

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.

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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](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.

APPROVED BY

**NIA** INC.
FEB 19, 2008
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

I-0.2.2

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.**
- 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 the limited one-year express warranty are limited in duration to the term of such 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 beyond those expressly set forth in this warranty.

**LEGACY HOUSING LTD
4801 MARK IV PARKWAY
FT. WORTH TX 76106**

Revision
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APPROVED BY



Aug 08, 2005

**FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS**

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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.

APPROVED BY
 **NIA** Jun 09, 2014
INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

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.

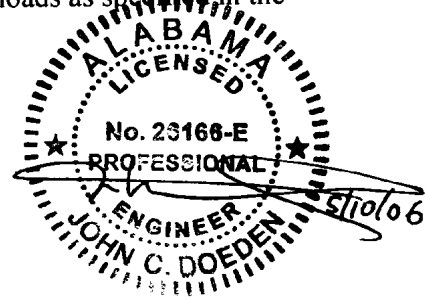
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Aug 14, 2000**
INC.
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CONSTRUCTION AND SAFETY STANDARDS

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

APPROVED BY
NIA INC.
Feb 19, 2008
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

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.

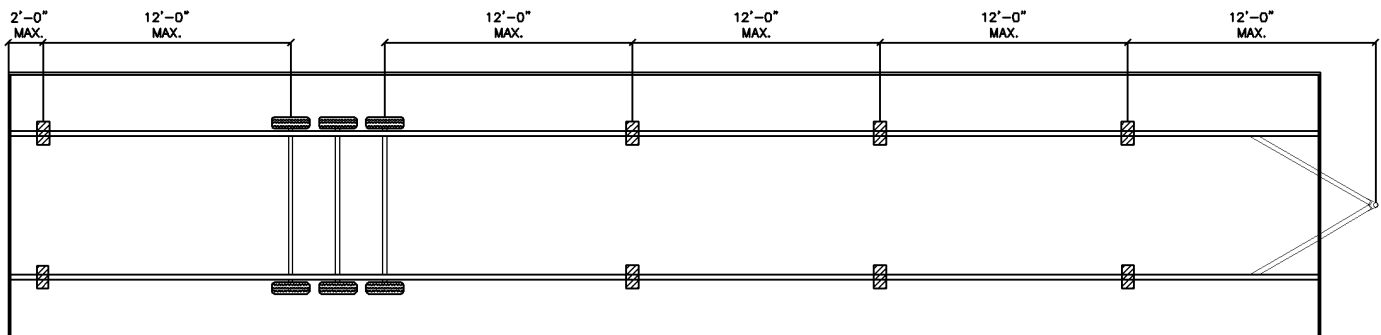
Homes for Display:

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.).

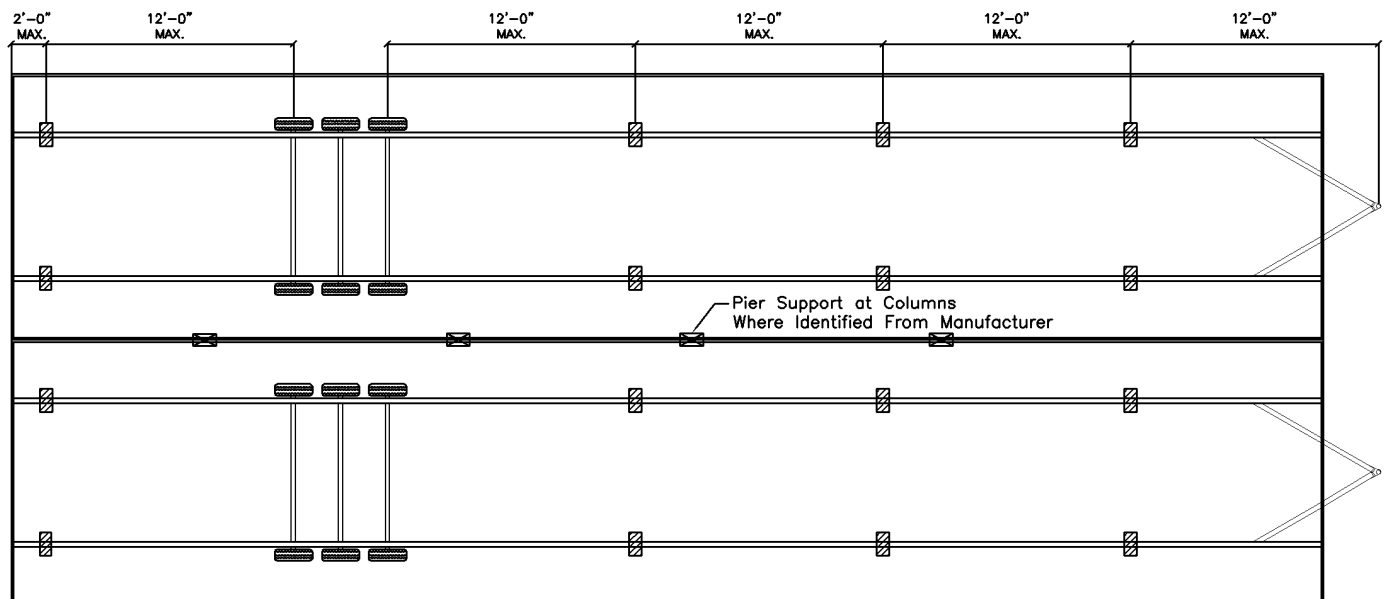
Multi section homes also require additional supports below marriage wall column supports along the mate line. These locations are identified from the manufacturer.

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 increased 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

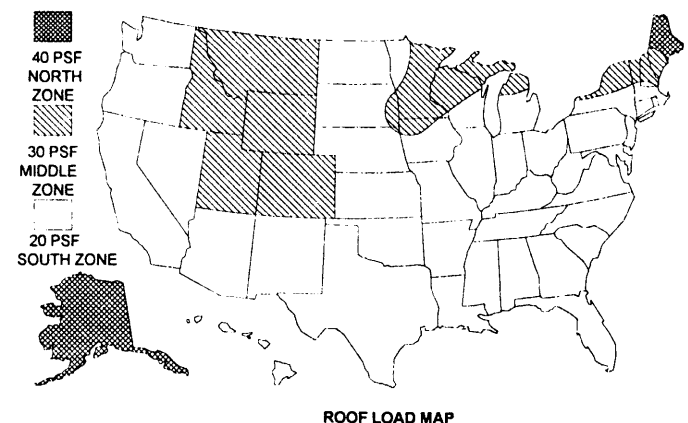
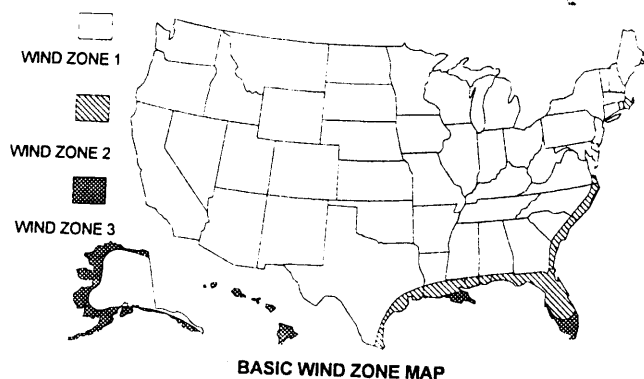
Obeys local laws regarding encroachments in streets, yards and courts, and permissible setback distances from property lines and public roads. Consider future additions, such as awnings and screen rooms.

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

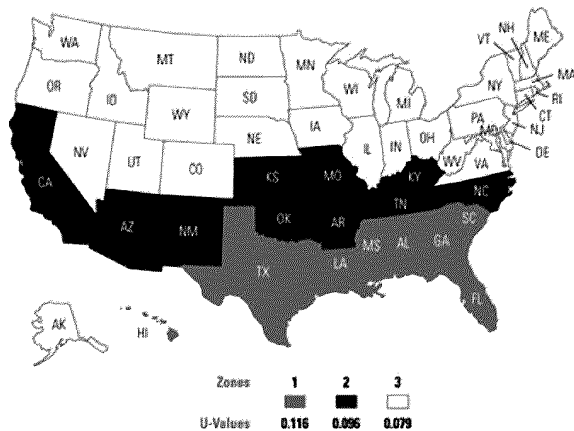
FIGURE 3.1



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CONSTRUCTION AND SAFETY STANDARDS

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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.

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.

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

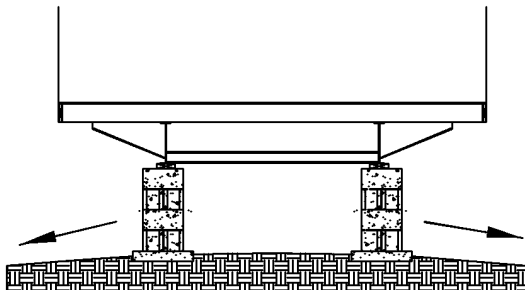
Note to table: No allowances made for overburden pressure, embedment depth, water table height or settlement problems.

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

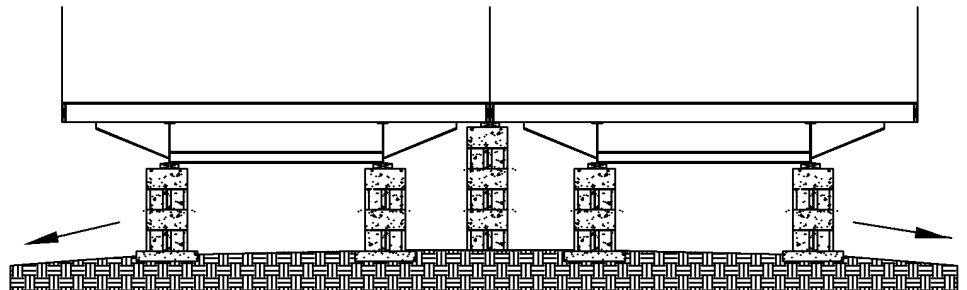
- A. Soil testing investigation and analysis of the site.
- B. Compliance with the local building code.
- C. Competent opinion by a local engineer or building official.

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
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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 AWWA Standard UI-04 for use category 4B – ground contact applications. Cut ends of pressure-treated lumber must be field-treated in accordance with AWWA 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. 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.

4.4 Important Reference Documents

4.4.1 ANSI/NCSBCS A225.1-1987

"Manufactured Home Installations," NCSBCS, 505 Huntmar Park Drive, Herndon, VA 22070
(703) 437-0100

4.4.2 FEMA 85

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

4.4.3 HUD Guidebook 4930.3G (1996)

"Permanent Foundations Guide for Manufactured Housing," HUD, 415 7th Street, S.W., Washington, DC 20410

4.4.4 "All-Weather Wood Foundation System Manual"

National Forest Products Association, 1619 Massachusetts Ave., N.W., Washington, DC 20036, June, 1976

4.4.5 "Frost-Free Shallow Foundation Design Guidelines"

Energy Design Update, March, 1988

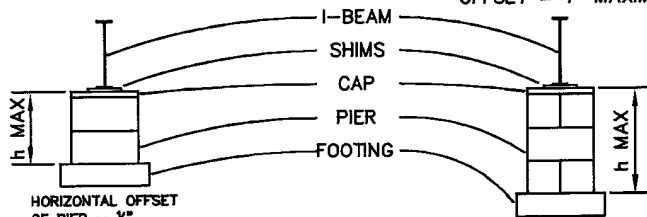
4.4.6 "Building Foundation Design Handbook," Document No. DE 88013350

National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161

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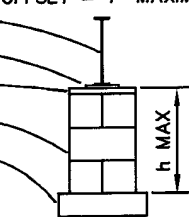


PIER 1
I-BEAM PIER SINGLE
STACKED BLOCKS



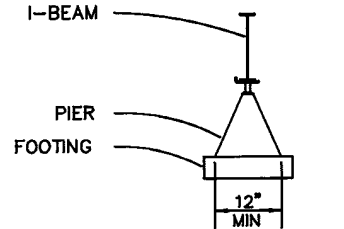
HORIZONTAL OFFSET
OF PIER = $\frac{1}{2}$ "
MAXIMUM
SINGLE BLOCKS
MAXIMUM HEIGHT = 36"
(SEE NOTE #2)
SPECIAL NOTE: MINIMUM SET HEIGHT OF
HOME IS 12" AS MEASURED UNDER HOME TO
GROUND, INCLUDING AREA BETWEEN THE
LOWEST POINT OF THE FRAME OR
CROSSMEMBERS.

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

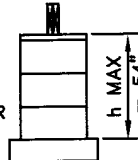
PIER 3
I-BEAM PIER



STEEL OR CONCRETE
MANUFACTURED PIER
(SEE NOTE #5)

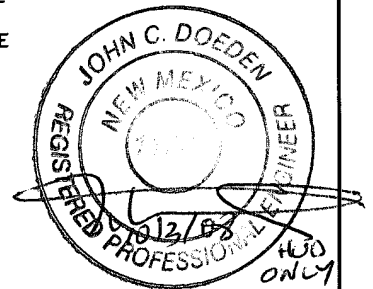
PIER 4
SINGLE STACKED PIER
SUPPORTING
CENTERLINE COLUMNS
OR PERIMETER OR
CENTERLINE JOISTS

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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Oct 13, 2008
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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.

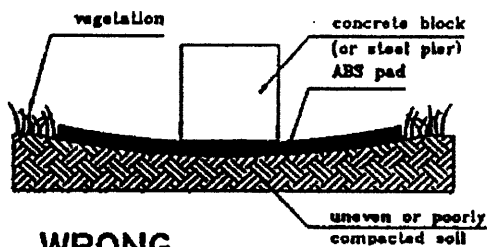
1-800-284-7437

HOME OF THE ORIGINAL ABS PIER PAD

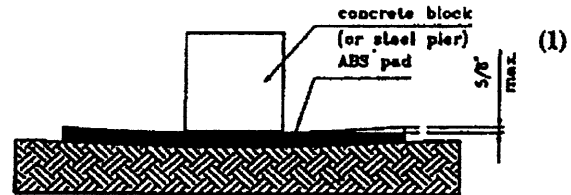
(IMPORTANT)
**IF PAD DEFLECTS MORE THAN 5/8" WHEN
 INSTALLED, PIER SPACING IS INCORRECT FOR SOIL
 CONDITIONS OR A DOUBLE FIRST BLOCK
 CONFIGURATION SHOULD BE USED ⁽¹⁾**

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.



WRONG



RIGHT

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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Nov 18, 1999

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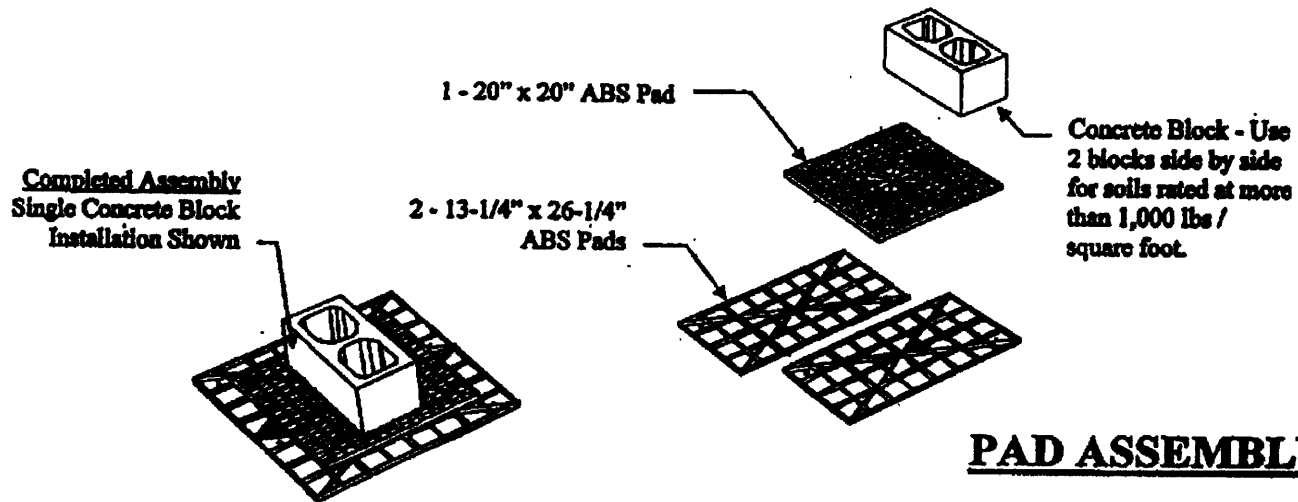
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C.R. Caudel, P.E.
Sr. Registered Engineer
Product Testing, Inc.*
Jacksonville, Florida
PH: (904) 384-8150

I-8.1

MANUFACTURED HOUSING FOUNDATION SYSTEMS
A Division of Oliver Technologies, Inc.
1-800-284-7437

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:

1. All pads are to be installed flat side down, ribbed side up
2. 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.
3. Pier and pad spacing will be determined by the manufactured homes' written set-up instructions or any local or state codes.
4. 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.
5. 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.
6. All pad sizes shown are nominal dimensions and may vary up to 1/8".
7. The maximum deflection in a single pad is 5/8" measured from the highest point to the lowest point of the top face. ⁽¹⁾
8. 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"

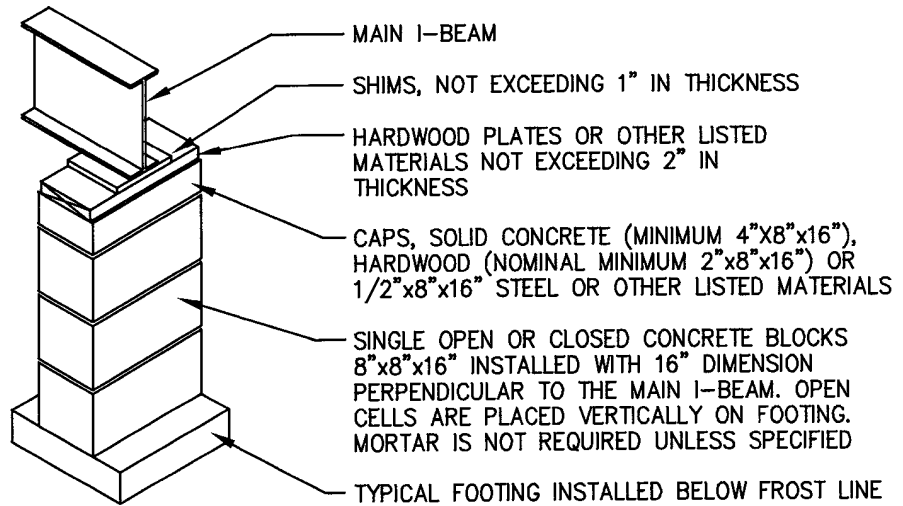
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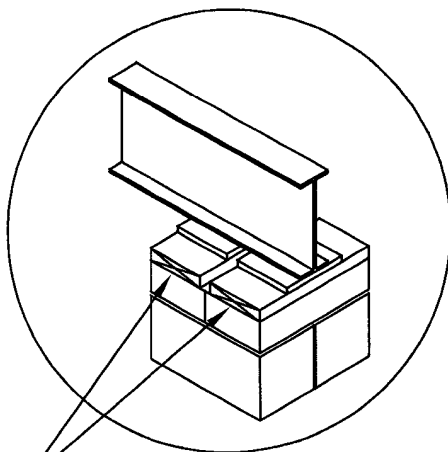
C.R. Caudel, P.E.
Sr. Registered Engineer
Product Testing, Inc.
Jacksonville, Florida
PH: (904) 384-8180

SINGLE STACKED CONCRETE BLOCKS

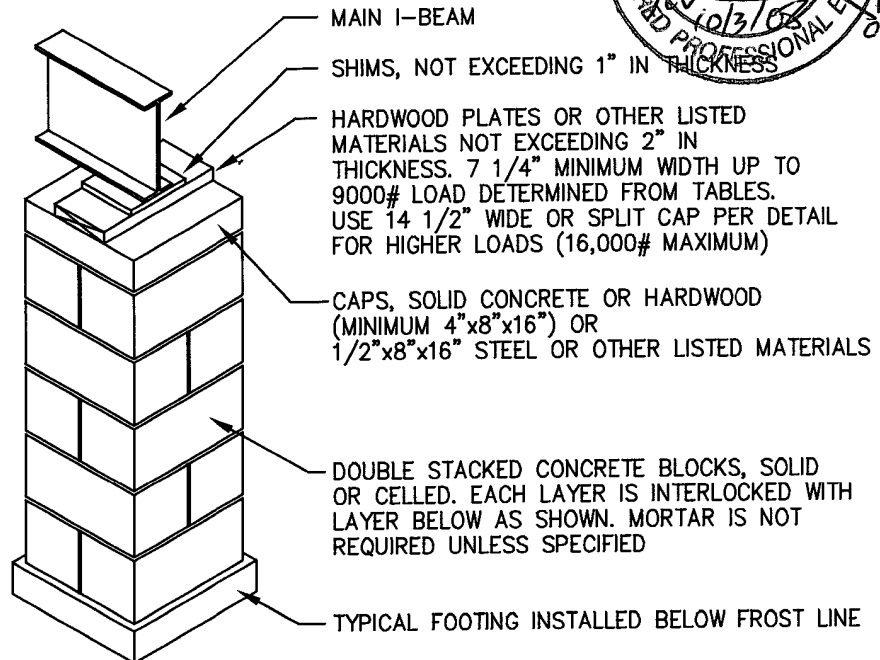


CAPACITY = 8,000 LBS.

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").

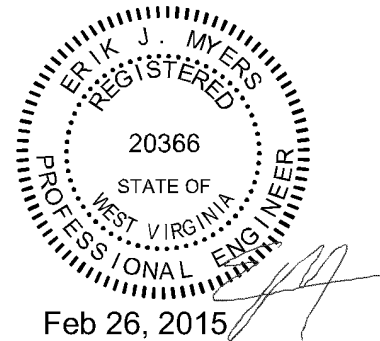


**TABLE 4.2
MINIMUM FRAME PIER CAPACITIES**

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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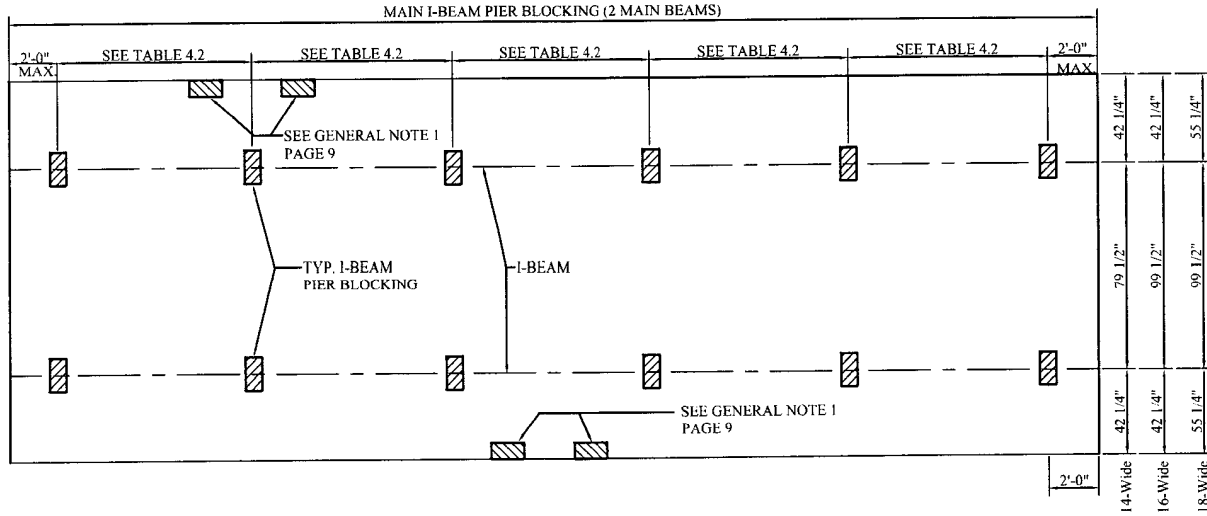
SETUP ADDENDUM

