE END WITH A 3/8" MIN CAPACITY (4725# ULTIMATE).
 - BRACKETS ARE 1 1/2" x 12" x 1/2" x 1/2" (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 FOR 27'-4" WIDES, WIND ZONE 2; MAX. OPENING FOR (1) BRACKET = 21'-0" AND MAX. OPENING FOR (2) BRACKETS = 41'-11". FOR 27'-4" WIDES, WIND ZONE 3; MAX. OPENING FOR (1) BRACKET = 16'-5" AND MAX. OPENING FOR (2) BRACKETS = 32'-11". 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 FLYWOOD 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.

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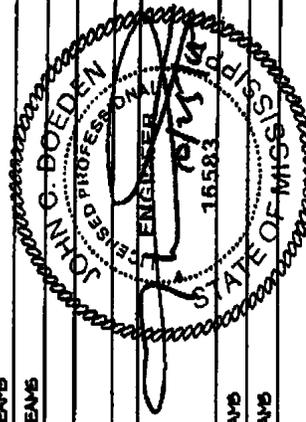
Optional 96" Sidewall Height

TIEDOWN SYSTEM
CHARTS
FIGURE A7.3

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FRID ZONE 1 TIE DOWN REQUIREMENTS CHART

FLOOR WIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME TIEDOWNS		VERTICAL TIE LOAD (LBS)	LONGITUDINAL TIEDOWNS	NOTES
						ANCHOR ANGLE	NEAR OR OPPOSITE BEAM			
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	10'-0"	46"	40	NEAR	N/A	2	CHASSIS LAGS OUTSIDE I-BEAMS
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	8'-0"	63"	50	NEAR	N/A	2	CHASSIS LAGS OUTSIDE I-BEAMS
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	10'-0"	40"	40	NEAR	N/A	2	CHASSIS LAGS OUTSIDE I-BEAMS
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	8'-0"	50"	50	NEAR	N/A	2	CHASSIS LAGS OUTSIDE I-BEAMS
16'4" DOUBLE SECTION (19 1/2" I-BEAM SPACING)	6" MAX	20 Deg Max	96"	10'-0"	39"	39	NEAR	N/A	2	CHASSIS LAGS OUTSIDE I-BEAMS
16'4" DOUBLE SECTION (19 1/2" I-BEAM SPACING)	6" MAX	20 Deg Max	96"	8'-0"	50"	50	NEAR	N/A	2	CHASSIS LAGS OUTSIDE I-BEAMS



FRID ZONE 2 TIE DOWN REQUIREMENTS CHART

FLOOR WIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME TIEDOWNS		VERTICAL TIE LOAD (LBS)	LONGITUDINAL TIEDOWNS	NOTES
						ANCHOR ANGLE	NEAR OR OPPOSITE BEAM			
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	8'-0"	28"	50-55	OPPOSITE	1965#	2	CHASSIS LAGS INSIDE I-BEAMS
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	6'-0"	60"	40-45	OPPOSITE	1820#	2	CHASSIS LAGS INSIDE I-BEAMS
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	8'-0"	32"	50-55	OPPOSITE	1290#	2	CHASSIS LAGS INSIDE I-BEAMS
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	6'-0"	64"	40-45	OPPOSITE	1075#	2	CHASSIS LAGS INSIDE I-BEAMS
16'4" DOUBLE SECTION (19 1/2" I-BEAM SPACING)	6" MAX	20 Deg Max	96"	8'-0"	46"	45-50	OPPOSITE	1240#	3	CHASSIS LAGS INSIDE I-BEAMS
16'4" DOUBLE SECTION (19 1/2" I-BEAM SPACING)	6" MAX	20 Deg Max	96"	6'-0"	60"	40-45	OPPOSITE	1040#	3	CHASSIS LAGS INSIDE I-BEAMS