I-9.1

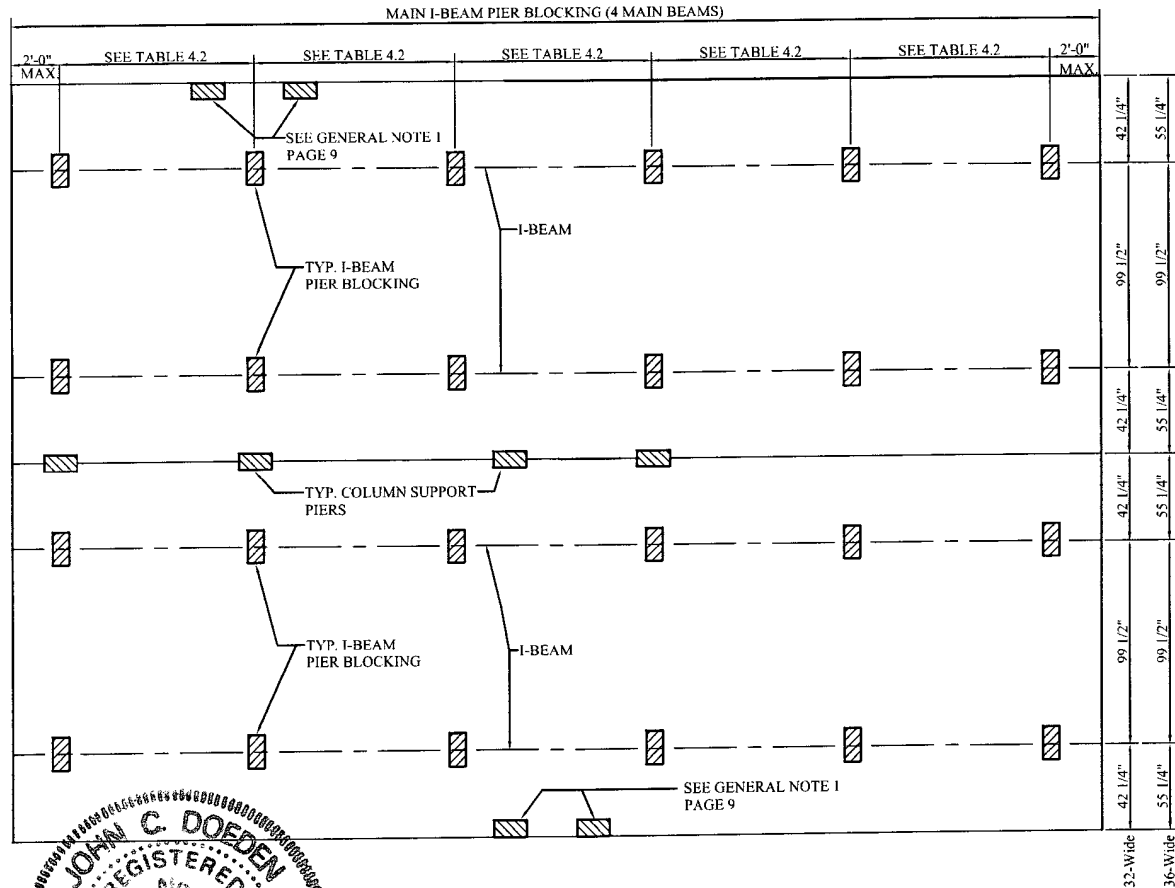

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Figure 4.2

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
PERIMETER PIERS UNDER SIDEWALL	20			1957	2723	3489
	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
		PERIMETER PIERS UNDER SIDEWALL	20	2175	3051	3926
		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

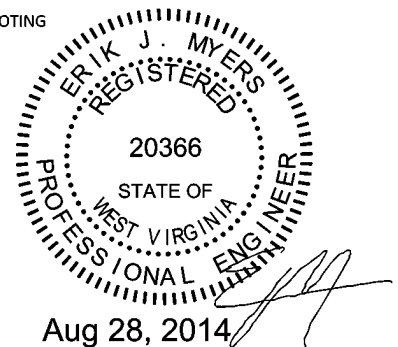
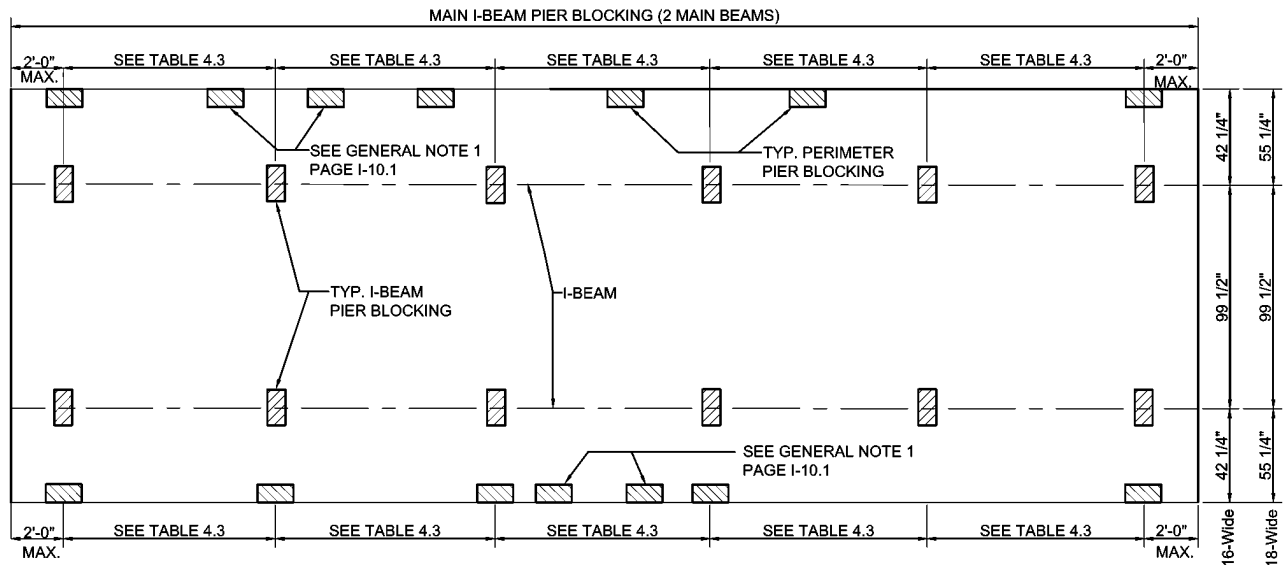
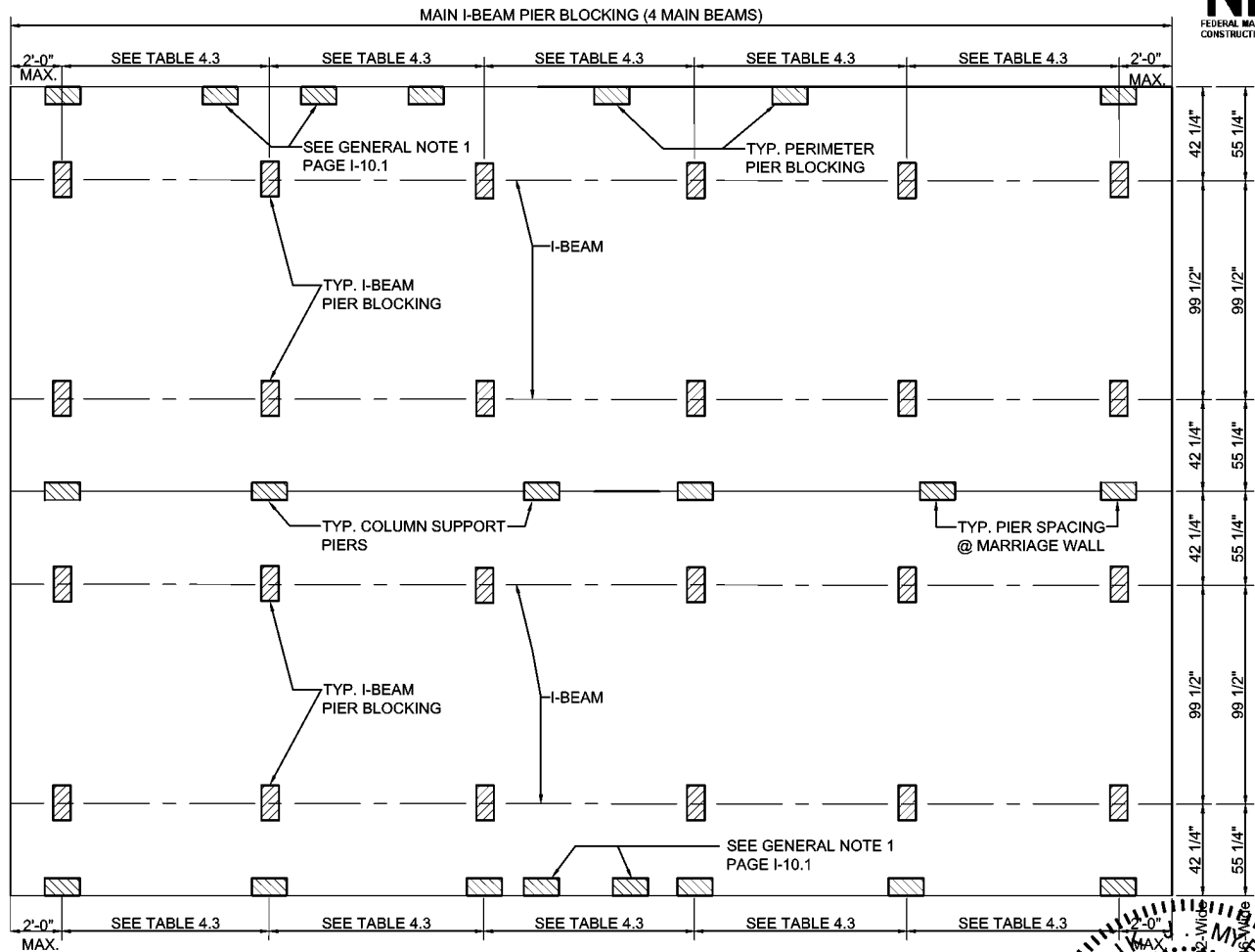


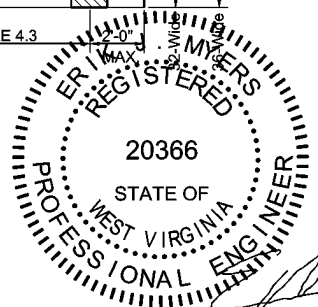
Figure 4.3

TYPICAL SINGLE SECTION PIER LAYOUT (PERIMETER BLOCKING REQUIRED)**TYPICAL MULTI-SECTION PIER LAYOUT (PERIMETER BLOCKING REQUIRED)****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.

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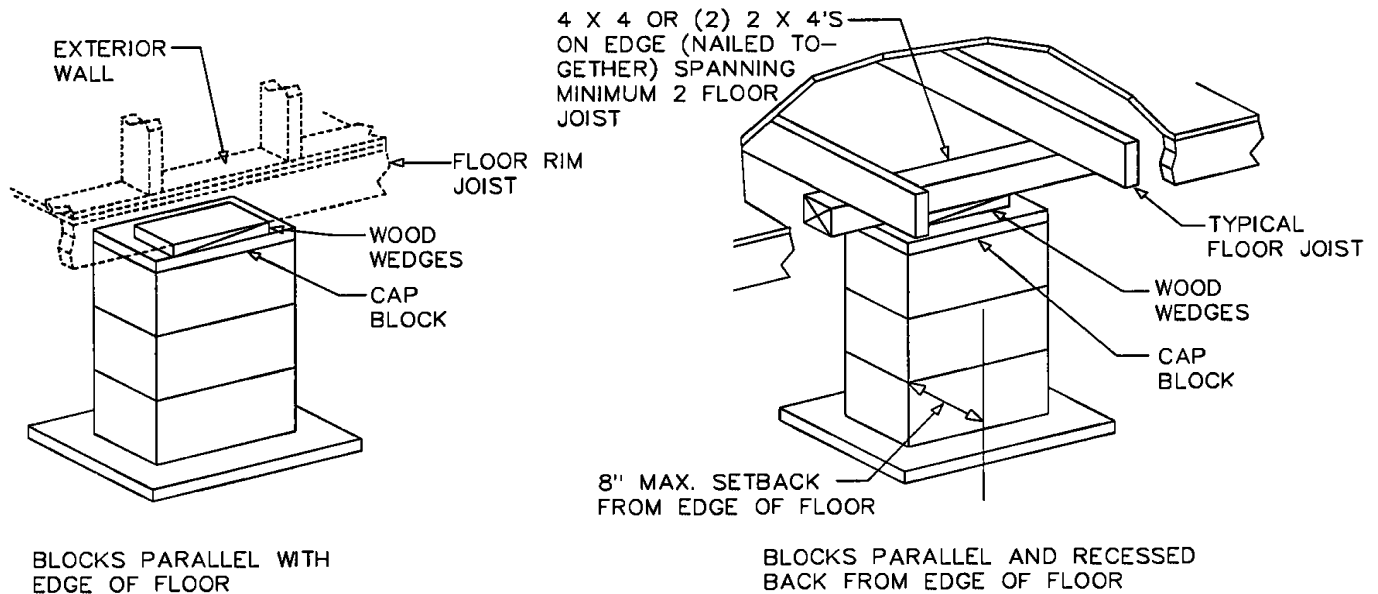
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Jan 13, 2017

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.

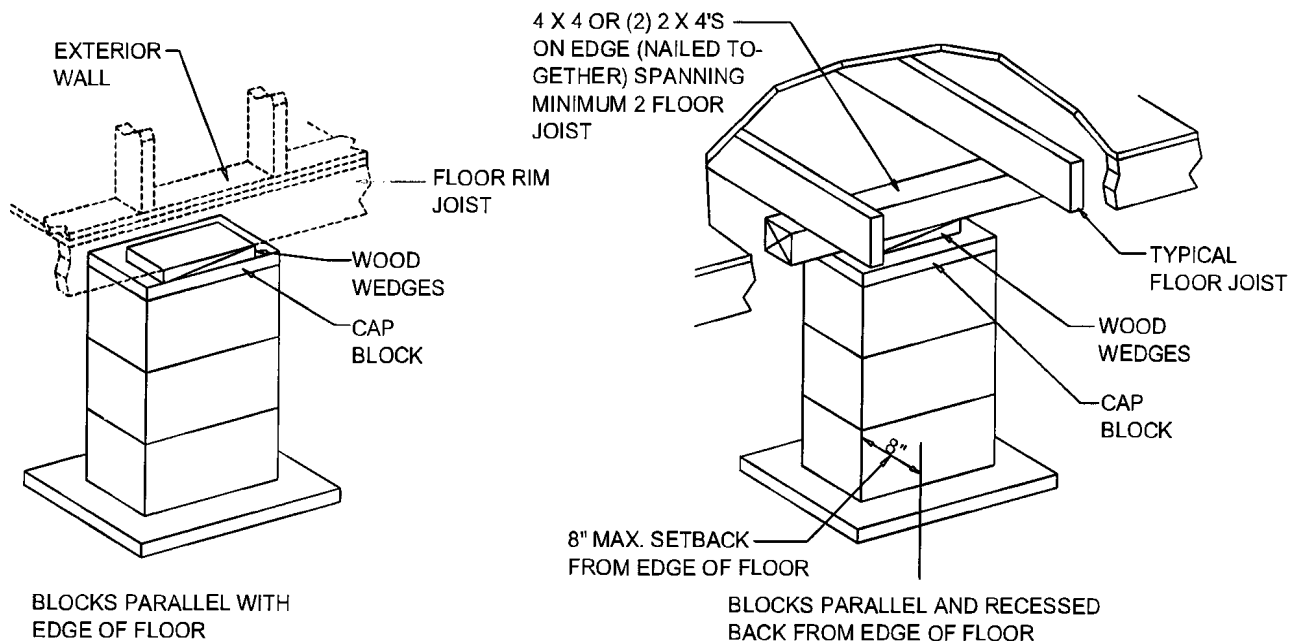
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1/25/2017

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20366
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WEST VIRGINIA
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

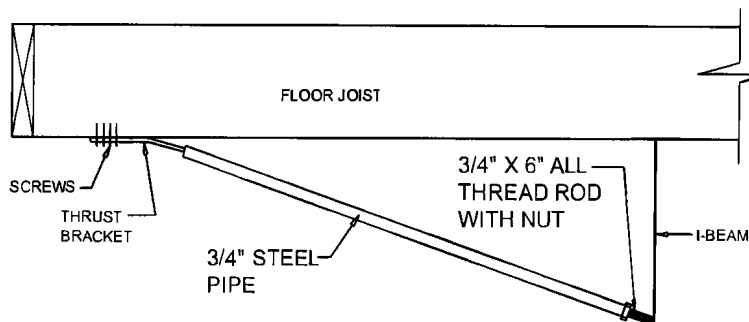
PIER MAY BE OFFSET UP TO 6" MAX. EACH SIDE OF STRAP TO MISS FRAME OBSTRUCTIONS AS LONG AS THE PIER STILL SUPPORTS THE FLOOR RIM JOIST.

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

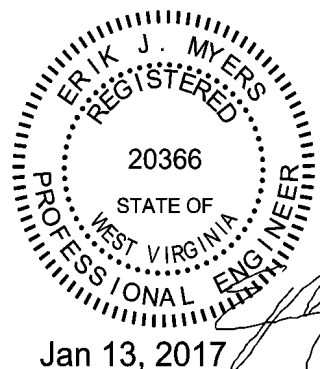
OPTIONAL ADJUSTABLE OUTRIGGER

SHALL NOT REPLACE REQUIRED PIER



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NOTE: OUTRIGGER NOT TO BE IN PLACE DURING TRANSPORTATION.

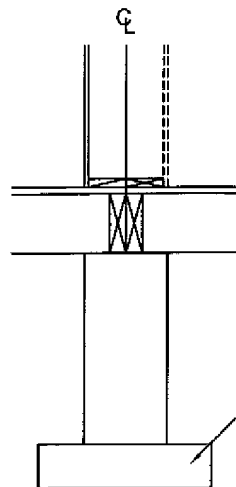
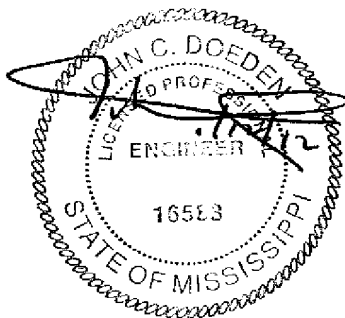
INSTALLATION INSTRUCTIONS:

1. LOCATE THE FLOOR JOIST THAT REQUIRES SUPPORT.
 2. MARK I-BEAM DIRECTLY UNDER THE FLOOR JOIST TO ALIGN OUTRIGGER.
 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
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.



SEE NOTE #3

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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

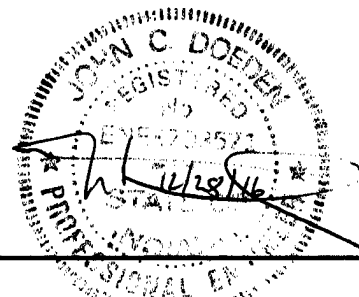
PIER CAPACITY (POUNDS)	MINIMUM FOOTING SIZE (OR EQUAL AREA) (INCHES)				
	SOIL BEARING CAPACITY (PSF)				
	1000	1500	2000	4000	
600	12x12	12x12	12x12	12x12	SINGLE ↓ STACK CMU
800	12x12	12x12	12x12	12x12	
1000	12x12	12x12	12x12	12x12	
1500	15x15	12x12	12x12	12x12	
2000	17x17	14x14	12x12	12x12	
2500	19x19	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	DOUBLE ↓ STACKED CMU
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	SPECIAL DESIGN ↓
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	
21000	55x55	45x45	39x39	28x28	
22000	57x57	46x46	40x40	28x28	
23000	58x58	47x47	41x41	29x29	
24000	59x59	48x48	42x42	30x30	
25000	60x60	49x49	43x43	30x30	

NOTES:

1. FOOTING SIZES SHOWN ARE FOR SQUARE PADS AND ARE BASED ON THE AREA (SQUARE INCHES) REQUIRED FOR THE LOAD. OTHER FOOTING CONFIGURATIONS (RECTANGULAR) MAY BE USED PROVIDED THE AREA (SQUARE INCHES) IS EQUAL TO OR GREATER THAN THE AREA OF THE SQUARE FOOTING SHOWN IN THE TABLE AND THE PROJECTION TO THE EDGE OF THE FOOTER IS NOT GREATER THAN IT WOULD HAVE BEEN PLACED ON A SQUARE FOOTER. FOR EXAMPLE, A 12"x22" (288 SQ. IN.) FOOTING MAY BE USED IN PLACE OF A 16"x16" (256 SQ. IN.) FOOTING.
2. THE FOLLOWING TABLE SPECIFIES THE MAXIMUM FOOTING SIZE FOR VARIOUS FOOTING THICKNESSES. THIS TABLE IS BASED ON UNREINFORCED FOOTINGS. REINFORCED FOOTINGS MAY 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 APIECE AND CONCRETE FOOTERS WEIGH APPROXIMATELY 150 PCF (EXAMPLE: 24x24x6 FOOTER WEIGHS 300#)

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TABLE 4.5
FOOTER SIZES



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

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

APPROVED BY

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

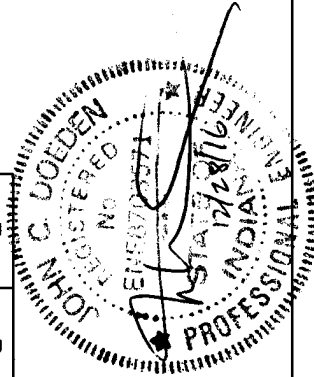


Table 4.6
MINIMUM FOOTING THICKNESSES

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

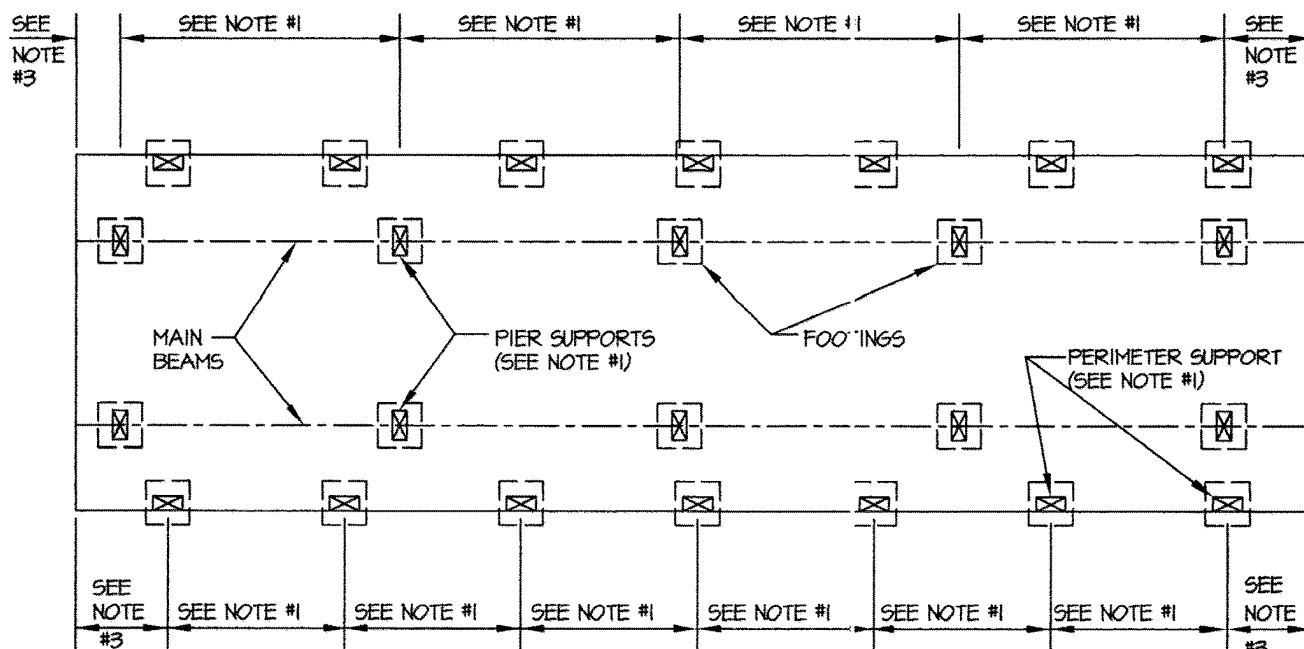


FIGURE 1.0 NOTES:

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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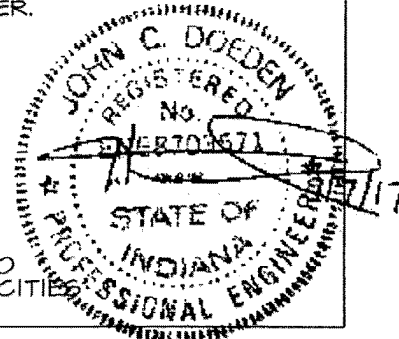
8/11/2017
NIA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

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)



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.