FRID ZONE 3 TIE DOWN REQUIREMENTS CHART

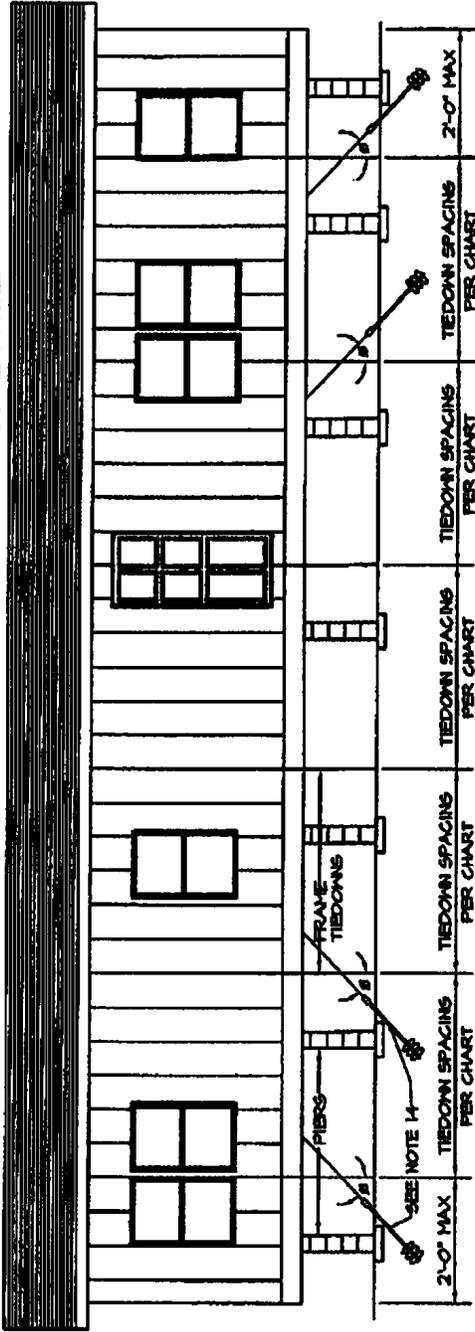
FLOOR WIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME TIEDOWNS		VERTICAL TIE LOAD (LBS)	LONGITUDINAL TIEDOWNS	NOTES
						ANCHOR ANGLE	NEAR OR OPPOSITE BEAM			
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	6'-0"	28"	45-50	OPPOSITE	1500#	3	CHASSIS LAGS INSIDE I-BEAMS
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	5'-4"	64"	40-45	OPPOSITE	1175#	3	CHASSIS LAGS INSIDE I-BEAMS
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	6'-0"	28"	45-50	OPPOSITE	1450#	3	CHASSIS LAGS INSIDE I-BEAMS
16'4" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	96"	5'-4"	64"	40-45	OPPOSITE	1160#	3	CHASSIS LAGS INSIDE I-BEAMS
16'4" DOUBLE SECTION (19 1/2" I-BEAM SPACING)	6" MAX	20 Deg Max	96"	6'-0"	26"	45-50	OPPOSITE	1575#	3	CHASSIS LAGS INSIDE I-BEAMS
16'4" DOUBLE SECTION (19 1/2" I-BEAM SPACING)	6" MAX	20 Deg Max	96"	4'-0"	52"	50-55	OPPOSITE	925#	3	CHASSIS LAGS INSIDE I-BEAMS

NOTES:
1. WHEN CONTENTS OF BELLY WILL INTERFERE WITH TAUT INSTALLATION OF DIAGONAL TIE FOR ANY POSSIBLE VERTICAL DISTANCE A CROSSMEMBER MUST BE AT THE VERTICAL TIE LOCATIONS (FACTORY INSTALLED)
2. SEE NOTES, FIGURE A7.2 FOR TIEDOWN SYSTEM