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:

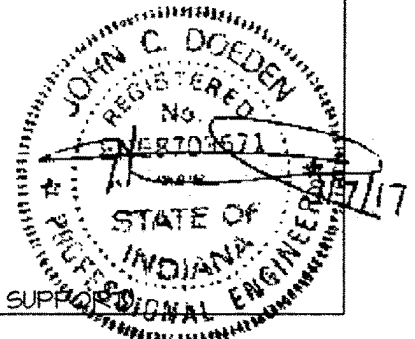
1. THIS TABLE IS TO BE USED FOR MULTISECTIONAL HOMES WITH THE MAIN I-BEAMS AT THE SPRING HANGER SPACING OF 99 1/2" CENTER-TO-CENTER AND SUPPORTED BY PIERS PER TABLE 2.0 AND PER FIGURE 2.0.
2. THE VALUES TABULATED ABOVE REFLECT THE ROOF LIVE LOAD AND DEAD LOAD.
3. THIS CHART IS FOR USE WITH DOUBLE WIDE 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 SPF 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 = $1.25 \times (17825 + 20510) / 2 = 23991\#$)

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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

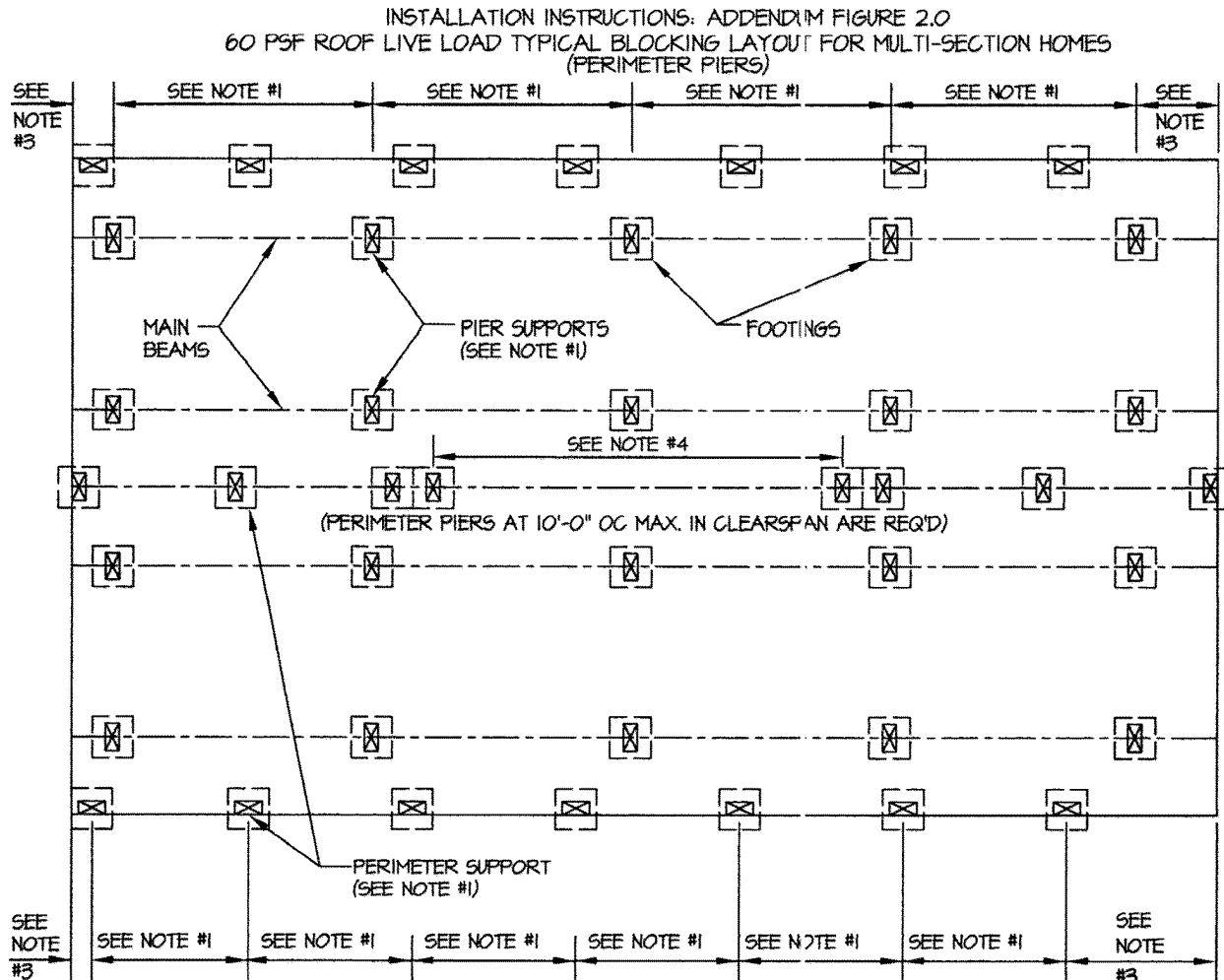


FIGURE 2.0 NOTES:

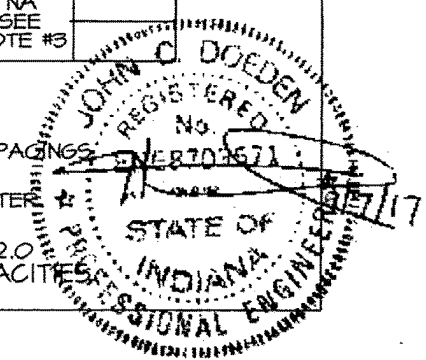
1. SEE TABLE 2.0 FOR REQUIRED PIER CAPACITY AND SPACING.
2. PIERS SHALL BE LOCATED AT EACH SIDE OF ALL PERIMETER OPENINGS (<) FEET AND WIDER IN WIDTH. THIS WILL INCLUDE DOORS, WINDOWS, RECESSED ENTRIES, PORCHES, ETC. USE TABLE 2.0A FOR PIER CAPACITY REQUIREMENTS.
3. PIERS SHALL BE LOCATED AT A MAXIMUM 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)



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.

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

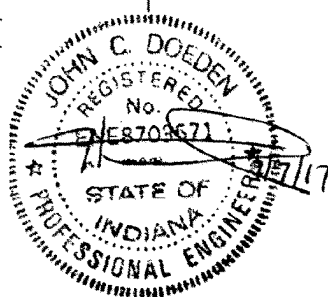
I FOOTER LOADS UNDER I-BEAM WITH BEAMS 99.5 " C-C
WITH PERIMETER BLOCKING 8 FT. O.C. MAX. - ALL ROOF ZONES

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

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			
		SIDEWALL	TOTAL		
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			
		SIDEWALL	TOTAL		
60 PSF	LOAD =	4139	4649		
	FOOTER	596			
					
8 FT. O.C.		SOIL CAPACITY IN PSF			
ROOF ZONE		1000			
		SIDEWALL	TOTAL		
60 PSF	LOAD =	5518	6132		
	FOOTER	795			

- 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.



REQUIRED FOOTING SIZES FOR SNOW ROOF ZONE

RIDGE BEAM SUPPORT

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

LOAD AT COLUMN = (ROOF LL + DL) × (UNIT WIDTH) + WALL DL + REMAINING FLOOR LOAD W/ PIERS IN SPAN SPAC 10 FT. o/c

LOAD AT EACH PIER = PIER SPACING × LOAD AT COLUMN + FOOTER & PIER WT.

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

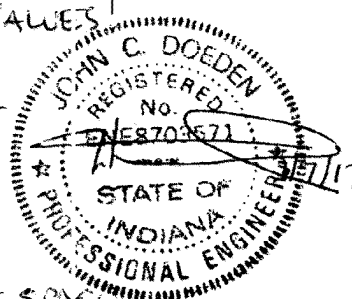
LEGACY HOUSING
BY K2E, Inc.

150 PCF CONCRETE LOAD : APPR DX. 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		
	32	18	3908	27141		
	36	20	4303	29884		
	40	22	4698	32626		
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		
	32	19	4147	28796		
	36	21	4542	31539		
	40	23	4937	34282		
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		
	32	20	4385	30451		
	36	22	4780	33194		
	40	24	5175	35937		
1000 PSF MIN. 60 PSF ROOF P-BLOCK AT 8 FT. o.c. MAX.	4	26	5570	38679		
	8	28	6000	42000		
	12	30	6430	45321		
	16	32	6860	48642		
	20	34	7290	51963		
	24	36	7720	55284		
	28	38	8150	58605		
	32	40	8580	61926		
	36	42	9010	65247		
	40	44	9440	68568		

REF TABLE 3.0

USE THESE VALUES
FOR COLUMN
PIERS (WORST
CASE)

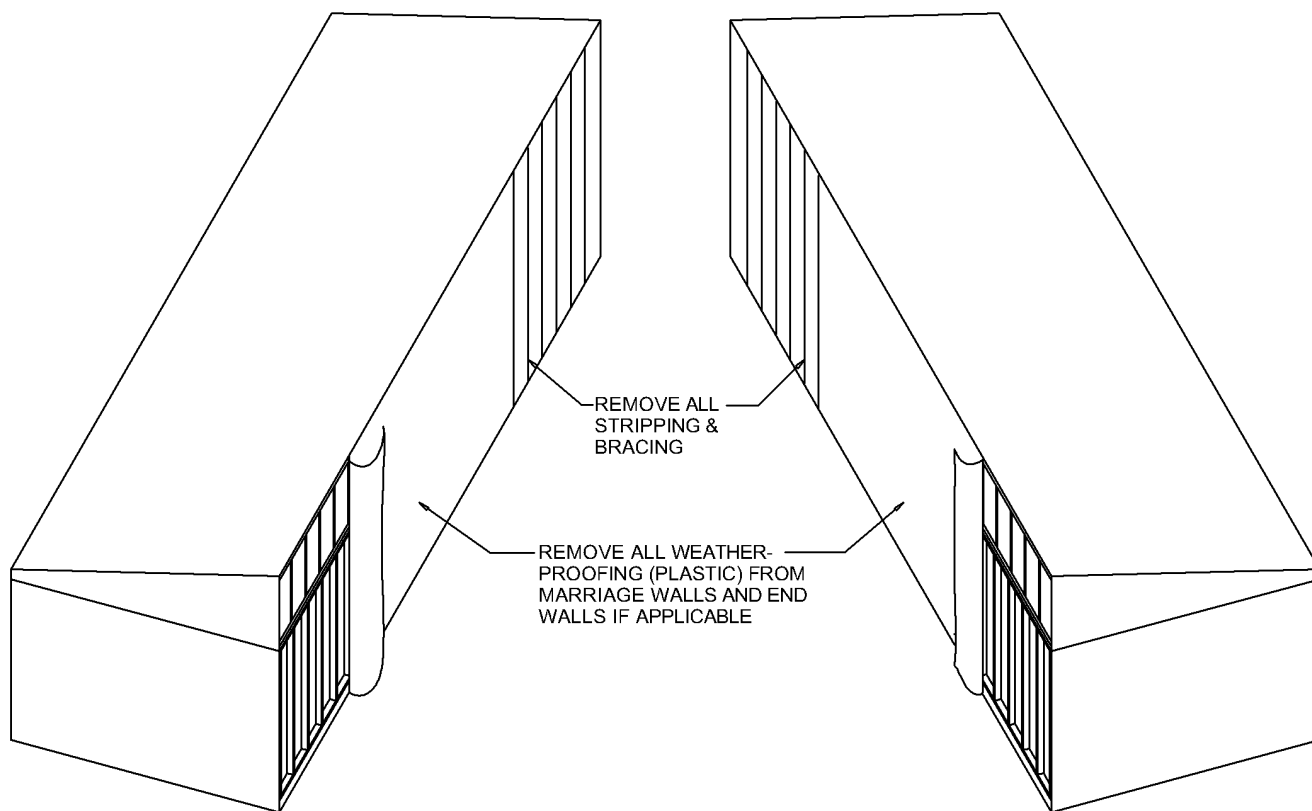


N/A ⇒ LIMIT SPACING
TO 6'-0" O/C FOR
PERIMETER PIERS

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FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

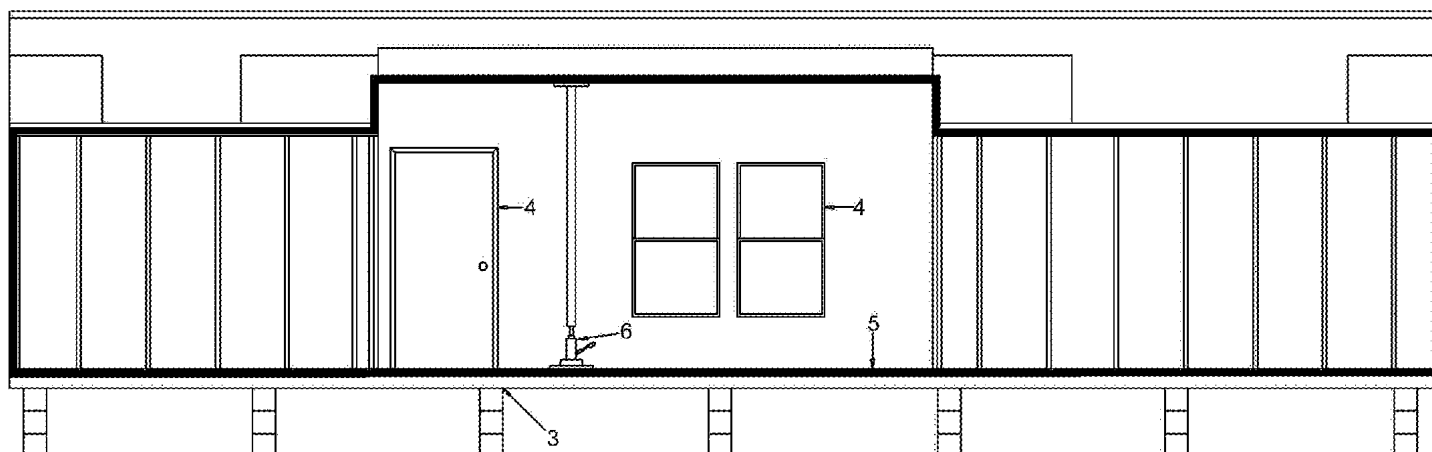
FIGURE 5.1 - Shipping Material Removal



NOTICE

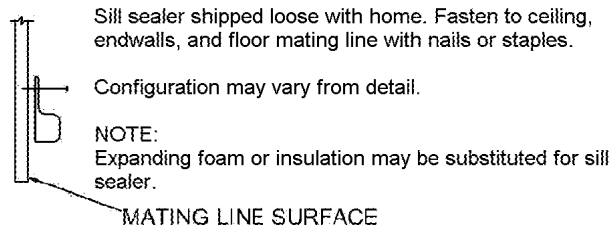
The warranty on this home will not be operative unless all weather proofing (plastic) material applied for shipping purposes is removed from marriage walls and end walls if applicable before units are secured together.

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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 Revised
 Jul 06, 2006
 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 F'LF FRAME DL) + 400 LB.

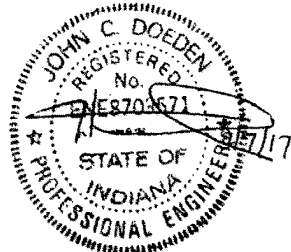
II. PERIMETER PIERS SPACED PER CHART BASED ON 99.5 " I-BEAM SPACING

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

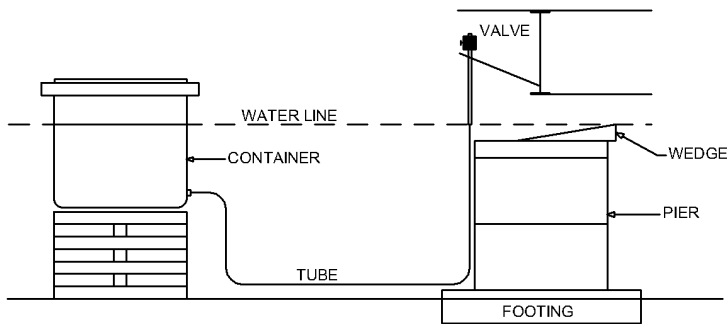
6 FT. O.C.		SOIL CAPACITY IN PSF			
ROOF ZONE		1000	1000	2000	2000
		SIDEWALL	C.L.WALL	SIDEWALL	C.L.WALL
60 PSF LOAD =	FOOTER	4795 26	8853 36	4795 19	8853 25

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

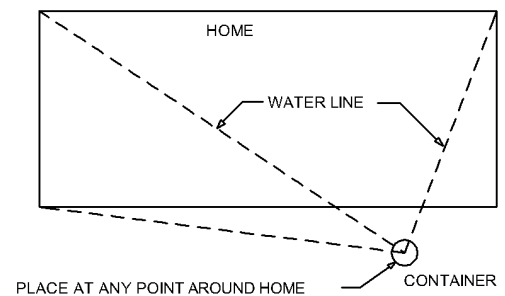


I-11.60.06

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.

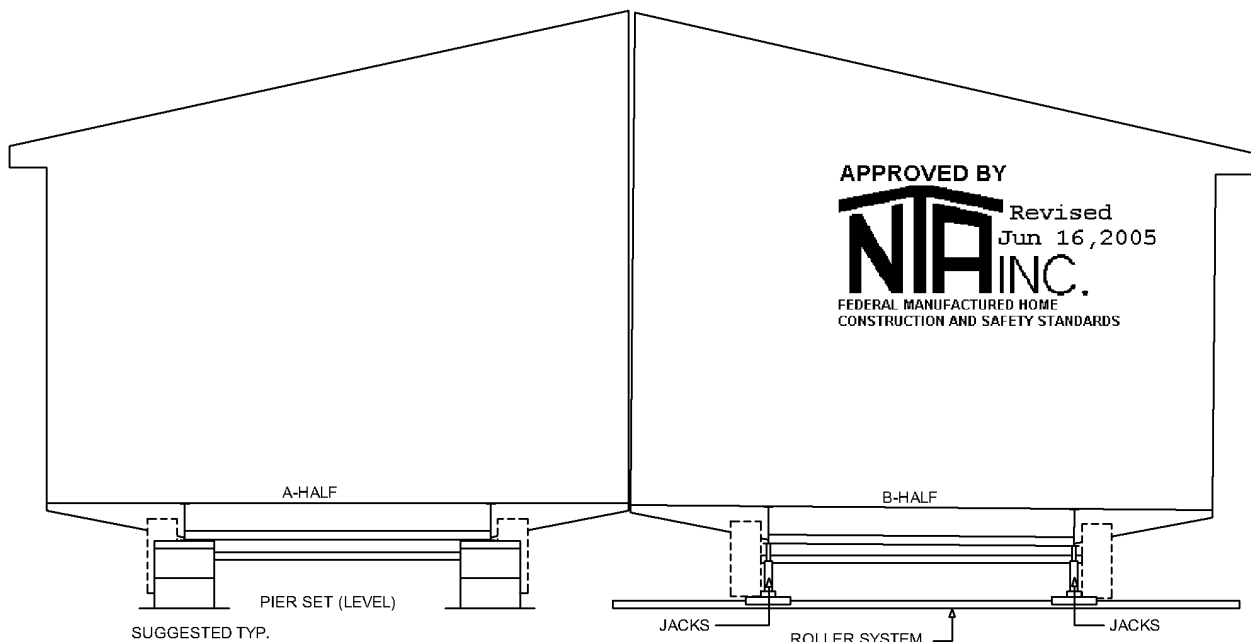
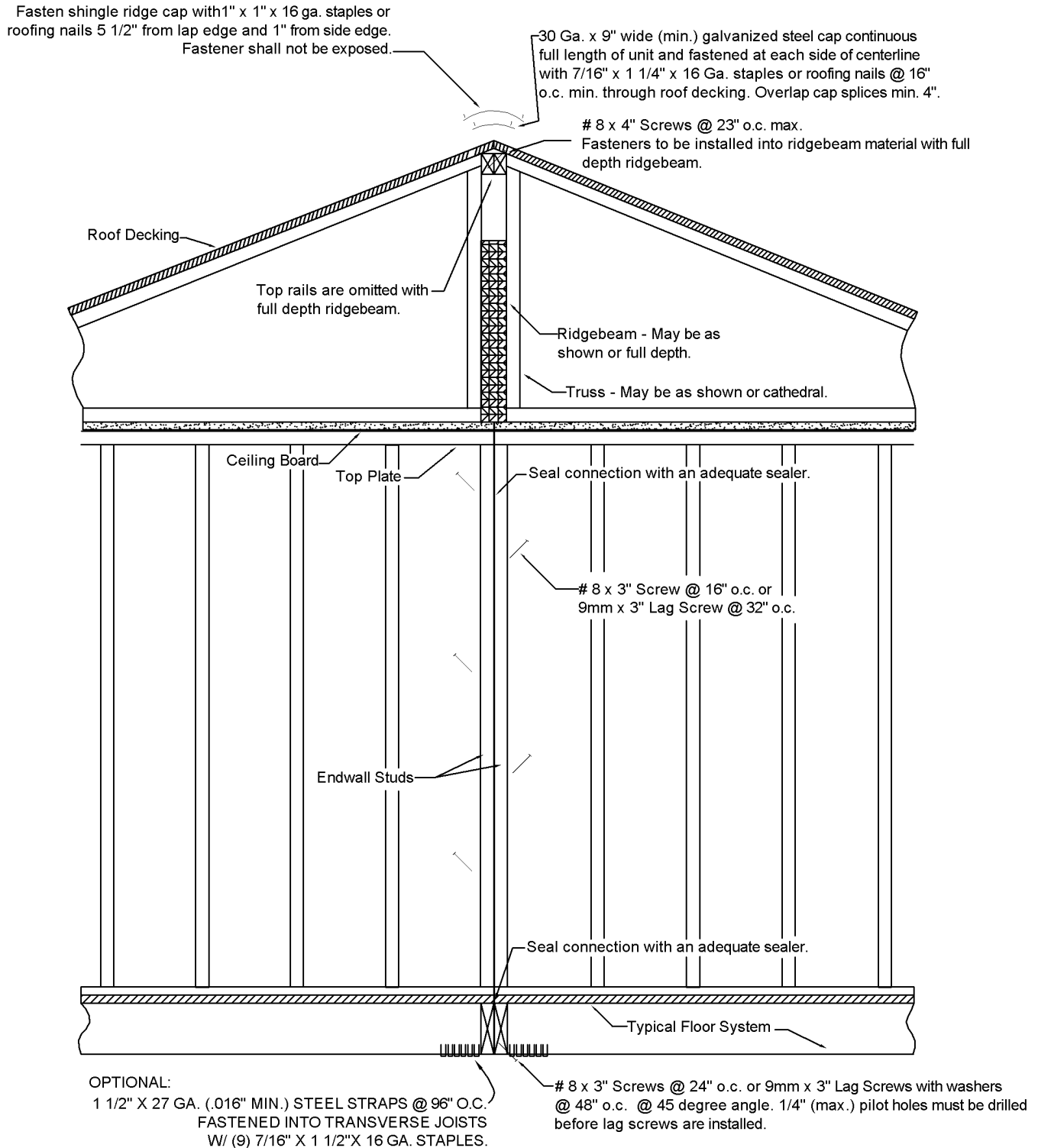


FIGURE 5.4 - Doublewide Onsite Fastening - Wind Zone 1

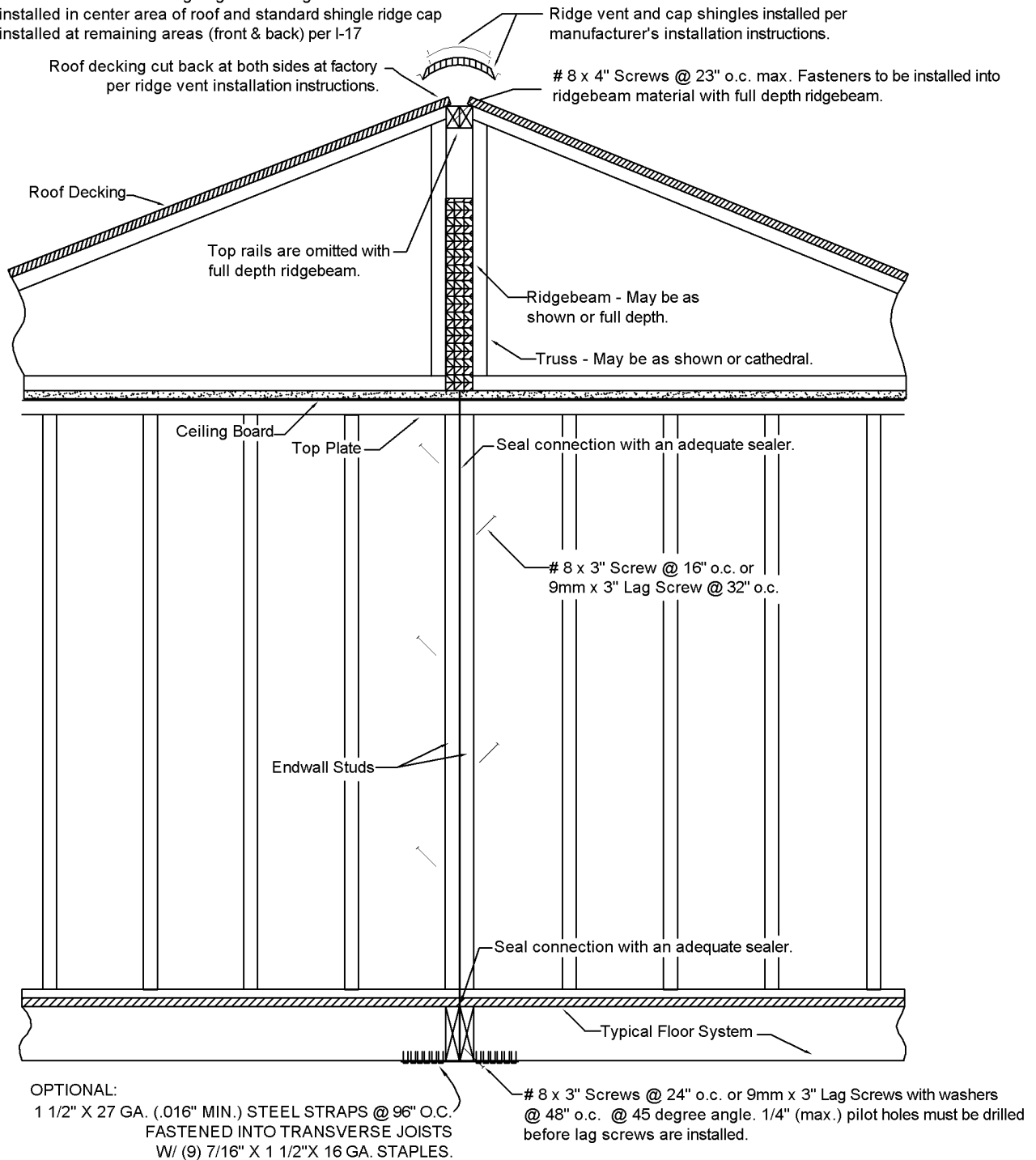


NOTES:

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

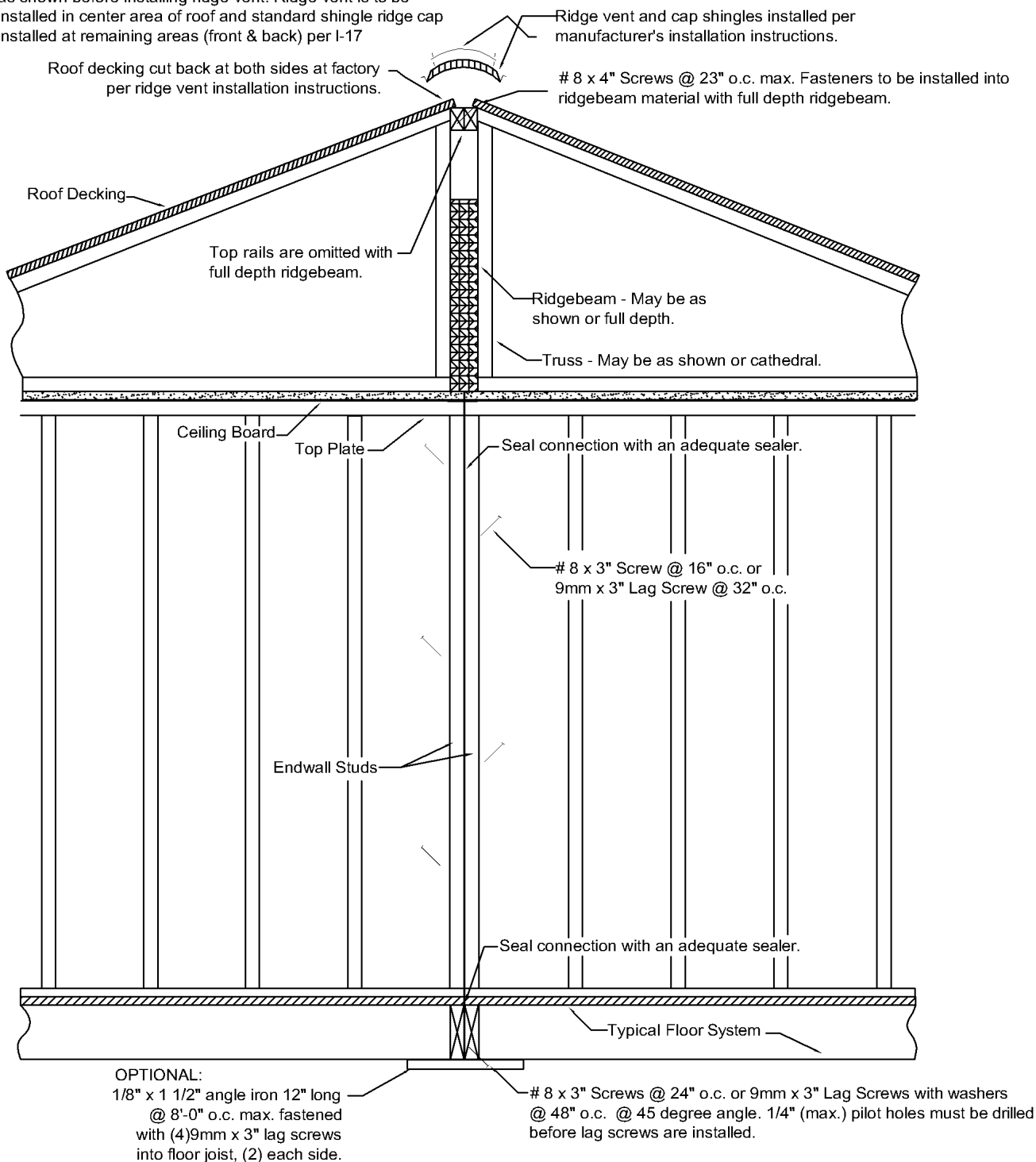


NOTES:

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

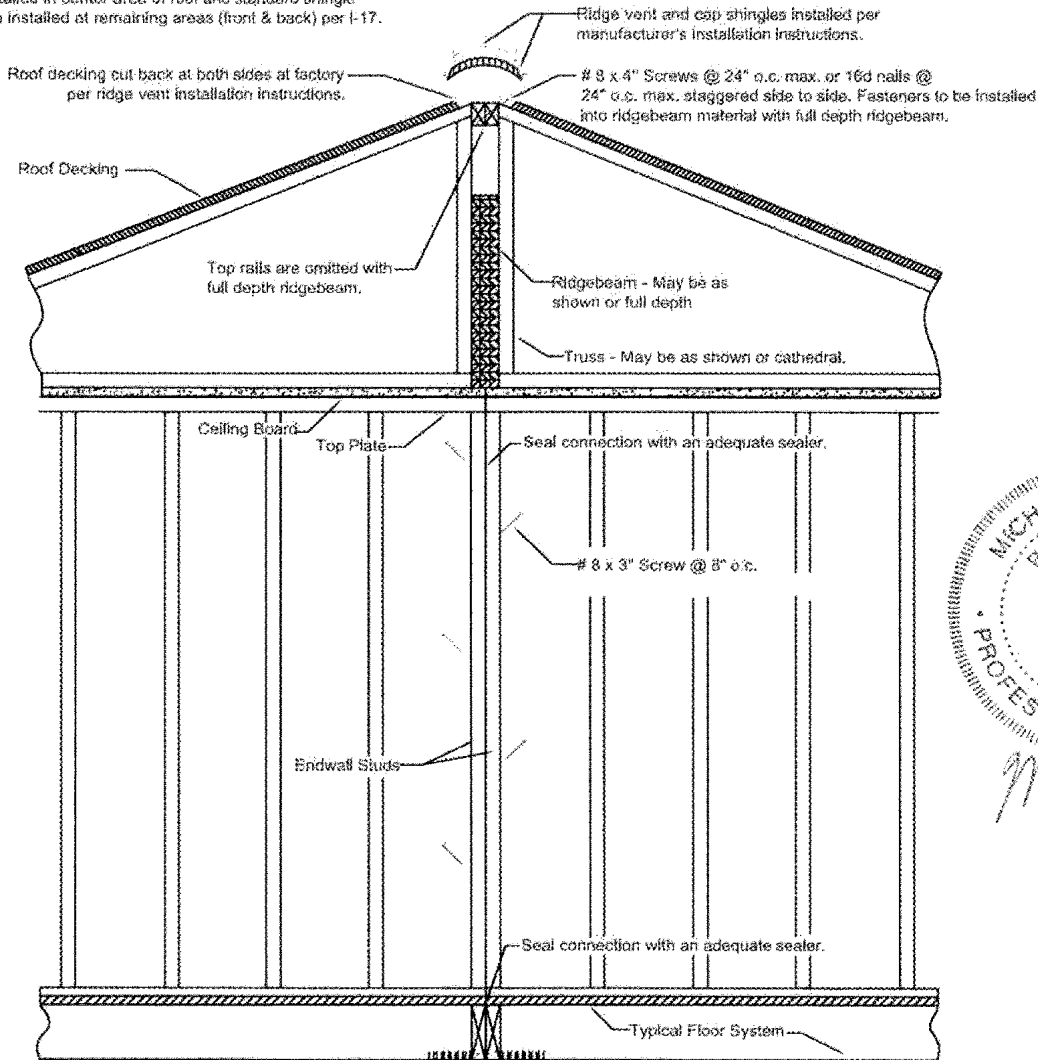


NOTES:

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.



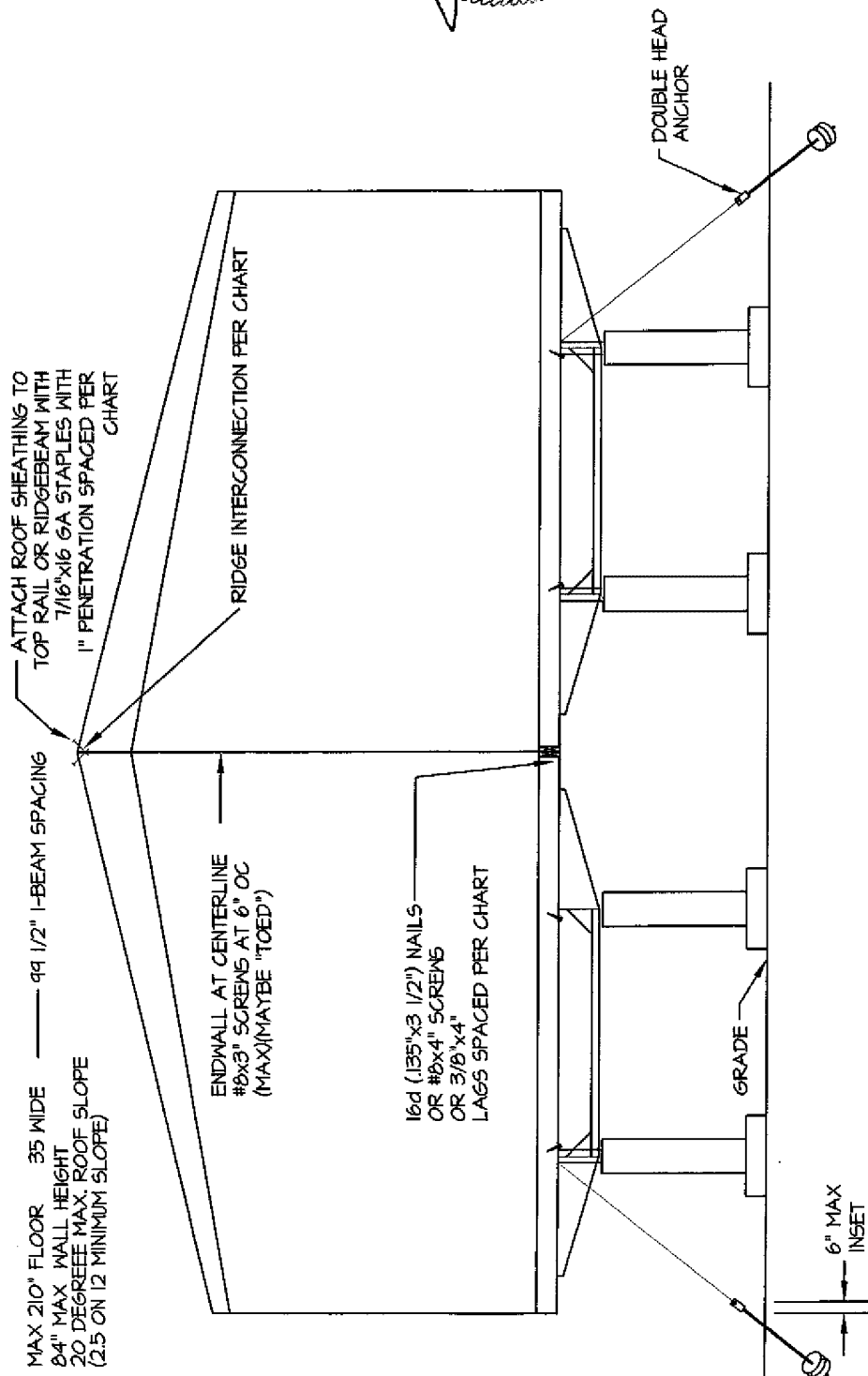
OPTIONAL:
1 1/2" X 27 GA. (.016" MIN.) STEEL STRAPS @ 96" O.C.
FASTENED INTO TRANSVERSE JOISTS
W/ 7/16" X 1 1/2" X 16 GA. STAPLES
- (8) WIND ZONE 2 & (10) WIND ZONE 3

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.

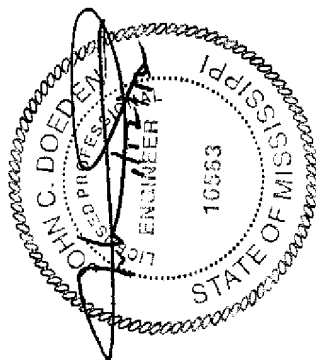
LEGACY HOUSING
ON-SITE CONNECTION DETAILS
WIND ZONE I (15 PSF LATERAL)



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

MAXIMUM FASTENER SPACING CHART 84" SIDEWALL HEIGHT		WIND ZONE
CONNECTION		I
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 SCREWS LAGS	32" o.c. 32" o.c. 38" o.c.

MAXIMUM UNIT LENGTH = 76'-0"

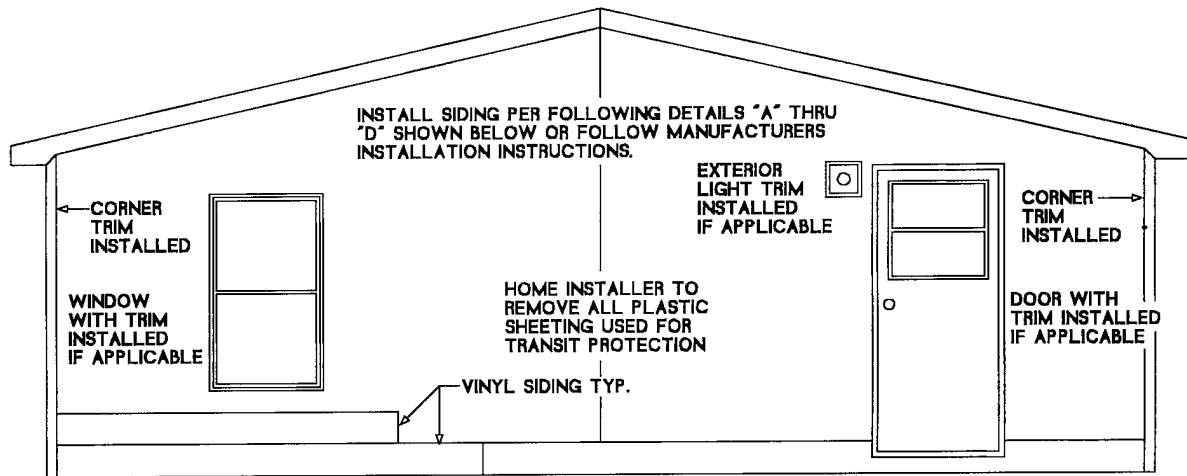


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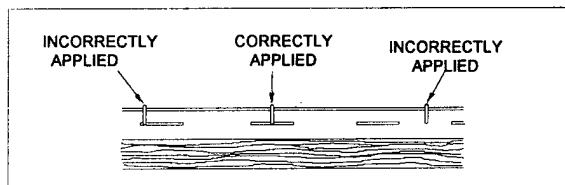


Jan 20, 2012

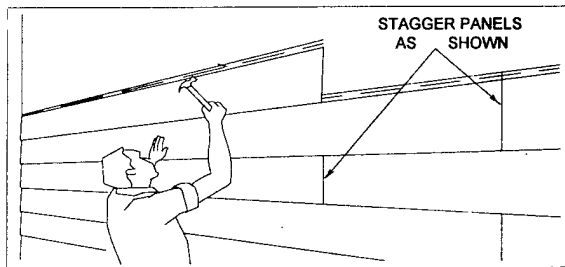
FIGURE 5.6 - FIELD APPLIED HORIZONTAL LAP SIDING



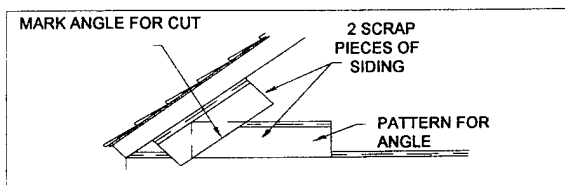
MULTI-SECTION HOMES WITH HORIZONTAL LAP SIDING MAY BE SHIPPED WITHOUT SIDING ON THE FRONT AND REAR END WALLS. THE FOLLOWING ITEMS WOULD BE INSTALLED: DOORS/WINDOW TRIM IF APPLICABLE AND CORNER TRIM; AND COVERED WITH PLASTIC SHEETING FOR TRANSIT. ALL SIDING, STARTER TRIM AND FASTENERS WILL BE SHIPPED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



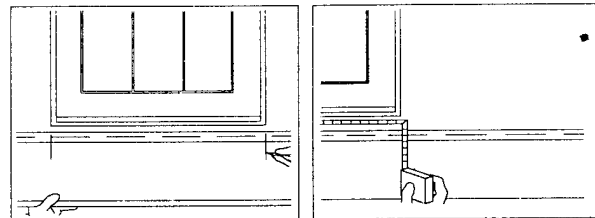
DETAIL A



DETAIL B



DETAIL C



DETAIL D

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 retensioning 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. During periods of frost heave, be prepared to adjust tension on the straps to take up slack.

5.5.2.2 Severe Wind Zones

Legacy Housing does not recommend installing your home in an area known to experience severe winds, or in any zone that requires greater wind-resisting capabilities than those for which it was designed (see Data Plate).

5.5.2.3 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

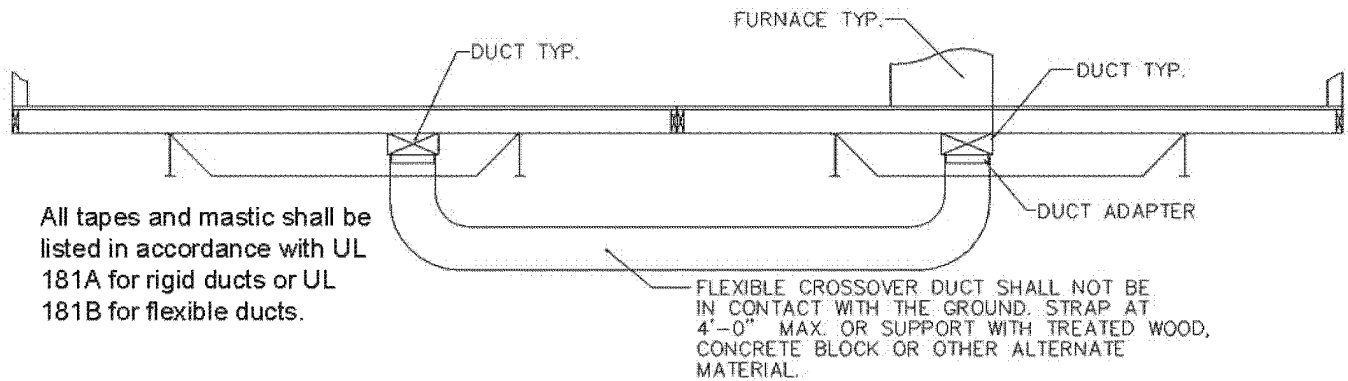
Steps, stairways and landings must be constructed and inspected according to applicable local building codes.

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.

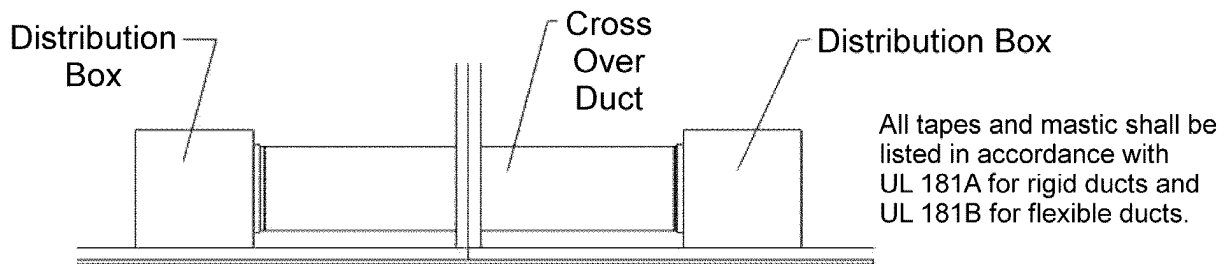


Figure 5.7 – CROSS OVER DUCT INSTALLATION



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

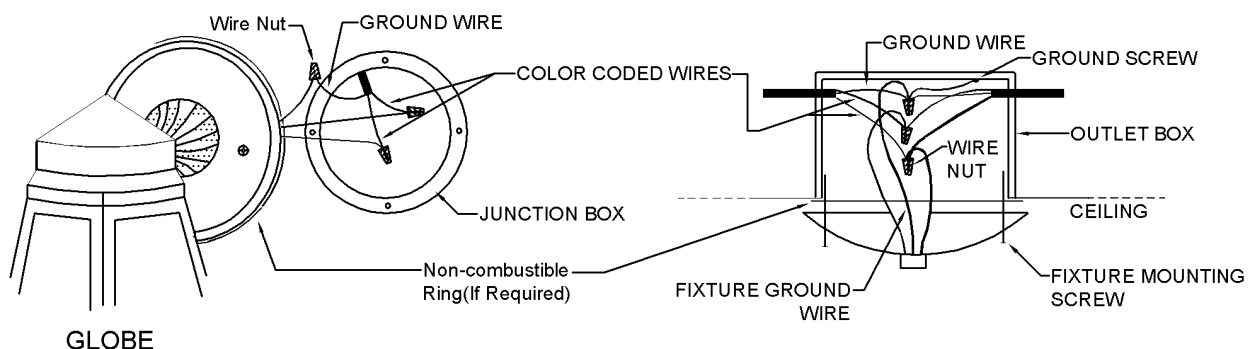
CARELESS INSTALLATION OF THE TELEPHONE AND CABLE TELEVISION LINES MAY BE HAZARDOUS.

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.

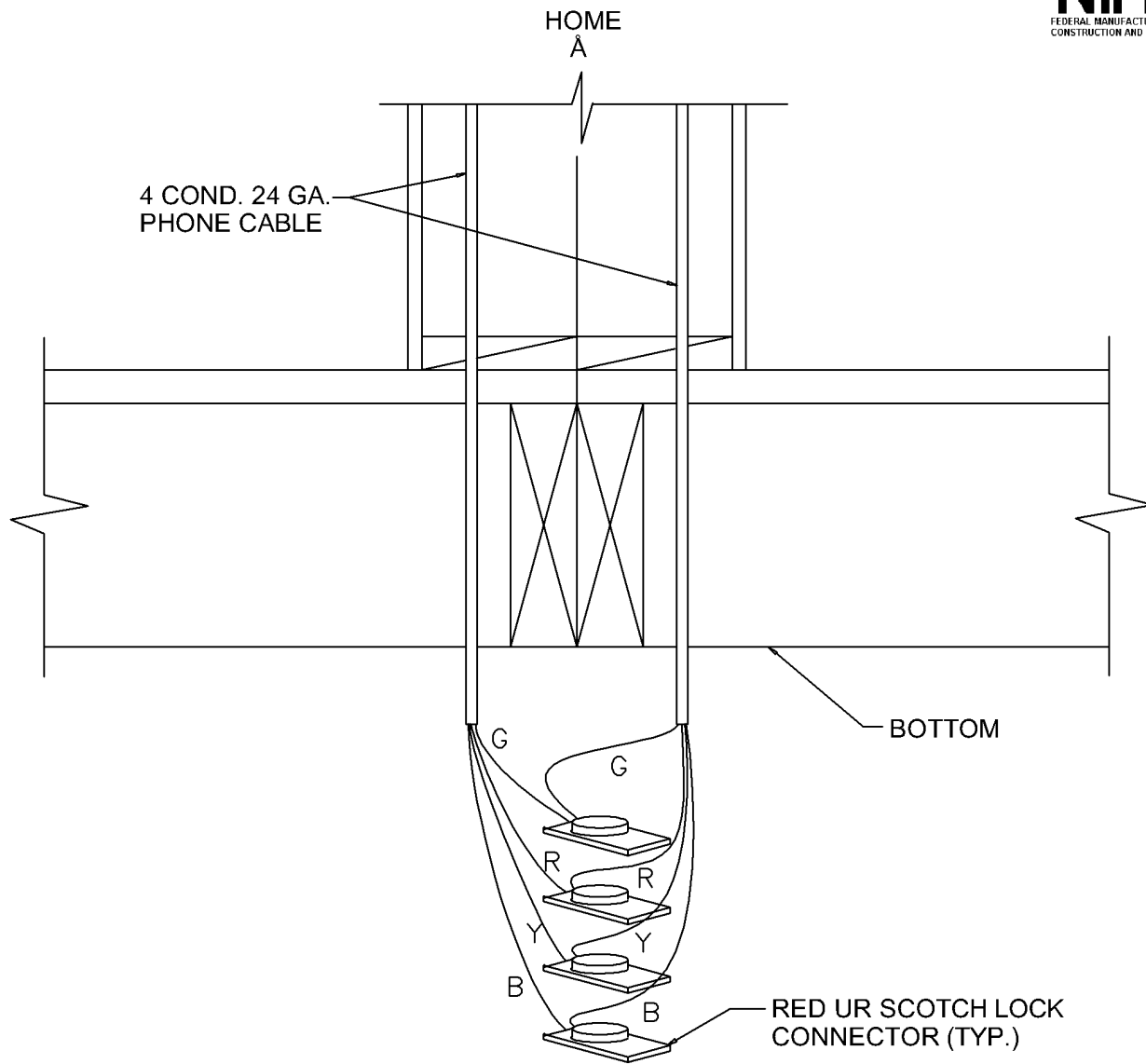
FIGURE 6.1 - INSTALLATION OF EXTERIOR LIGHTS



(a) EXTERIOR LIGHT FIXTURE

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

FIGURE 6.2 - TELEPHONE WIRING FOR MULTI-SECTION HOMES



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 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.

7.2.2 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 in 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.