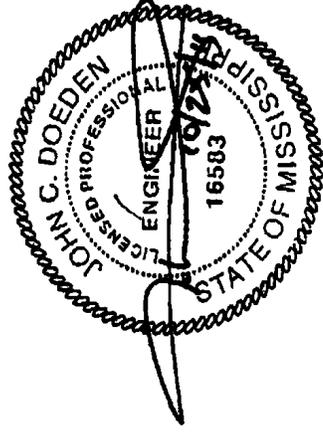
Optional 96" Sidewall Height

TIEDOWN SYSTEM
TYPICAL DETAILS
WIND ZONE 2 AND 3
FIGURE A7.1.2

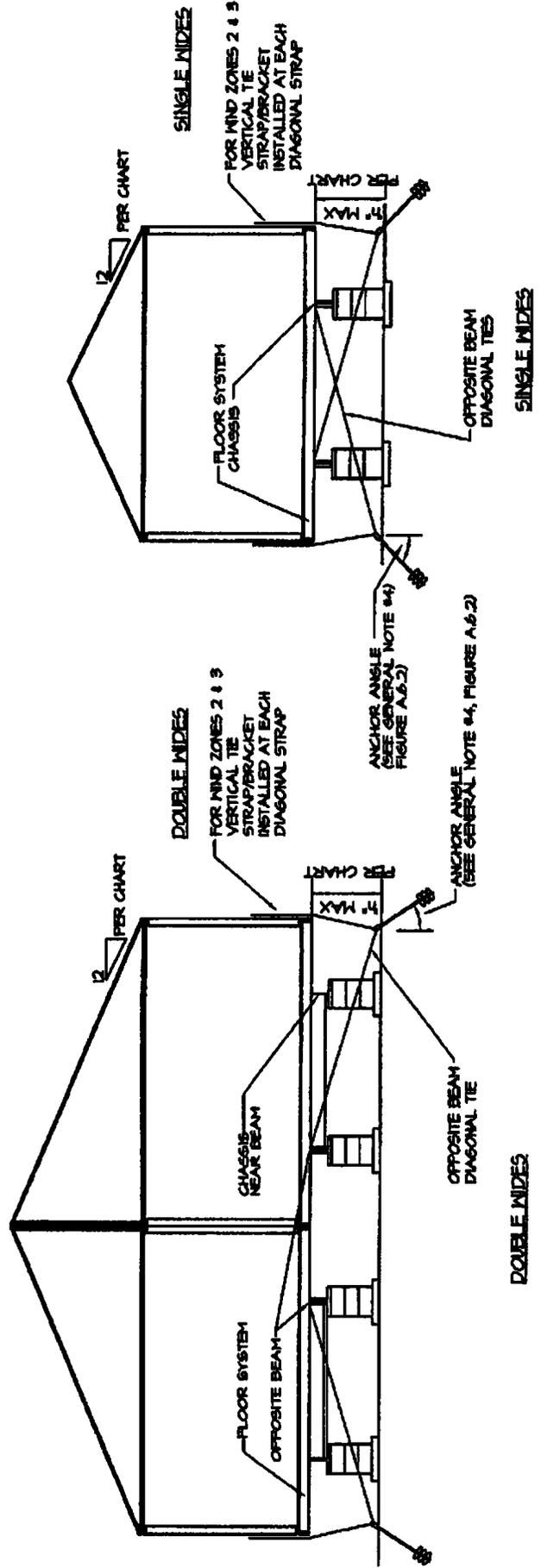
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