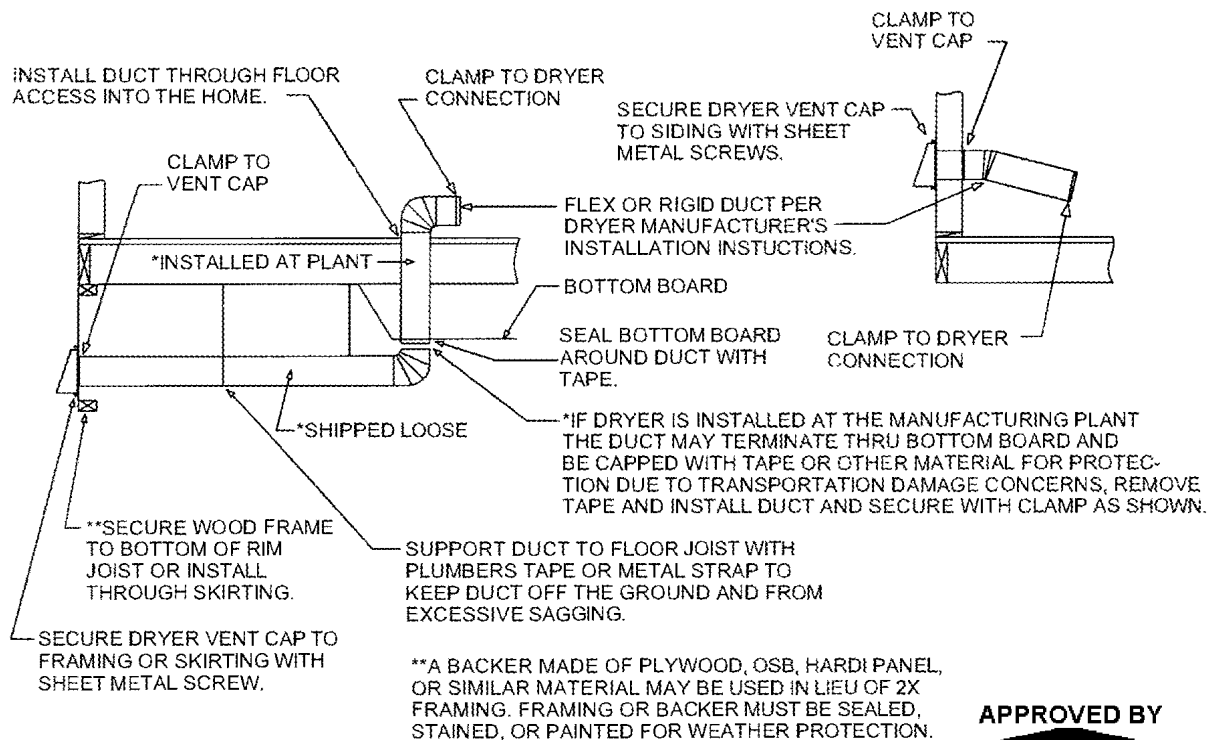
7.4 Range, Cook Top And Oven Venting

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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FEDERAL MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS

Revised
Aug 28, 2006

7.5.1 Water Heater Drain Pan

The water heater installed in your home has a plant installed drain pan. The drain line at the drain pan is routed through the floor of the home and terminates underneath the home below the water heater. It is the dealer's responsibility to ensure that the drain is routed to the EXTERIOR of the home. The necessary pipe, fittings, all purpose cement, support straps, screws, screen wire and wire tie 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 Pan

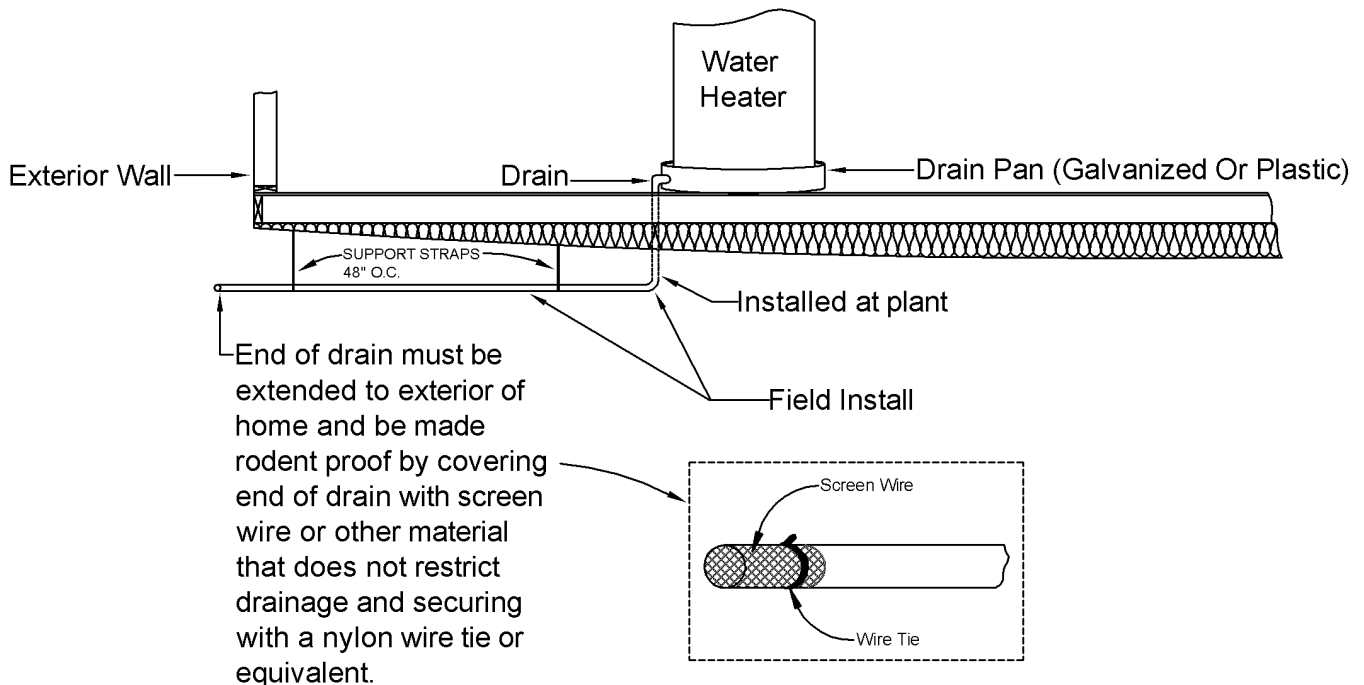
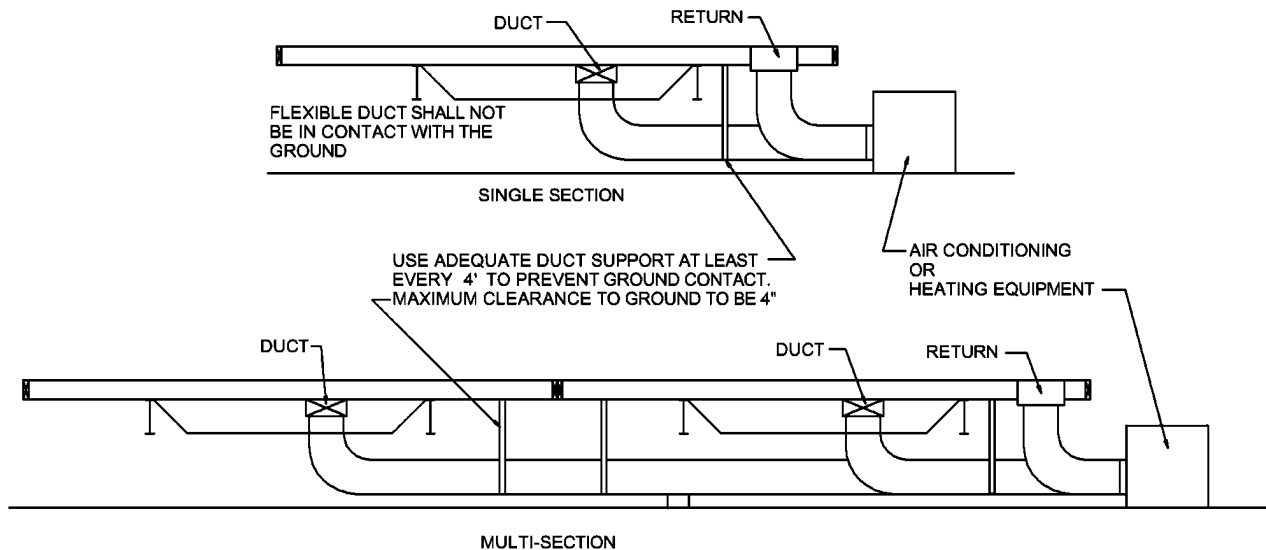


FIGURE 7.2 - TYPICAL INSTALLATION OF SELF-CONTAINED HEATING OR AIR CONDITIONING EQUIPMENT

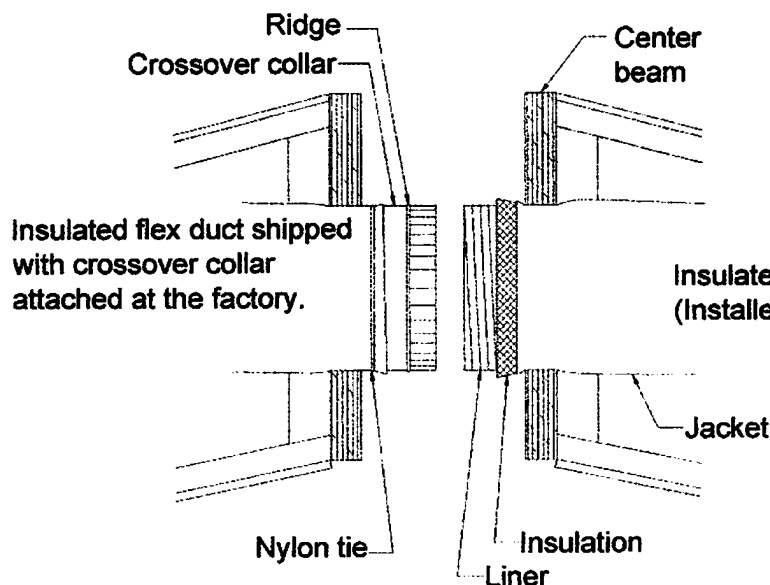


NOTE: Electrical connections made to energize air-conditioning equipment should be made only by qualified personnel. The completed installation must conform to Article 440 of the National Electric Code and applicable local codes. When the electrical connection is made at the junction box, the field installation 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:

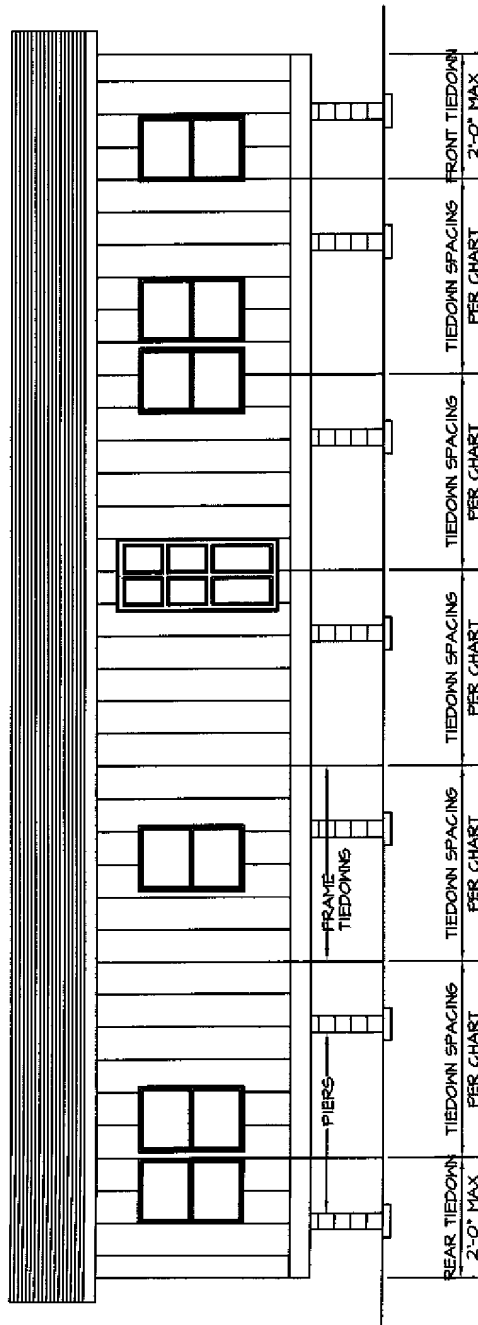
1. **Never cut a hole in the ridge beam over a clear span or column support.**
2. Pull the insulation and jacket back from the end to be connected. This will expose the inside liner.
3. Insert the collar about 3" into the duct liner.
4. Apply U.L. listed duct tape (U-181) around the liner at the collar.
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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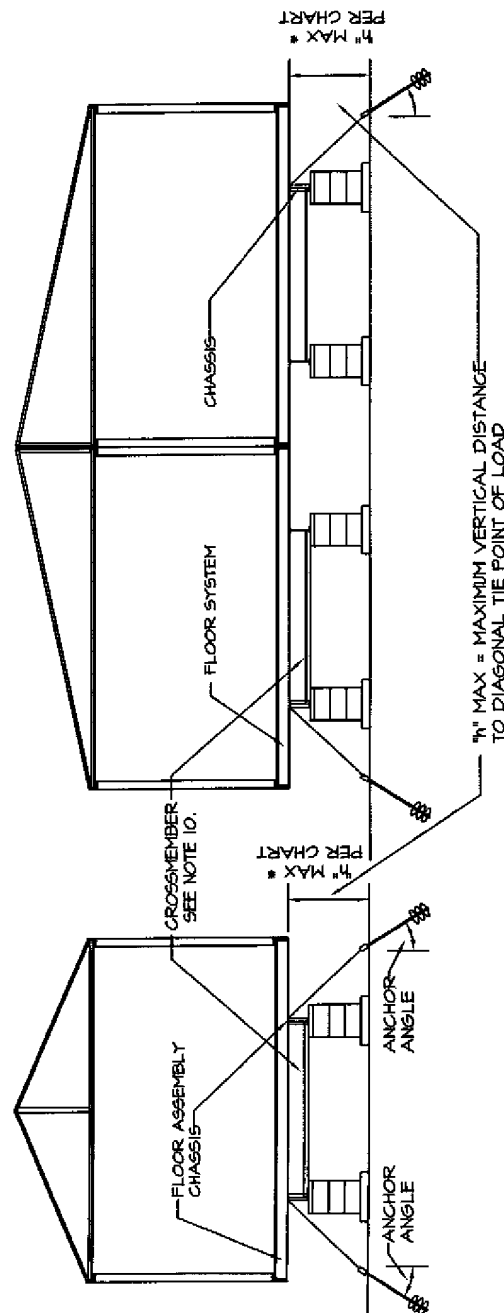
Overhead duct crossover detail

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



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

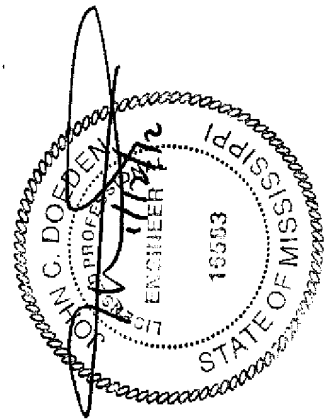
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Jan 20, 2012
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CONSTRUCTION AND SAFETY STANDARDS



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 ANCHOR INSTALLATION, AND 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 .085 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3949-91, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".



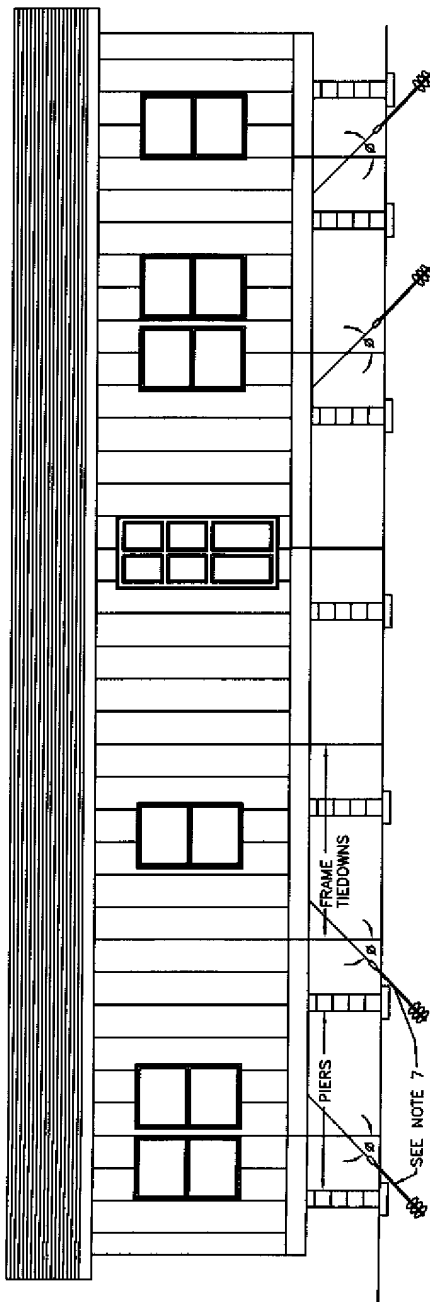
ROOF SLOPES OF A MAXIMUM OF 20 DEGREES

FRAME TIEDOWN SPACING CHART

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

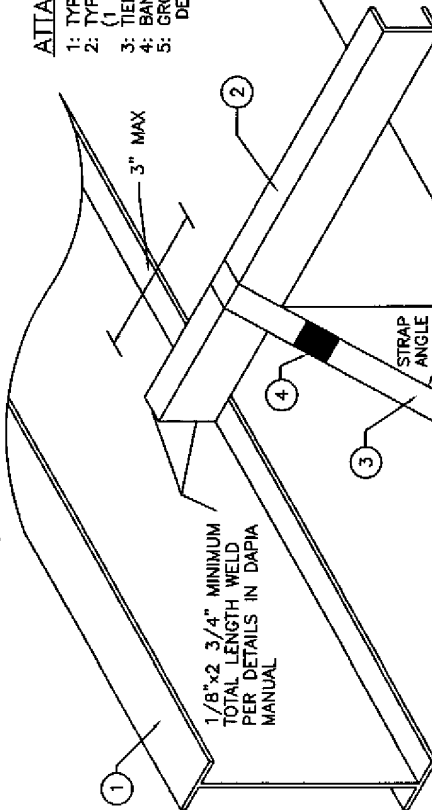
LEGACY HOMES WIND ZONE 1 (15 PSF LATERAL) TIEDOWN SYSTEM LONGITUDINAL TIEDOWN REQUIREMENTS

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



ATTACHMENT DETAIL

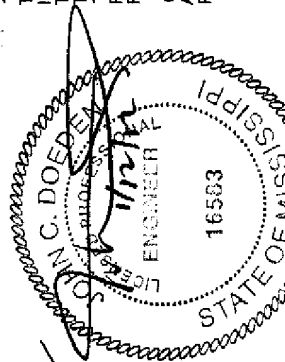
- 1: TYPICAL LONGITUDINAL I-BEAM
- 2: TYPICAL FRAME CROSSMEMBER
- 3: TIEDOWN STRAP
- 4: BANDING SEAL
- 5: GROUND ANCHOR - INSTALLED TO FULL DEPTH OF ANCHOR HEAD



1/8"x2 3/4" MINIMUM
TOTAL LENGTH WELD
PER DETAILS IN DAPIA
MANUAL

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 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 LOOPEL 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.



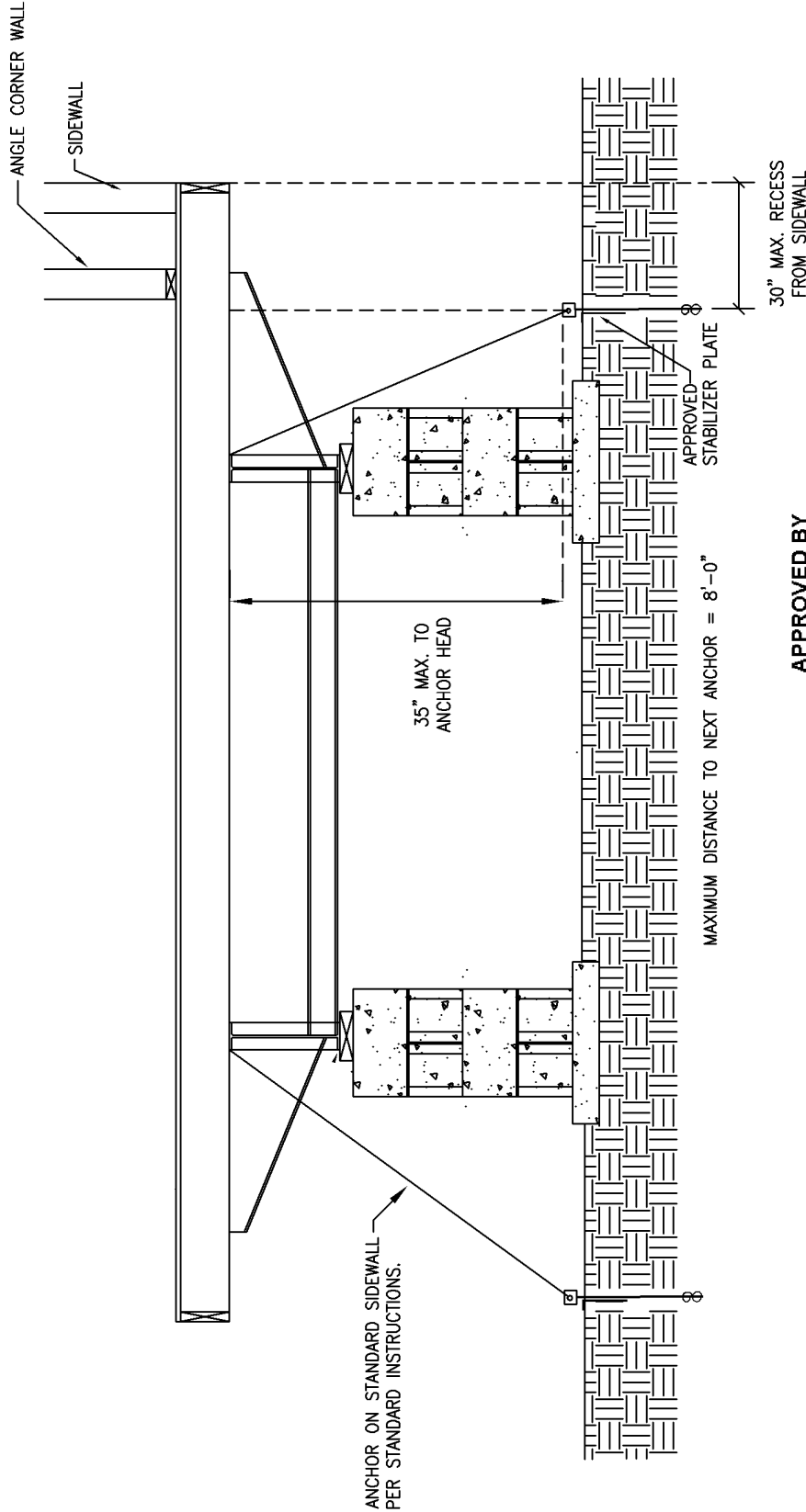
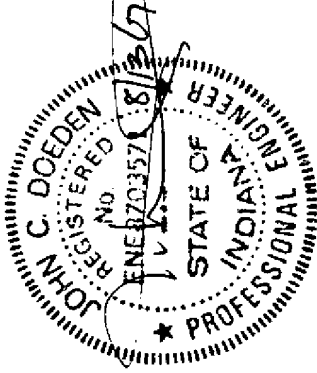
ROOF SLOPE NOT EXCEEDING 20 DEGREES DOUBLE WIDE UNITS (ALTERNATE WITH BLOCK PIERS*)

FLOOR WIDTH	MINIMUM UNIT LENGTH		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)		
	SINGLE STACK	DOUBLE STACK		FLOOR WIDTH	MINIMUM QUANTITY EACH END OF EACH SECTION	MINIMUM STRAP ANGLE (DEGREES)
30'-8" DOUBLE WIDE	54'-0"	54'-0"	0	184" DOUBLE WIDE*	2	35
35'-0" DOUBLE WIDE		59'-0"	0	184" DOUBLE WIDE*	2	44
15'-4" SINGLE WIDE	70'-0"		0	184" SINGLE WIDE*	2	30
17'-8" SINGLE WIDE	76'-0"		0	210" SINGLE WIDE*	2	36

* 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.

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

SPECIAL NOTE:
A COPY OF THIS DRAWING
IS TO BE SHIPPED WITH
THE HOME AS PART OF
THE INSTALLATION INSTRUCTIONS
MANUAL



APPROVED BY
NIA INC.
Aug 27, 2007
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

LEGACY HOUSING

GENERAL NOTES

1. THIS DETAIL APPLIES ONLY TO CUT CORNERS. ALL OTHER ANCHORS ARE TO BE INSTALLED ACCORDING TO THE STANDARD METHOD OF TIEDOWN.
2. DIAGONAL TIE IS TO BE FURNISHED AND INSTALLED BY INSTALLER.
3. WIND ZONE 1.
4. MAXIMUM DISTANCE TO NEXT TIEDOWN PER TABLE
5. ANCHORS RATED AT 4725# ULTIMATE LOAD MUST NOT BE LOCATED WITHIN 4'-0" OF ANY OTHER ANCHORS
6. 184" UNIT WIDTH WITH 99 1/2" BEAM SPACING.
7. STEEL BRACKETS, WASHERS AND FASTENERS PENETRATING OR IN CONTACT WITH PRESSURE TREATED LUMBER TO BE G185 OR ZMAX GALVANIZED COATED OR STAINLESS STEEL.

THIS DOCUMENT HAS BEEN PREPARED BY
HOUSING DESIGN GROUP
1885 S. QUEBEC WAY #E15
DENVER, CO 80231 (303)696-8758

REVISIONS	
NO	DESCRIPTION

TIE DOWN AND

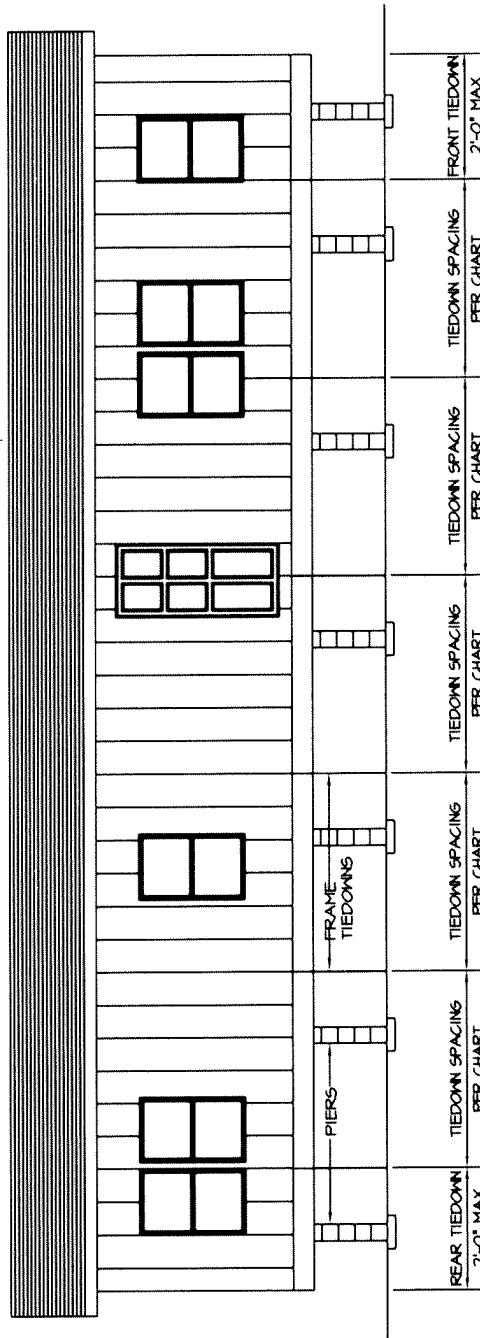
ANCHORING DETAIL

DRAWN BY: R. ULLMAN 06/30/97

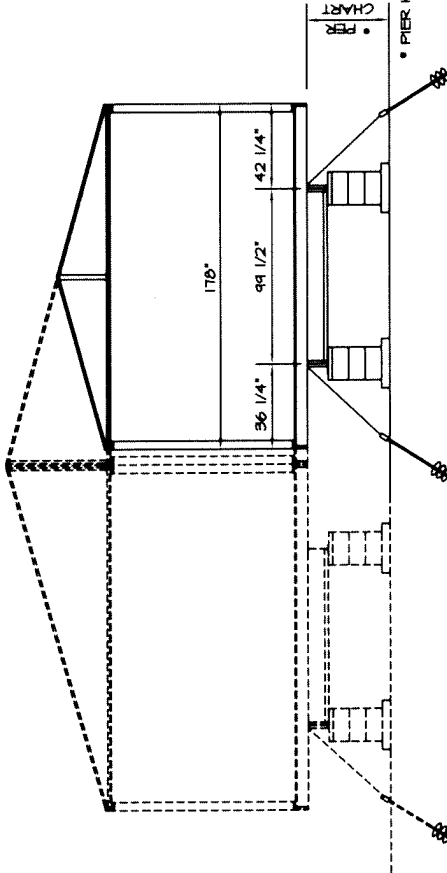
CHECKED BY:

DRAWING NO. 1-25.3

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



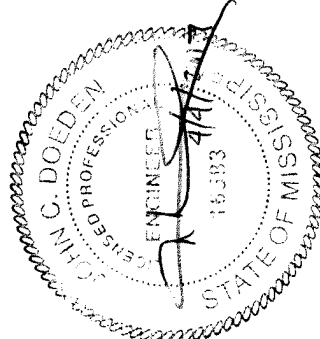
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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 44 1/2" BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 11'-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 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".

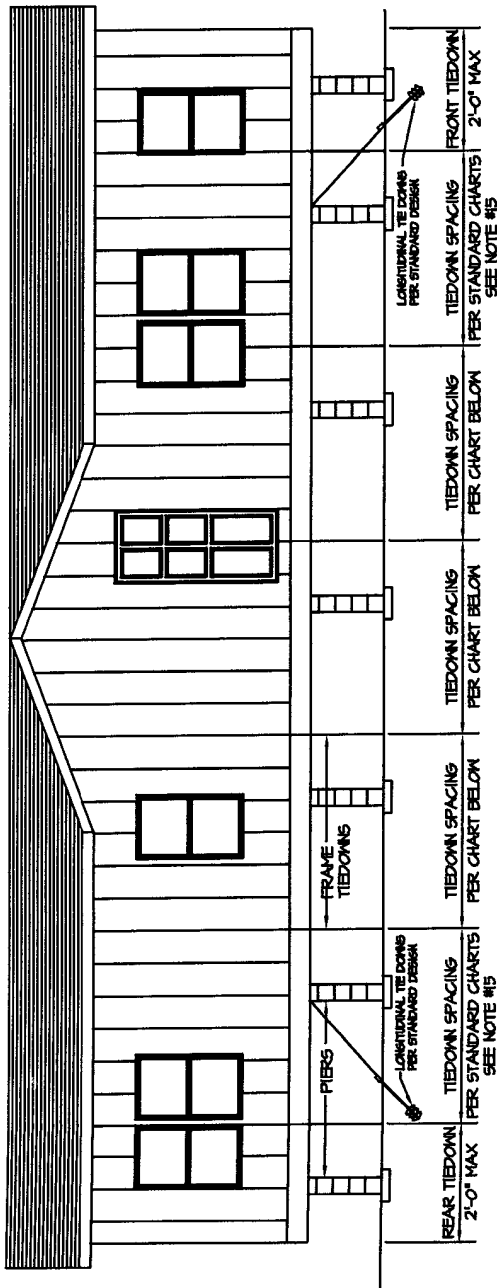


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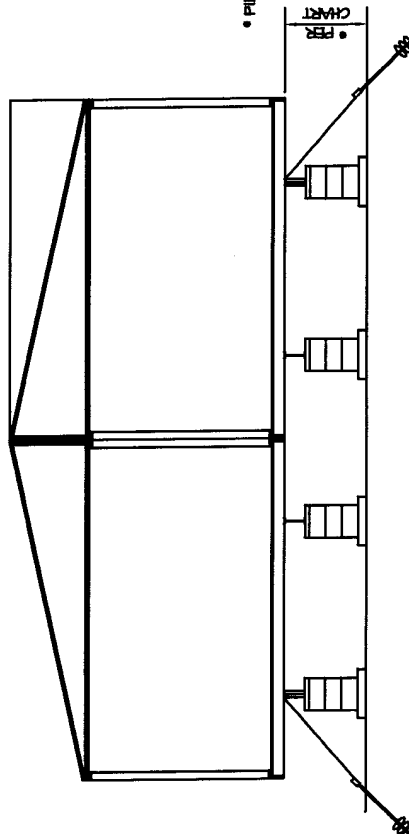
MAXIMUM ROOF SLOPE = 4:3 ON 12 (20 DEGREES)

FRAME TIEDOWN SPACING CHART			
FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX. PIER HEIGHT
14'-10" SINGLE	8" MAX	10'-0" 8'-0"	44" 66"

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

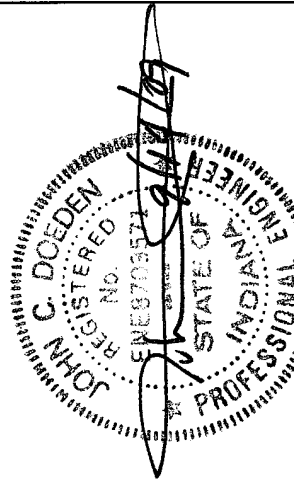


TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTION SHOWING TIEDOWNS

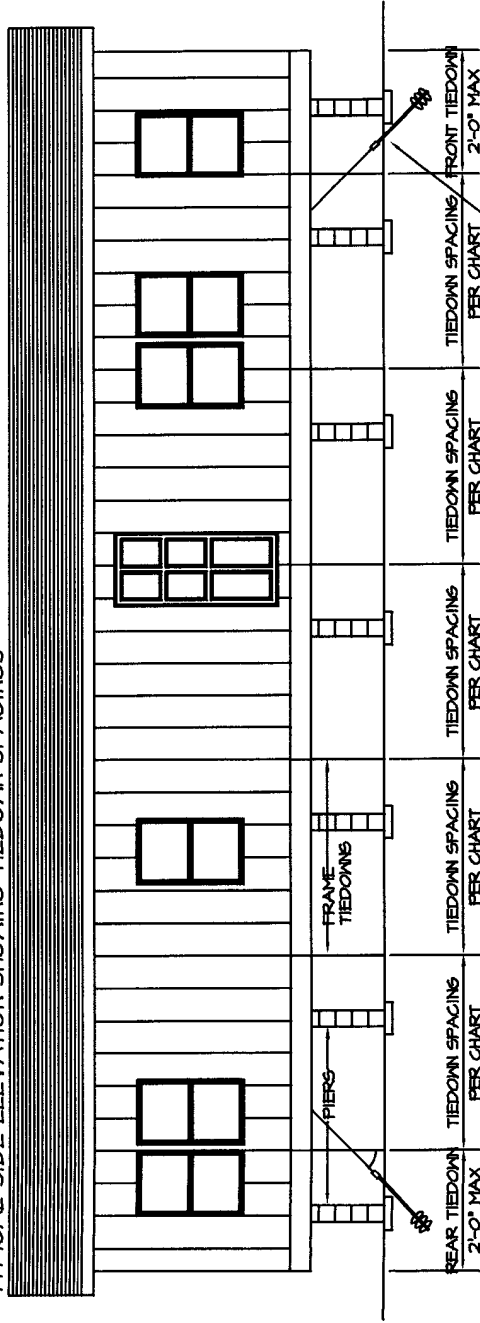
- NOTES:
1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
 2. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS. HOWEVER, IF OVER-THE-ROOF TIEDOWNS ARE REQUIRED BY THE LOCAL JURISDICTION, THEY MAY BE INSTALLED.
 3. OVER-THE-ROOF TIES (WHEN REQUIRED) 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 91 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 D3953-91.
 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 D3953-91. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
 15. 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	EAVE OVERHANG	TIEDOWN SPACING	MAX. PIER HEIGHT
30'-8" DOUBLE	8" MAX	8'-0" 9'-0" 10'-0"	40" 32" 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 TIEDOWNS.
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 D3953-41.
14. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS. 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 D3953-41. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.

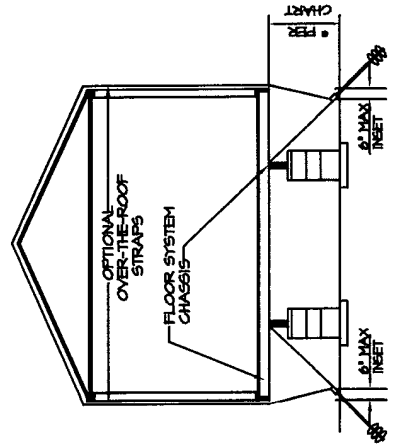
APPROVED BY



May 20, 2010

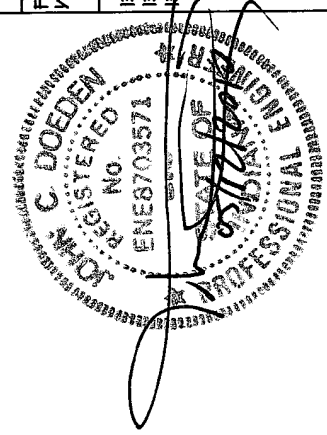
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

TYPICAL CROSS SECTION SHOWING TIEDOWNS



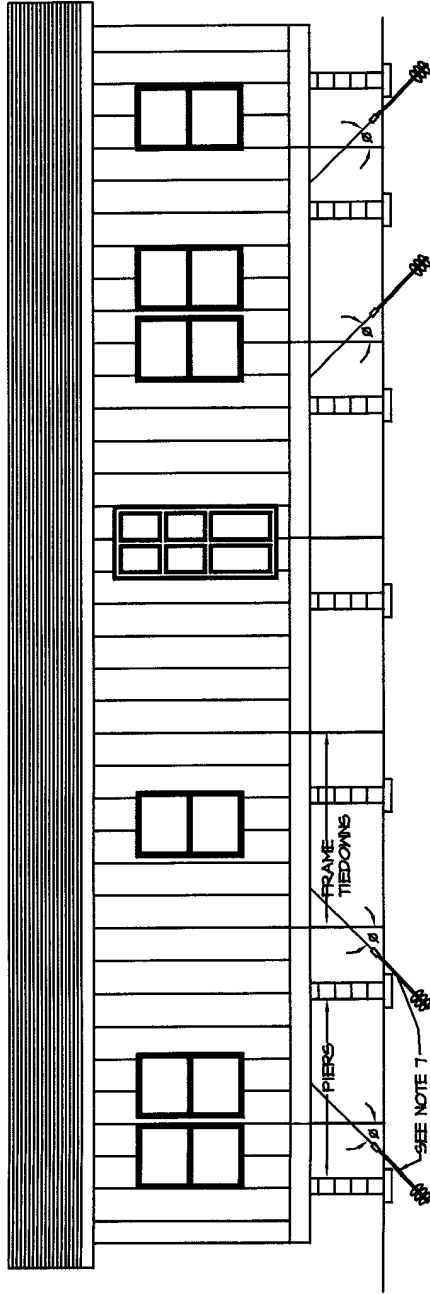
* PIER HEIGHT INCLUDES DEPTH OF L-BEAM

FRAME TIEDOWN SPACING CHART				
FLOOR WIDTH	EAVE OVERHANGS (MAXIMUM)	ROOF SLOPE (MAXIMUM)	TIEDOWN SPACING	MAX * PIER HEIGHT
13'-0" SINGLE	3" MAX	4/12	12'-0"	40"
13'-0" SINGLE	3" MAX	4/12	10'-0"	54"
13'-0" SINGLE	3" MAX	4/12	8'-0"	70"



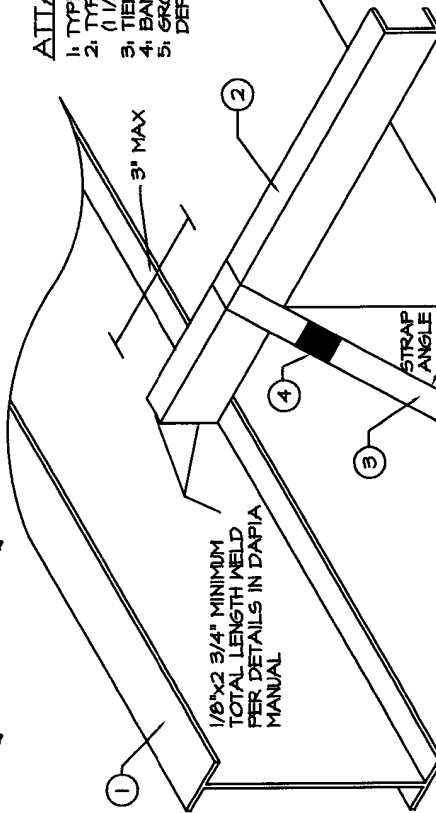
LEGACY HOMES
WIND ZONE I (15 PSF LATERAL)
TIEDOWN SYSTEM
LONGITUDINAL TIEDOWN REQUIREMENTS

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

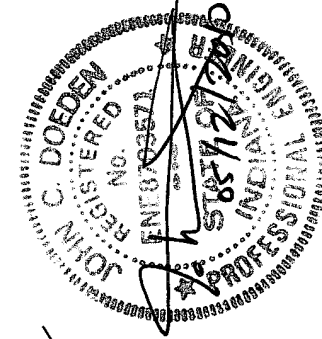


ATTACHMENT DETAIL

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



1/8"x2 3/4" MINIMUM
TOTAL LENGTH WELD
PER DETAILS IN DAPIA
MANUAL



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 4750# & 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 D3948-01, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
12. STRAPPING TO BE TYPE I, FINISH B, GRADE 1 STEEL, STRAPPING 1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3948-01, 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)	ROOF SLOPE NOT EXCEEDING 20 DEGREES NO RESTRICTION AS TO PIER TYPE OR HEIGHT (EXCEPT AS LIMITED BY OTHER DETAILS)	
	SINGLE STACK	DOUBLE STACK		FLOOR WIDTH	MINIMUM STRAP ANGLE (DEGREES)
13'-0" SINGLE WIDE	50'-0"	50'-0"	0	16'-4" SINGLE WIDE*	30

* 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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NIA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

May 21, 2010

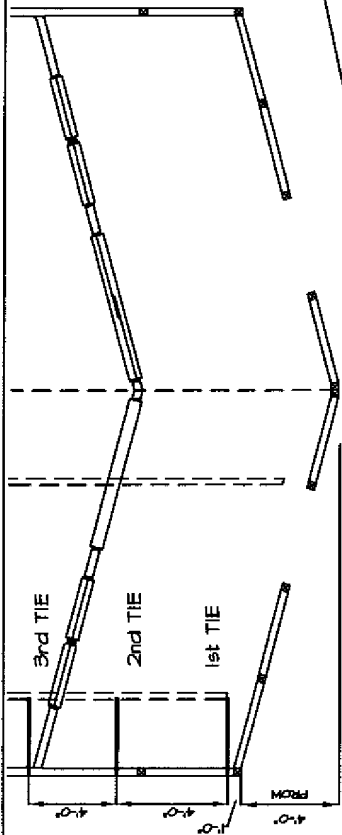
I-25.7

APPROVED BY



Mar 09, 2011

FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



POST AT END

PORCH POST

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

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

H MAX = 64

SEE DETAIL

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

DOUBLE HEAD
ANCHOR

INSTALL 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

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

TYPICAL COLUMN/POST
LOCATION

035"x1-1/4" HURRICANE
ANCHOR STRAP WITH
PREDRILLED HOLES
ATTACHED TO RIM WITH
#8x1-1/2" SCREWS:
(5) FOR WIND ZONE 1
(8) FOR WIND ZONE 2
(10) FOR WIND ZONE 3
STRAP COILED FOR SITE
INSTALLATION

DETAIL

TYPICAL COLUMN/POST
LOCATION

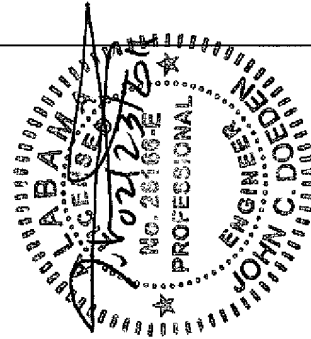
1-1/2"x1-1/2"x4"x11 GA
ANGLE IRON INSTALLED OR
SHIPPED LOOSE FOR SITE
INSTALLATION WITH (2) HOLES
FOR 5/16"x3" LAG SCREWS
(FULL THREAD)

DETAIL (ALTERNATE)

STRAP CONNECTION AT
POST PER EITHER
ATTACHMENT DETAIL EACH
SIDE OF CENTER LINE.

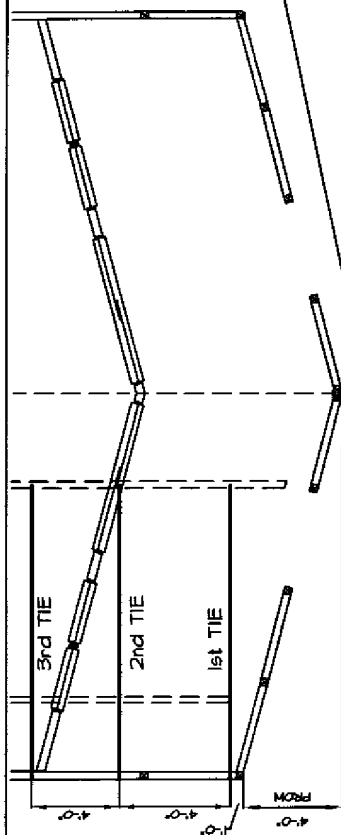
POST STRAP AT EACH SIDE OF
CENTERLINE TO CONNECT TO
DOUBLE HEAD ANCHOR
WITH MINIMUM 3150#
DESIGN CAPACITY

CENTERLINE TIES



LEGACY HOUSING
PORCH

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



PORCH POST

HALF PORCH THIS SIDE

FOR 1/2 WIDTH PORCH INSTALL
 1 1/2"x26 GA STRAPS AT 16"
 ON CENTER IN PARTIAL PORCH
 AREA WITH (10) 7/16"x16 GA
 STAPLES EACH END WITH 1"
 MINIMUM PENETRATION

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

SEE DETAIL

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

VERTICAL TIE ONLY
 AT EACH PORCH POST
 12" MAX FROM POST
 CENTERLINE STARTING
 12" FROM CORNER

DOUBLE HEAD
 ANCHOR
 INSTALLED AT SPACING IN TABLE

H MAX PER CHART
 TIEDOWN SPACING PER CHART

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

POST STRAP AT EACH SIDE OF
 CENTERLINE TO CONNECT TO
 DOUBLE HEAD ANCHOR
 WITH MINIMUM 3150#
 DESIGN CAPACITY

1-1/2"x1-1/2"x4"x11 GA
 ANGLE IRON INSTALLED OR
 SHIPPED LOOSE FOR SITE
 INSTALLATION WITH (2) HOLES
 FOR 5/16"x3" LAG SCREWS
 (FULL THREAD)

TYPICAL COLUMN/POST
 LOCATION

DETAIL (ALTERNATE)

RECESSED WALL WITH
 PARTIAL PORCH
 OR MARRIAGE WALL
 WITH 1/2 WIDTH PORCH
 (MAX. WALL HEIGHT = 114")

DETAIL

.035"x1-1/4" HURRICANE
 ANCHOR STRAP WITH
 PREDRILLED HOLES
 ATTACHED TO RIM WITH
 #8x1-1/4" SCREWS
 PER TABLE
 STRAP COILED FOR SITE
 INSTALLATION

TYPICAL COLUMN/POST
 LOCATION

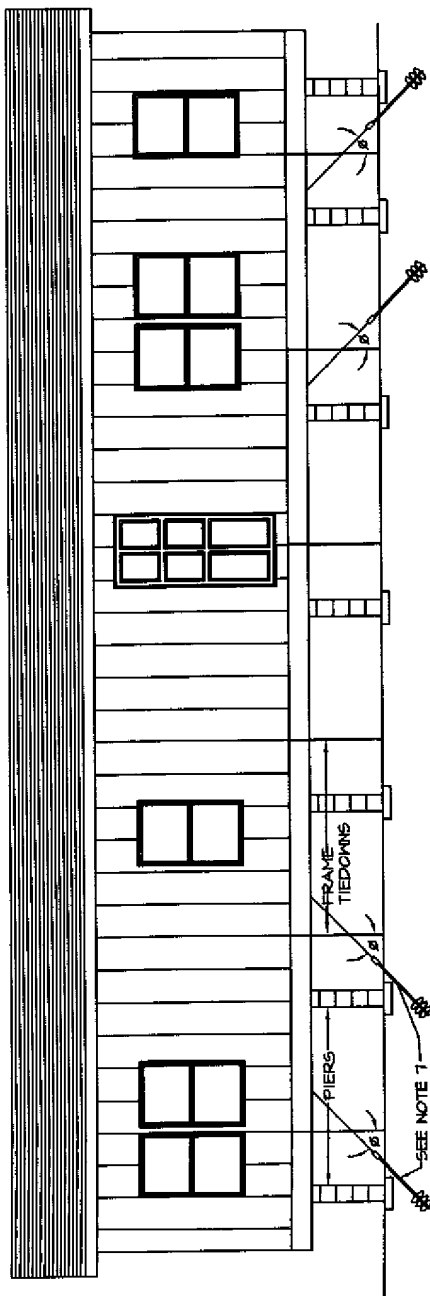
FLOOR	WIND ZONE	WIND WIDTH	TIEDOWN SPACING	H MAX	NUMBER OF SCREWS	
					1st TIE	2nd, 3rd & CENTERLINE TIES
I	I	184"	4'-0"	72"	6	3
II	II		4'-0"	68"	8	8
III	III		4'-0"	48"	14	10

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

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

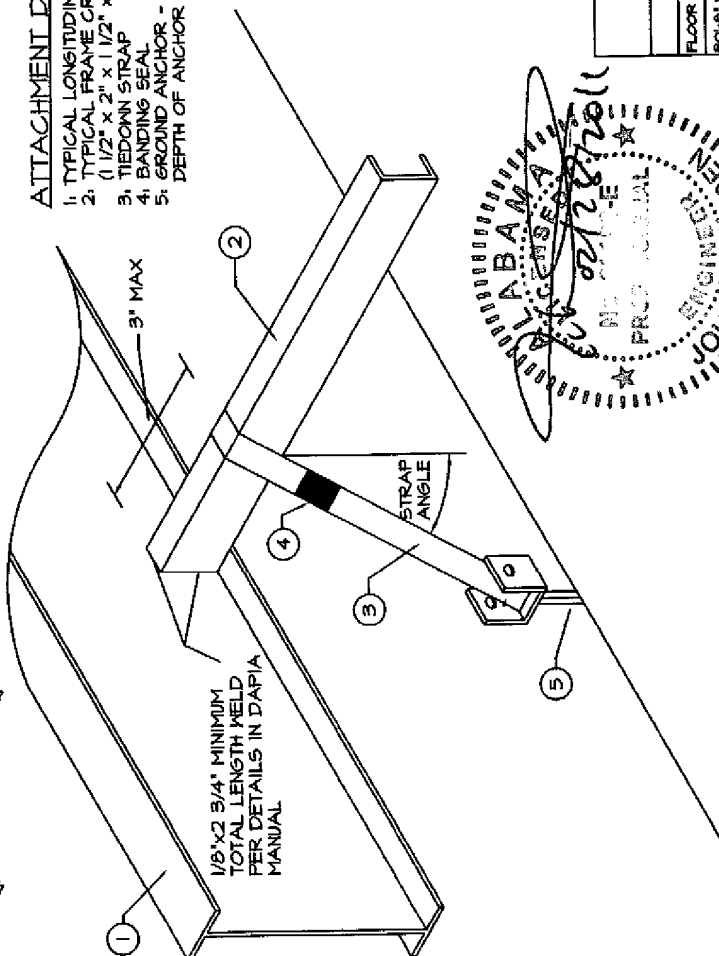
- NOTES:
1. A COPY OF THIS DRAWING IS TO BE INCLUDED WITH THE INSTALLATION INSTRUCTIONS.
 2. THIS DESIGN FOR 49 1/2" I-BEAM SPACING.
 3. THIS DESIGN FOR 184" WIDTH PER SECTION.