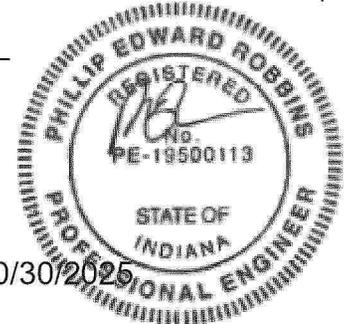
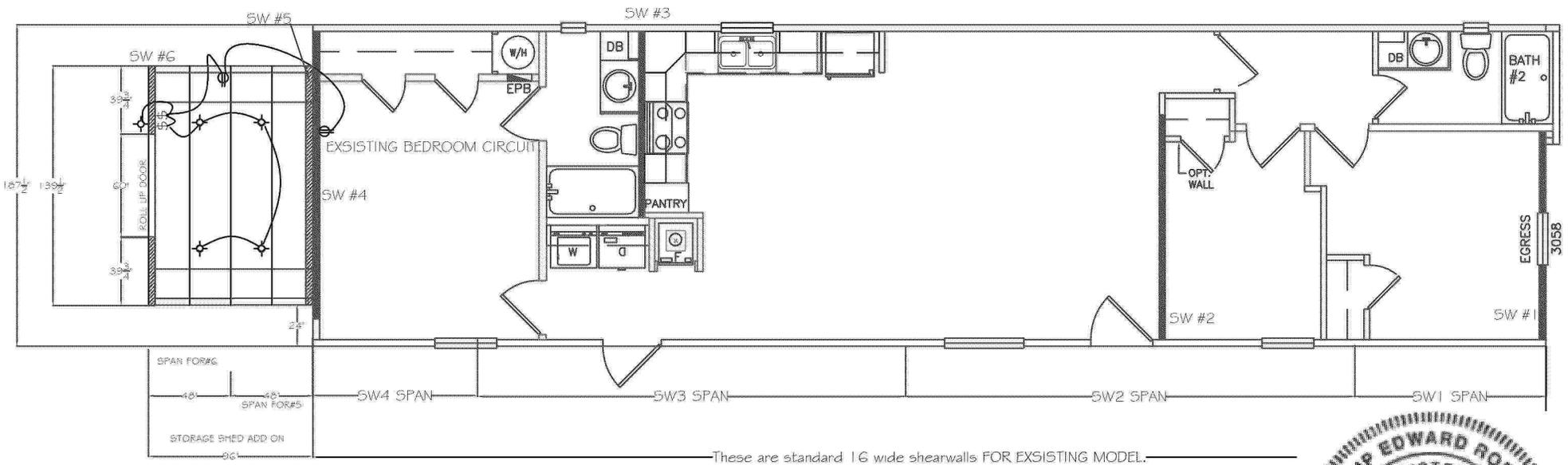


Optional 96" Sidewall Height

APPROVED BY



NOTE:
 FLOOR PLAN SHOWN IS REPRESENTATIVE. SHED MAY GO ON ANY 16' WIDE UP TO 68' BOX LENGTH.
 PIER SETTINGS AND TIE DOWN REQUIREMENTS WILL BE SAME AS 16' WIDE CHARTS IN SET-UP MANUAL.
 REFERENCE: I-10 & I-10.1
 ALL ELECTRICAL RECEPTS and LIGHT/SWITCH REQUIREMENTS WILL BE FED FROM BEDROOM OF 16' WIDE UNIT.
 CHASSIS OVERALL LENGTH WILL INCLUDE THE SHED EXTENSION, THEREFORE AXLE QUANTITIES & LOCATION
 WILL BE BASED ON OVERALL LENGTHS NOTED IN EXISTING CHASSIS CHARTS FOUND IN DAPIA PACKAGE.



I-SH-2.1.0

Legacy Housing
 4801 MARK IV PARKWAY
 FORT WORTH, TEXAS 76106
 PHONE: (817) 624-7565 FAX: (817) 847-0332

LTR.	REVISION DESCRIPTION	BY	DATE	CALCULATION REFERENCE
			00/00/0000	

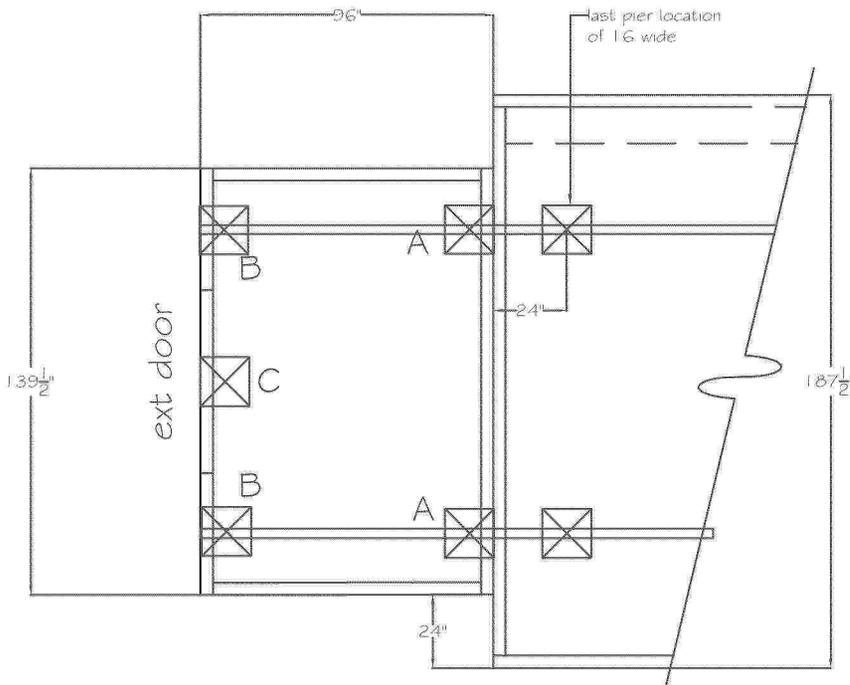
DRAWN BY: LGJJ
 DWG DATE: 07-22-2025

TITLE:
 FLOOR PLAN

DWG NO:
 SH-1.0.0



11/05/2025



PIER LOADS for 12 WIDE SECTION PIER"A"		
EAVE OVERHANG (INCHES)	ROOF LOAD (PSF)	MAXIMUM PIER LOADS(#) LOAD
3"	20#	3,000
3"	30#	3,200

PIER LOADS for 12 WIDE SECTION PIER"B"		
EAVE OVERHANG (INCHES)	ROOF LOAD (PSF)	MAXIMUM PIER LOADS(#) LOAD
1 1/2"	20#	1,900
1 1/2"	30#	2,100

NOTES!

1. PIER LOADS BASED ON 10 PSF ROOF DEAD LOAD AND 10 PSF FLOOR DEAD LOAD.
2. REFERENCE TABLE 4.5 and 4.6 OF INSTALLATION MANUAL FOR REQUIRED FOOTING SIZE CORRESPONDING TO THE LOAD DETERMINED ABOVE.
- C. ASSUMES A 60" X 48" HORIZONTAL RAMP. NOT NEEDED WITHOUT RAMP.

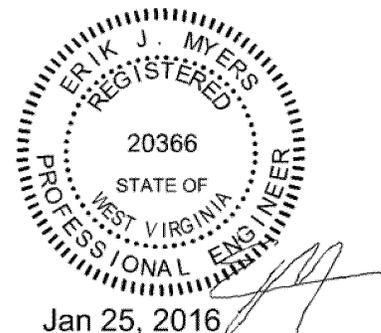
I-SH-2.0.0



**187.5” Unit Width Max.
Requirements Apply to Single Wide Units Only**

Specifications for all Wind Zones

1. Roof live load 20# all wind zones, 30# wind zone 1 only.
2. 4” max. eave overhang on the roof.
3. Floor design per page FL-1.5.3.
4. Outrigger design per FR-5.1.1.
5. Shearwall roof diaphragms: use 184” designs.
6. Headers: use 184” with 8” eave designs.
7. Sidewall strapping: use 184” with 8” eave designs.
8. Piers and tie-downs: use 184” with 8” eave designs.
9. Shearwall charts – Use charts for 187.5” width. (S-20.1.1 thru S-20.3.3)
10. Metal roof is only allowed in wind zone 1.
11. Shingle roofs are allowed in all wind zones.
12. Heat loss and duct design: use actual plan designs.
13. For 86.25” sidewall heights, use pages for 90” or greater sidewall heights.