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



1/8"x2 3/4" MINIMUM
TOTAL LENGTH WELD
PER DETAILS IN DAF
MANUAL

APPROVED BY

NTA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

far 23, 2011

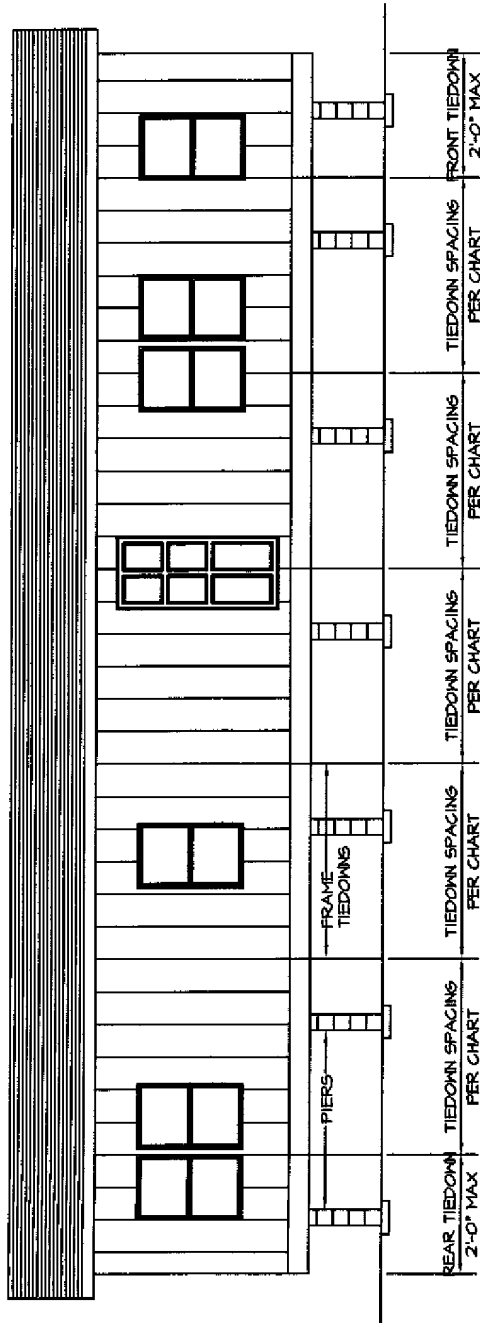
ROOF SLOPE NOT EXCEEDING 20 DEGREES (ALTERNATE WITH BLOCK PIERS)			ROOF SLOPE NOT EXCEEDING 20 DEGREES NO ALTERNATE WITH BLOCK PIER TYPE OR HEIGHT (EXCEPT AS LIMITED BY OTHER DETAILS)			
FLOOR WIDTH	MINIMUM UNIT LENGTH		NUMBER OF LONGITUDINAL TIES (TOTAL EACH END)	FLOOR WIDTH	MINIMUM QUANTITY EACH END OF EACH SECTION	MINIMUM STRAP ANGLE (DEGREES)
	SINGLE STACK	DOUBLE STACK				
30'-6" DOUBLE WIDE	50'-0"	50'-0"	0	104" SINGLE WIDE*	2	32
	52'-0"	52'-0"	2	104" DOUBLE WIDE*	2	20
35'-4" SINGLE WIDE	40'-0"	40'-0"	0			
1 TA66	27'-6"	27'-6"	2			
* FOR USE IN ABOVE TABLE: SINGLE STACK BLOCK PIERS = 24" MAXIMUM HEIGHT DOUBLE STACK BLOCK PIERS = 18" MAXIMUM HEIGHT SINGLE STACK BLOCK PIERS WITH 40 DEGREES DOUBLE STACK BLOCK PIERS WITH 40 DEGREES			*MAY REDUCE TO 0 OR 1 LONGITUDINAL TIES PER SECTION PER INSTRUCTIONS PER CHART TO LEFT			

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

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

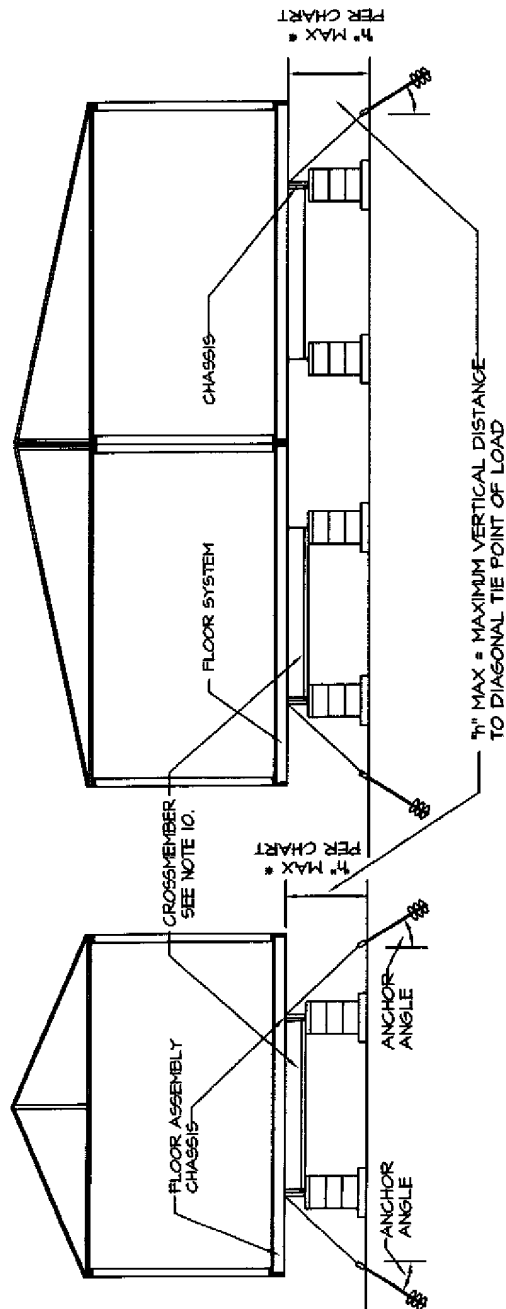
I-25.10

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



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

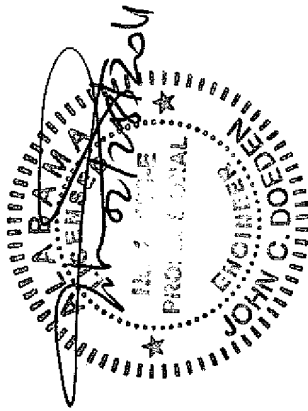
APPROVED BY
NIA INC.
Mar 23, 2011
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

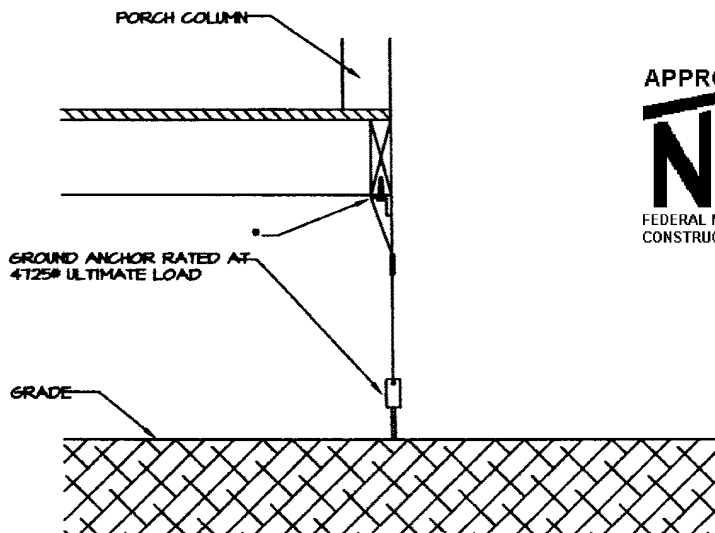
* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

- 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 14 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 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 D3948-91, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".



ROOF SLOPES OF A MAXIMUM OF 20 DEGREES

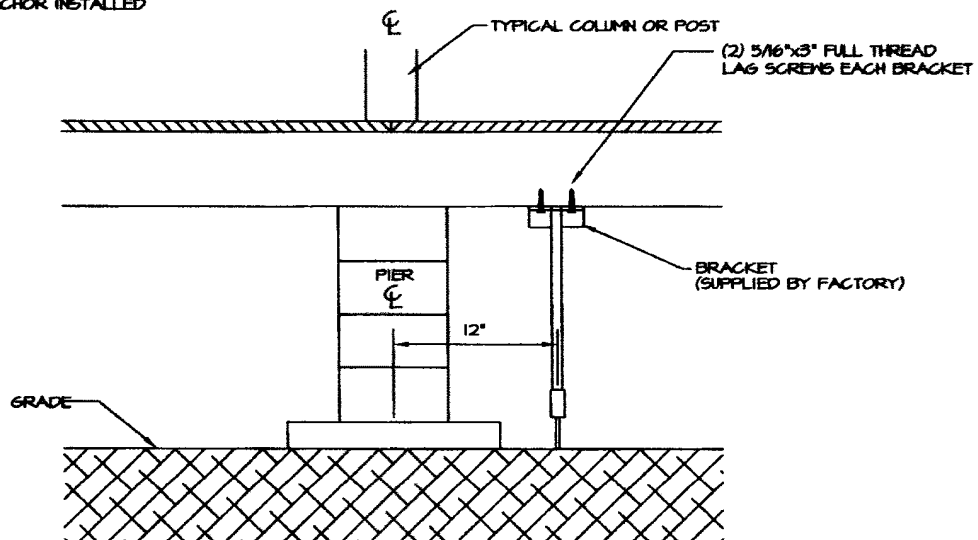
FRAME TIEDOWN SPACING CHART				
FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX * PIER HEIGHT	
15'-4" SINGLE	8" MAX	10'-0"	48"	66"
15'-4" SINGLE	8" MAX	8'-0"	48"	66"
30'-8" DOUBLE	8" MAX	10'-0"	48"	66"
30'-8" DOUBLE	8" MAX	8'-0"	48"	66"



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.



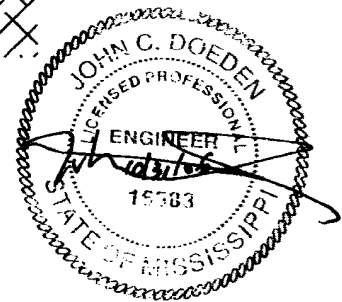
SIDE VIEW

NOTE:
BRACKETS AND LAGS IN CONTACT WITH
PRESSURE TREATED (ACQ) LUMBER TO BE 6105
GALVANIZED OR MEET ASTM A153 AND ASTM
A653 OR BE STAINLESS STEEL.

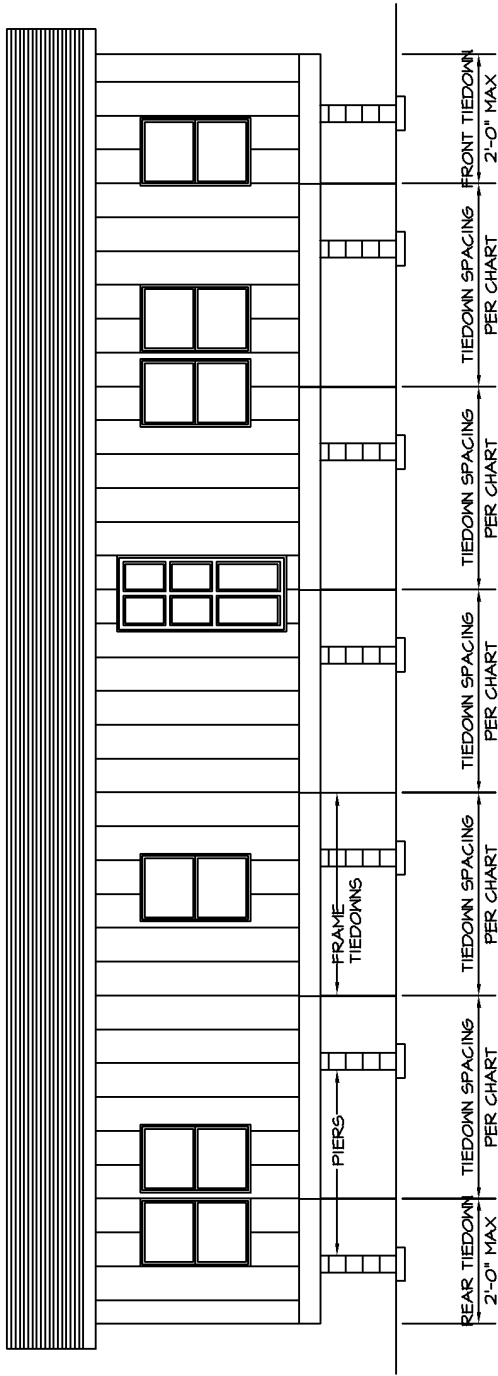
PORCH TIEDOWN ON-SITE CONNECTION DETAILS

APPROVED BY

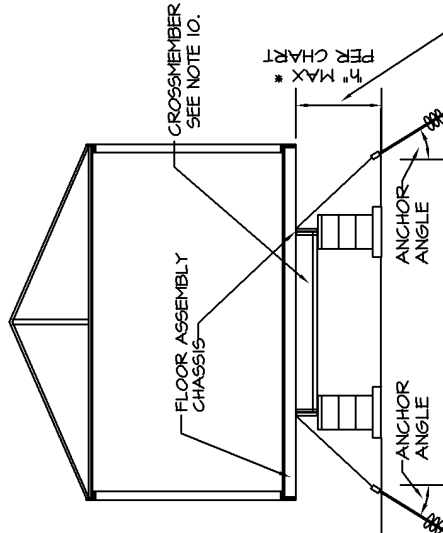
NIA INC. Apr 04, 2011
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



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



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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 SIDENAIL 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 SIDENAIL 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 D3943-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
 14. STRAPPING TO BY TYPE I, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953-91, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

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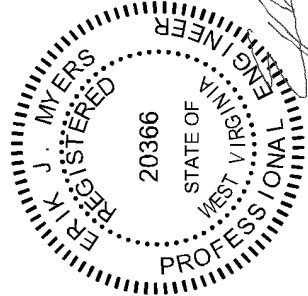
Jun 30, 2015

FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

ROOF SLOPES OF A MAXIMUM OF 20 DEGREES

FRAME TIEDOWN SPACING CHART

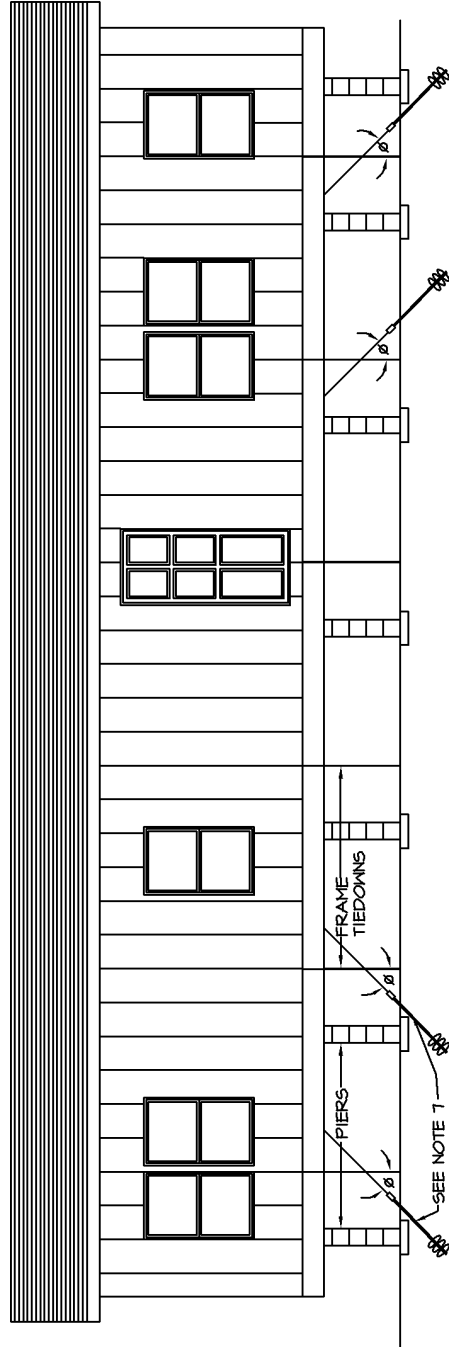
FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	MAX * PIER HEIGHT
15'-4" SINGLE	12" MAX	10'-0"	54"



Jun 16, 2015

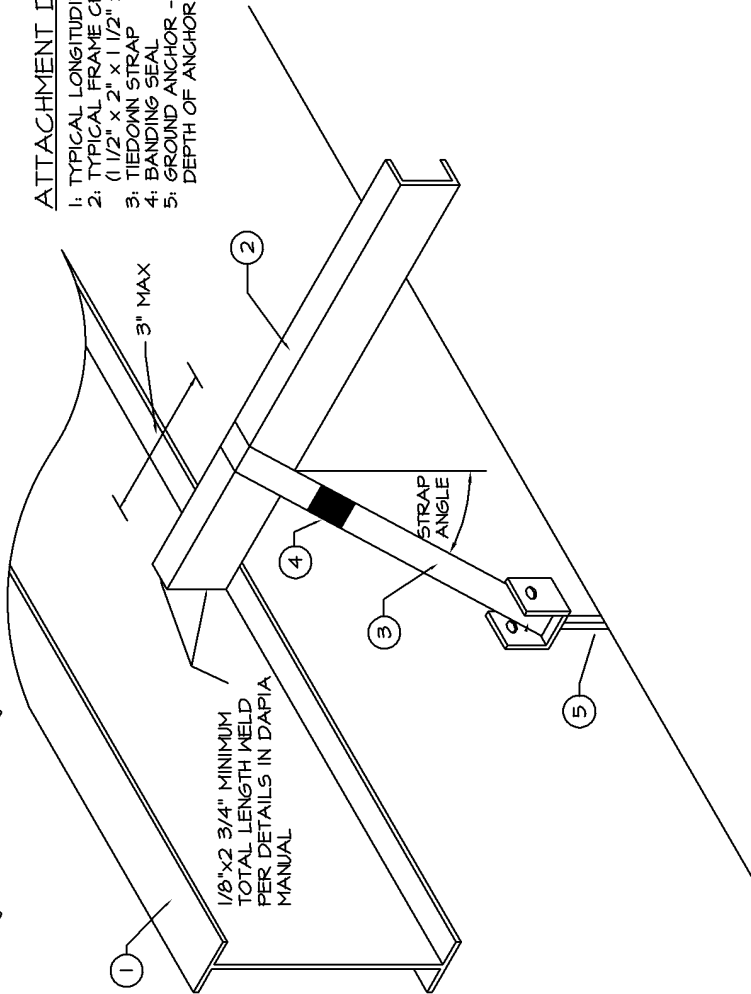
LEGACY HOMES
WIND ZONE I (15 PSF LATERAL)
TIEDOWN SYSTEM
LONGITUDINAL TIEDOWN REQUIREMENTS

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



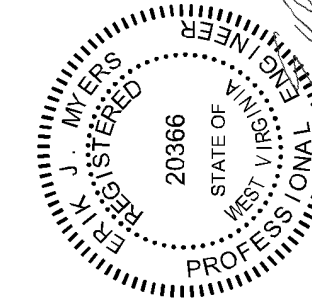
ATTACHMENT DETAIL

- 1: TYPICAL LONGITUDINAL I-BEAM
(1 1/2" x 2" x 1 1/2" x 13 GA MINIMUM)
- 2: TIEDOWN STRAP
- 3: BANDING SEAL
- 4: 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 SHOULD 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. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS, STRAPPING TO BY TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION 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


 Jun 30, 2015
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS



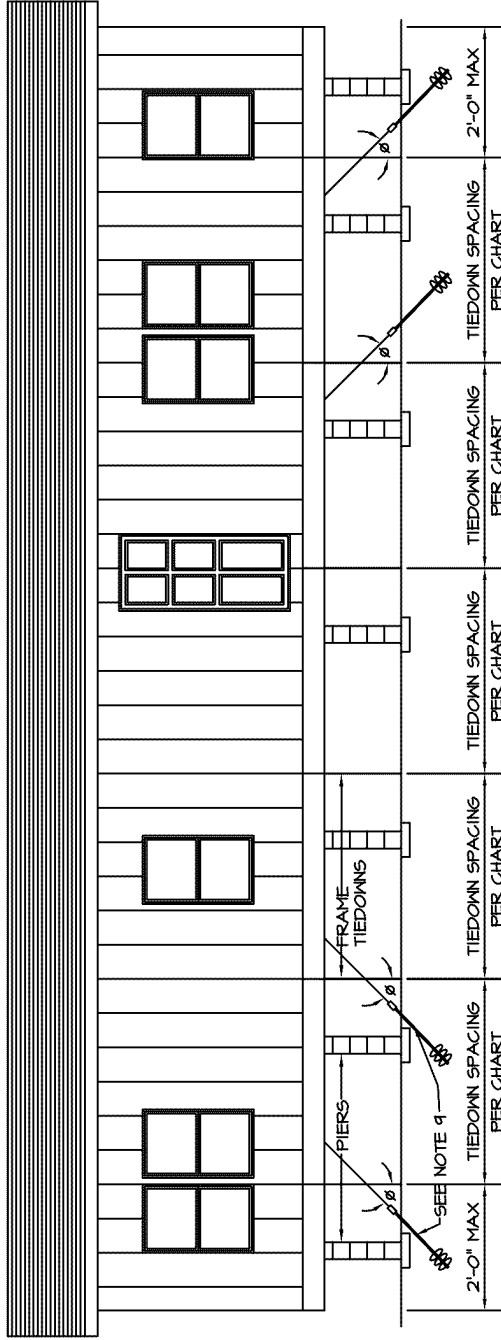
ROOF SLOPE NOT EXCEEDING 20 DEGREES
 NO RESTRICTION AS TO PIER TYPE OR HEIGHT
 (EXCEPT AS LIMITED BY OTHER DETAILS)

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

HALF WITH PIER RESTRICTIONS
 PER CHART TO LEFT

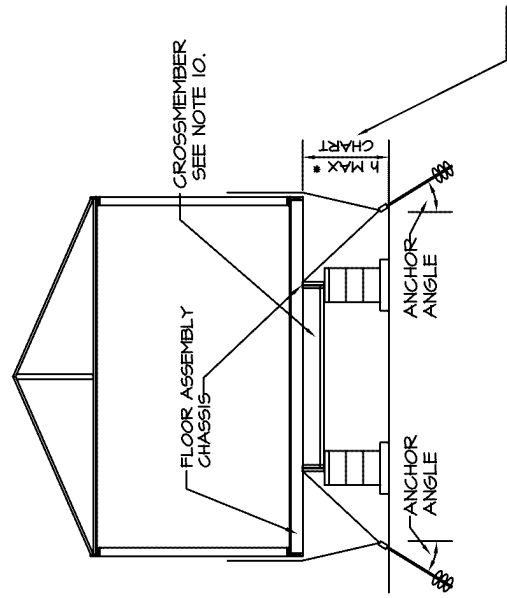
TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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

TYPICAL CROSS SECTIONS 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 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 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 1'-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 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 MAXIMUM ROOF SLOPE