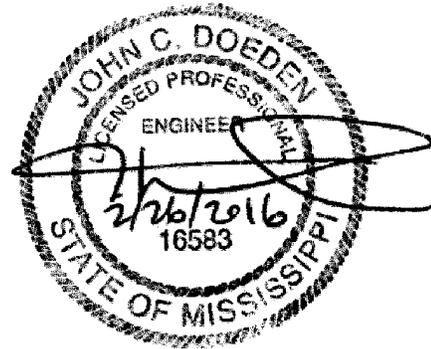


Legacy Housing

General Notes:

- 1. 24 Wide Homes:** For 24' wide double section homes with section floor width of 140" and 8" maximum eaves in Wind Zones I, II and III and for the South (20 psf) Roof Zone where specific designs are not provided use the designs as specified for 28' wide double section homes with a section width of 164" with 8" maximum eaves or 32' wide double section homes with a section width of 184" with 8" maximum eaves. This would apply to such items as foundation piers, floor systems, sidewall headers and studs, ridge beams, column supports, fastening schedules, etc. Specific pages for 24 wide homes are provided for shear wall joists, tie downs, diaphragms, and thermal energy calculations.

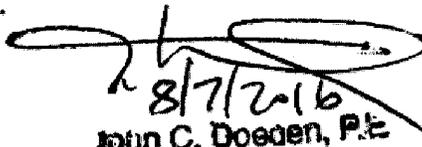
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Legacy Housing

General Notes:

- 1. 12 Wide Homes:** For 12' wide single section homes with section floor width of 138" or 139 1/2" and 3" maximum eaves in Wind Zones I, II and III and for the South (20 psf) Roof Zone where specific designs are not provided use the designs as specified for 14' wide single section homes with a section width of 164" with 3" maximum eaves or 16' wide single section homes with a section width of 184" with 3" maximum eaves. This would apply to such items as foundation piers, floor systems, sidewall headers and studs, fastening schedules, etc. Specific pages for 12 wide homes are provided for shear wall joists, tie downs, diaphragms, and thermal energy calculations.


8/7/2016
John C. Doeden, P.E.
K2 Engineering, Inc

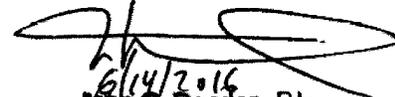
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186.5" Unit Width Max. with 4 1/2" Max. Eave Requirements Apply to Double Wide Units Only

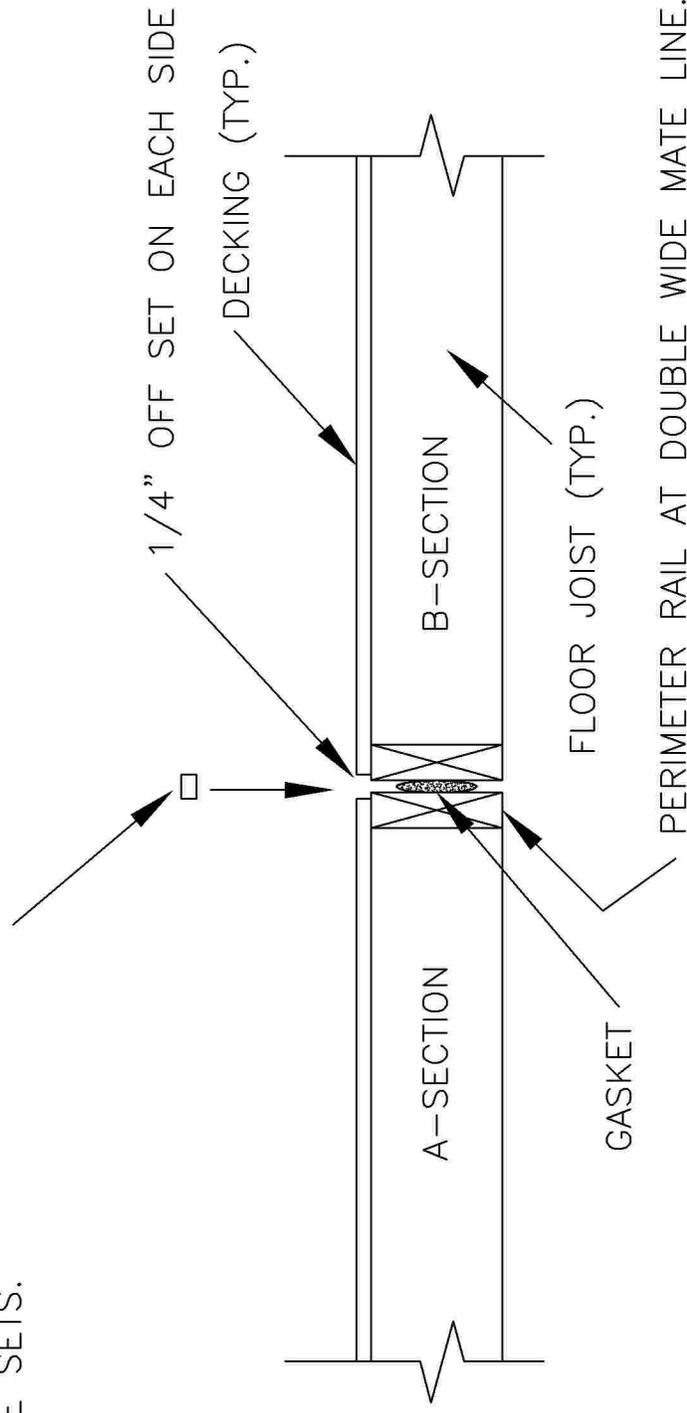
Specifications for all Wind Zones

1. Roof live load 20# all wind zones, 30# wind zone 1 only.
2. 4 1/2" max. eave overhang on the roof.
3. Floor design per page FL-1.5.3.
4. Outrigger design per FR-5.1.1.
5. Roof and ceiling diaphragms: use 184" designs.
6. Sidewall headers: use 184" min. with 8" min. eave designs.
7. Sidewall strapping: use 184" min. with 8" min. eave designs.
8. I-beam piers: use 184" min. with 8" min. eave designs.
9. Tie-downs: use 184" with 8" eave designs.
10. Shearwall charts – Use charts for 186.5" width.
11. Metal roof is only allowed in wind zone 1.
12. Shingle roofs are allowed in all wind zones.
13. Heat loss and duct design: use actual plan designs.
14. For 86.25" sidewall heights, use pages for 90" or greater sidewall heights.
15. For marriage line components such as ridge beams, columns and fastening requirements; in the absence of specific charts and/or details for 186.5" unit width, use of charts and/or details for 184" unit width is acceptable.


6/14/2016
John C. Doeden, P.E.
K2 Engineering, Inc

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FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

DECKING PIECE TO BE INSTALLED ON SITE TO COVER THE GAP BETWEEN UNITS PROVIDING BEARING FOR THE FLOOR TILE. THIS PIECE IS ONLY INSTALLED IN OPENINGS, IT IS NOT INSTALLED IN AREAS WITH A WALL ON THE OPPOSITE SECTION. THIS DECKING PIECE IS A NON-STRUCTURAL ITEM AND ONLY USED TO GIVE THE TILE A SOLID SURFACE ON WHICH TO REST. PIECE IS GLUED WITH 80% PVA OR EQUAL GLUE AND FASTENED WITH PIN NAILS TO HOLD IT IN PLACE UNTIL THE GLUE SETS.



- NOTES:
 1. THIS PAGE TO BE INCLUDED WITH HOME SETUP MANUAL.

LEGACY HOUSING	DATE: 10.03.2016	DRAWN BY: DAN	TITLE: FLOOR DECKING OFFSET FOR FLOOR TILE BEARING
	SCALE: NTS		REV. # DESCRIPTION: REV. BY: DATE:
			DWG # FL-4.6.1