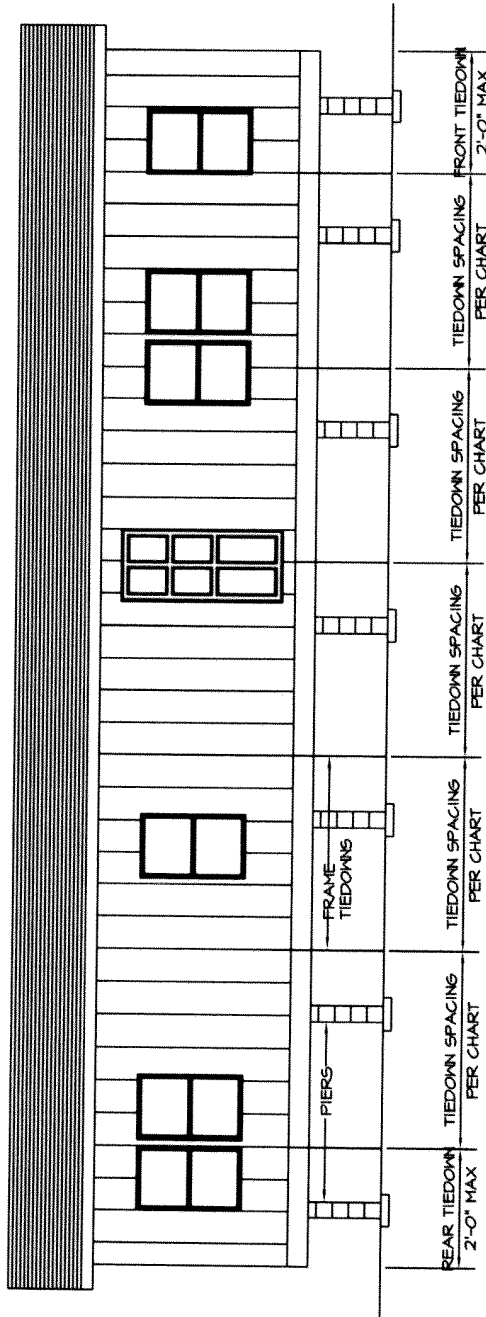
FRAME TIEDOWN SPACING CHART (SEE NOTE 10)			
FLOOR WIDTH	EAVE OVERHANG	SPACING	WIND ZONE 2
15'-4" SINGLE	12" MAX	83" OC	43°
		101" OC	26°
LONGITUDINAL TIEDOWN QUANTITY CHART			
FLOOR WIDTH	QUANTITY (MIN) EACH END OF EACH I-BEAM	ANCHOR ANGLE	
18'4" MAX SINGLE	2		43 DEG MAX
	3		60 DEG MAX

REGISTERED
20366
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
R. J. MYERS
Mar 29, 2017

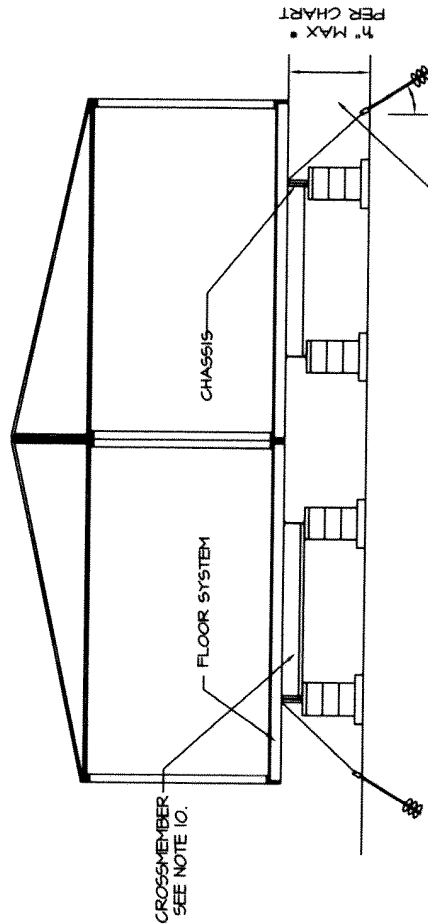
DRAWING NO.:

1-25.16

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



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

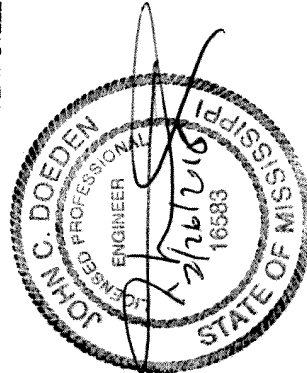


TYPICAL CROSS SECTION SHOWING TIEDOWNS

* 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



Apr 27, 2016

NH INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

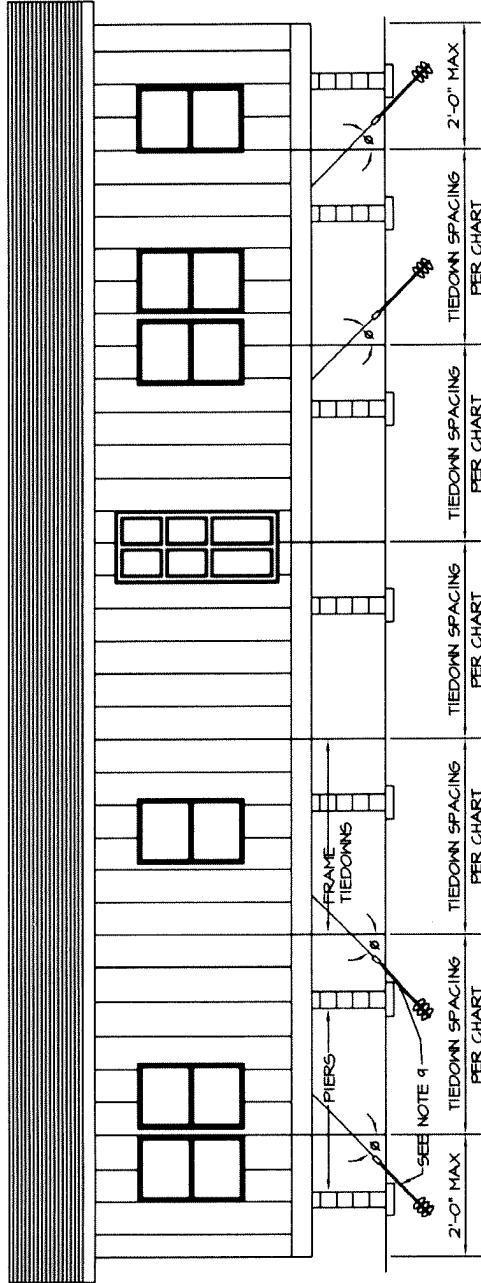
I-25.17

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" 6'-0" 5'-0"	26" 36" 44"

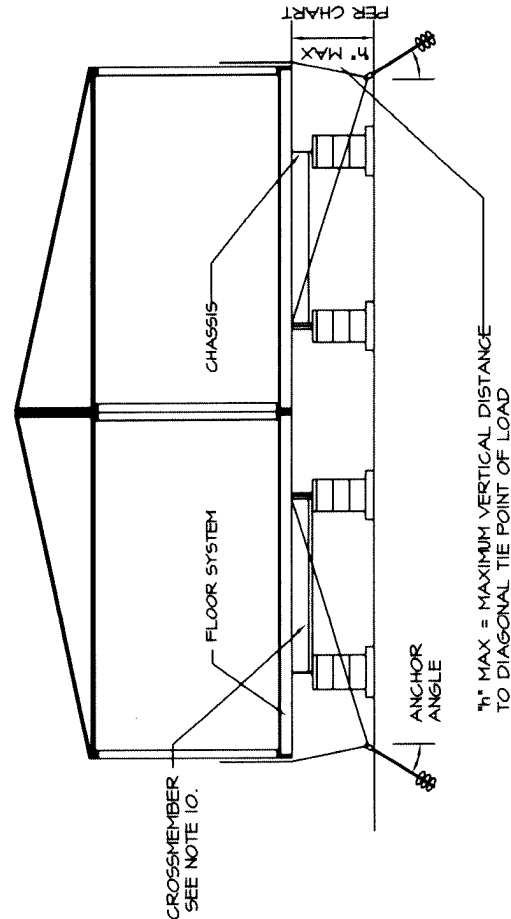
LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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

TYPICAL CROSS SECTION SHOWING TIEDOWNS



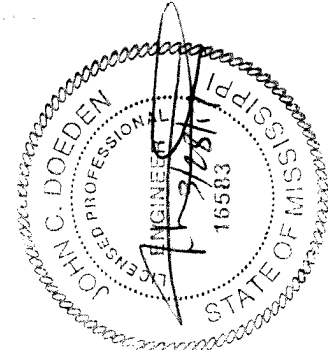
I-25.18

• 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 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 99-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-6".
 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
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 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 D3459-47, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
 15. GROUND ANCHORS TO BE RATED FOR LOAD TABULATED IN CHARTS TIMES 1.5 SAFETY FACTOR OR ULTIMATE LOAD OF 4725# WHICHEVER IS GREATER.
 16. STRAPPING TO BE TYPE I, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3459-47, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".

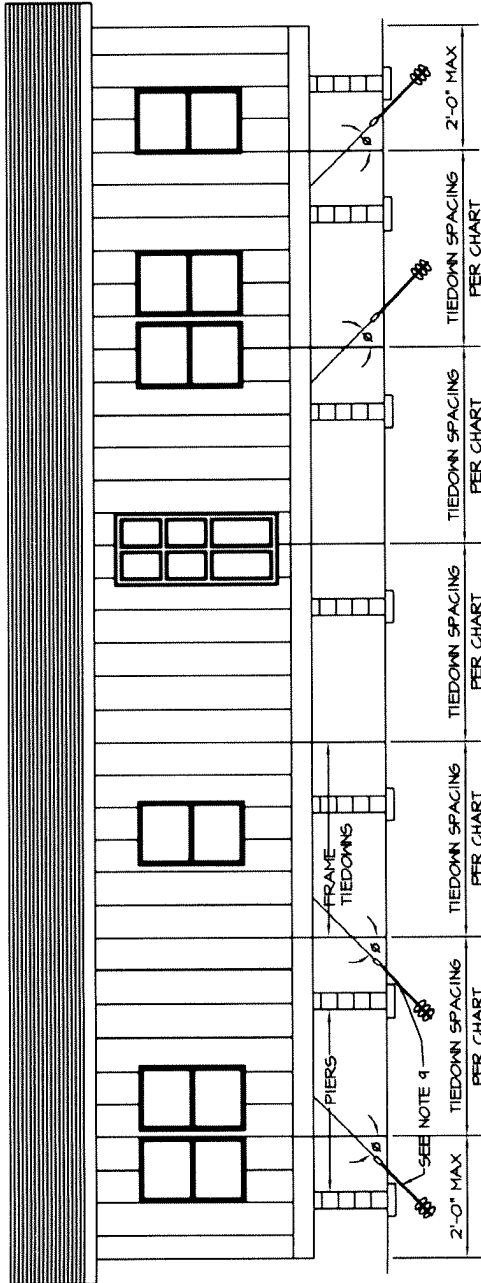
20 DEGREE MAXIMUM ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)			
FLOOR WIDTH	EAVE OVERHANG	SPACING	WIND ZONE 3
140" MAX DOUBLE	8" MAX	6'-8"	7" MAX ANCHOR ANGLE
			40-50
LONGITUDINAL TIEDOWN QUANTITY CHART			
FLOOR WIDTH	QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR	
140" MAX DOUBLE	2	41-60	



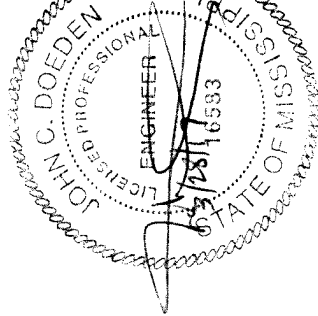
LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE 3 (110 MPH)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

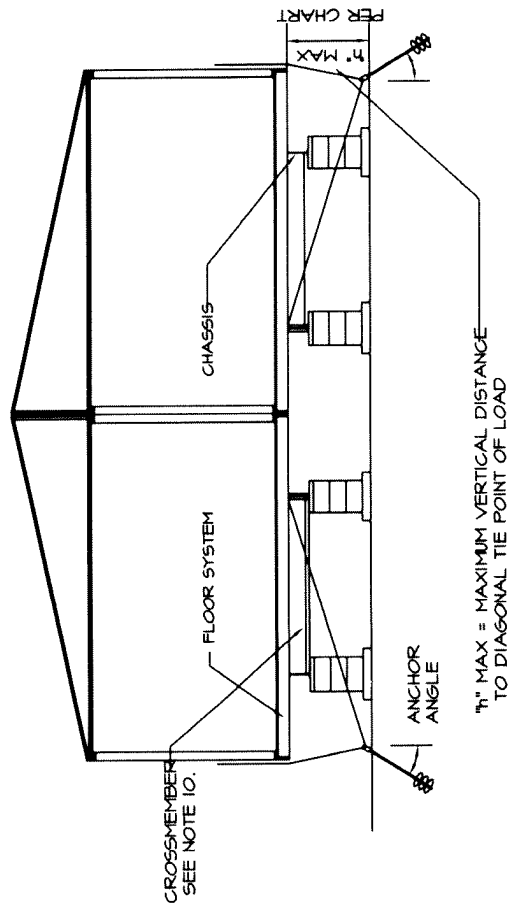


APPROVED BY
NTA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

REvised
4/7/2017



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 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 94-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-6".
9. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT NOTES 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.
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	n" MAX	ANCHOR ANGLE
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		

1. FOR USE IN WIND ZONES II AND III.
2. 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.

3. 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.
4. WHEN LAG WASHERS
ARE WELDED TO I-BEAM
FLANGE, LAGS MAY BE
INSTALLED ON EITHER
SIDE OF I-BEAM

NTA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

THIS DOCUMENT HAS BEEN PREPARED BY
HOUSING DESIGN GROUP
5540 Northwood Drive
Evergreen, CO 80439 (303)674-1713

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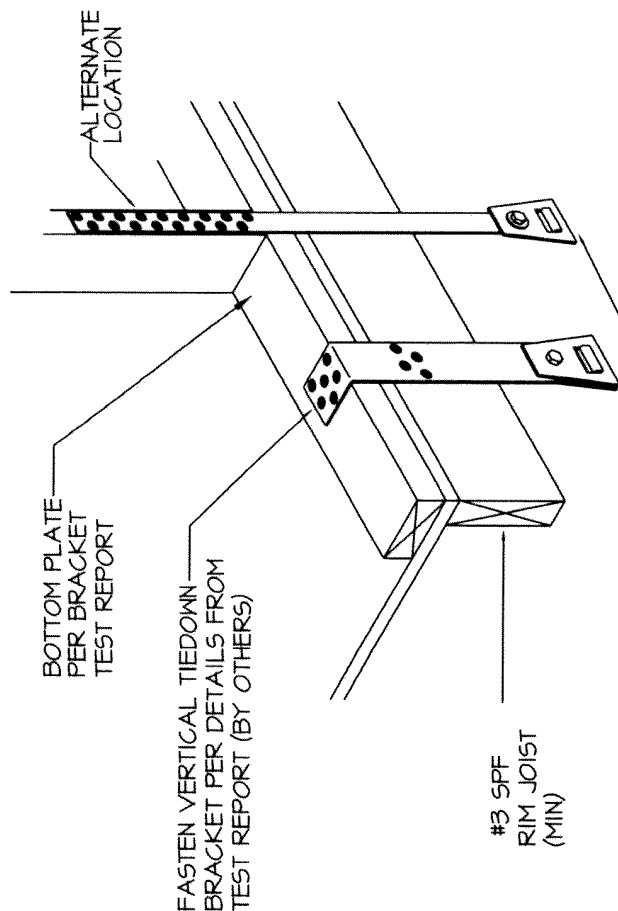
EXTERIOR WALLS

VERTICAL TIEDOWNS

DRAWN BY: R. ULLMAN 02/14/11

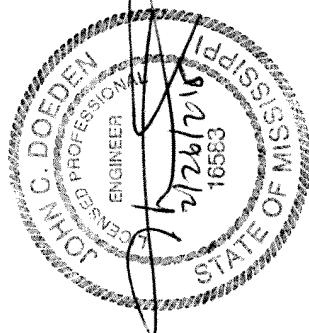
CHECKED BY:

1-25.20



APPROVED VERTICAL
TIEDOWN BRACKET (WITH BOLT-ON SWIVEL CONNECTOR)
WITH REQUIRED DESIGN & ULTIMATE
LOAD CAPACITY PER CHART

ALL FLOOR LAGS IN LOOSE WASHERS MUST BE INSTALLED ALONG INSIDE OF FAR BEAM FOR WIND ZONE II AND III (SEE NOTE #4)

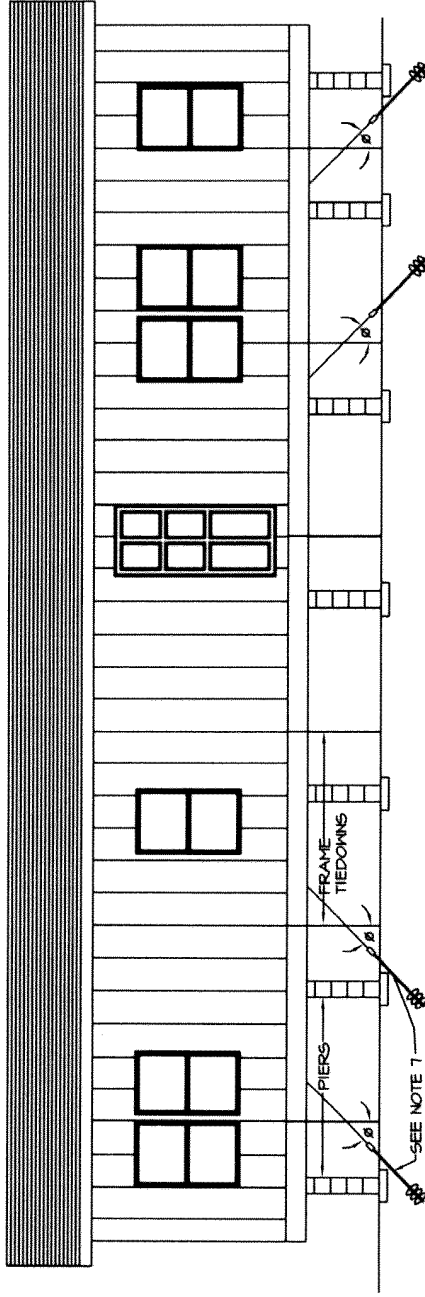


FAR BEAM

TIEDOWN STRAP

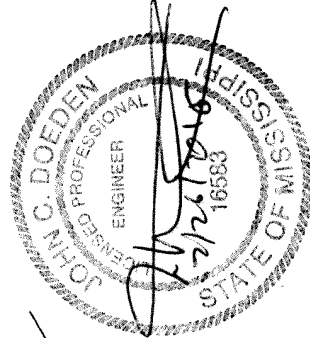
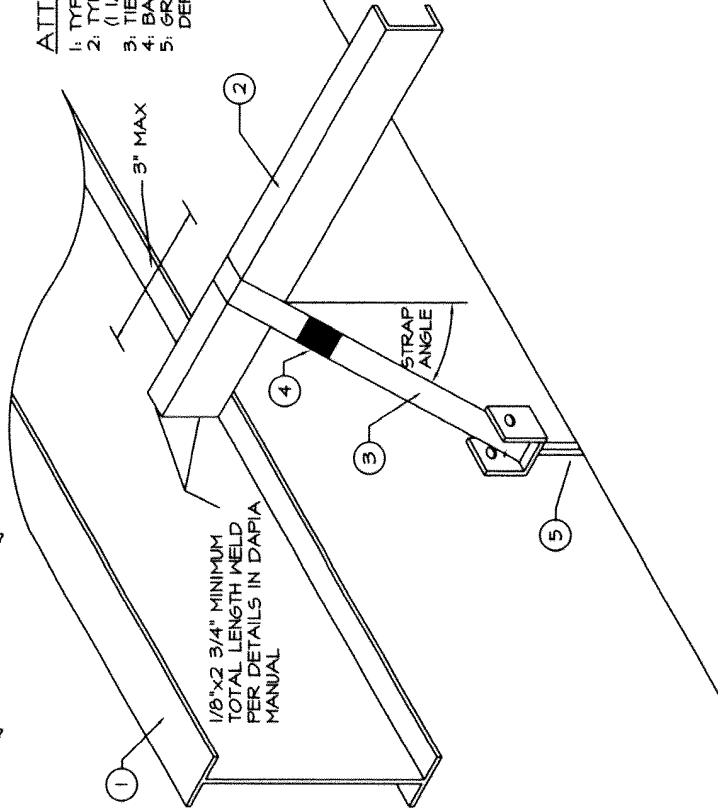
UNIT WIDTH	SIDEWALL HEIGHT	ROOF SLOPE	WIND ZONE	SPACING	REQUIRED DESIGN LOAD CAPACITY	REQUIRED ULTIMATE LOAD CAPACITY
140" DOUBLE	90"	20 DEG MAX	II	6'-8"	1130#	1645#
			III	5'-4"	1275#	1915#

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



ATTACHMENT DETAIL

- 1: TYPICAL LONGITUDINAL I-BEAM
- 2: TYPICAL FRAME CROSSMEMBER
(1 1/2" x 2" x 1 1/2" x 15 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 1'-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 D9453-07, 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 D9453-07, 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.

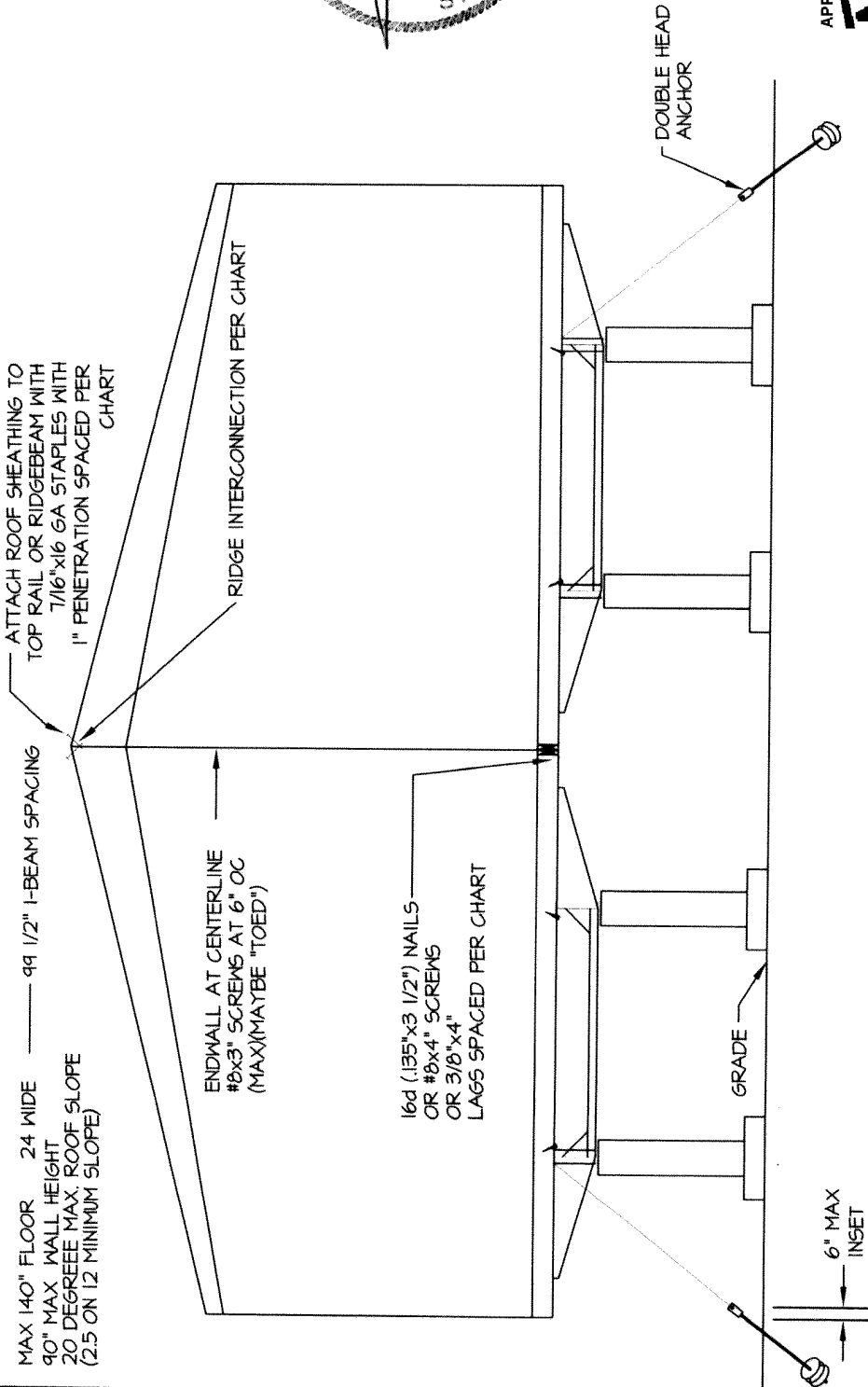
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FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

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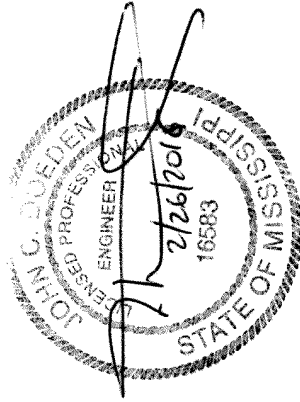
ROOF SLOPE NOT EXCEEDING 30 DEGREES DOUBLE WIDE UNITS (ALTERNATE WITH BLOCK PIERS)				ROOF SLOPE NOT EXCEEDING 30 DEGREES NO RESTRICTION AS TO PIER TYPE OR HEIGHT (EXCEPT AS LIMITED BY OTHER DETAILS)	
FLOOR WIDTH 25'-4" DOUBLE WIDE	MINIMUM UNIT LENGTH		NUMBER OF LONGITUDINAL TIES (TOTAL EACH END)	FLOOR WIDTH 25'-4" DOUBLE WIDE	STRAP QUANTITY PER EACH SECTION (DEGREES)
	SINGLE STACK 50'-0"	DOUBLE STACK 50'-0"			
			0		2
* FOR USE IN ABOVE TABLE: SINGLE STACK BLOCK PIERS = 24" MAXIMUM HEIGHT DOUBLE STACK BLOCK PIERS = 62" MAXIMUM HEIGHT MINIMUM ANGLE OF STRAP = 40 DEGREES				* MAY REDUCE TO 0 OR 1 LONGITUDINAL TIE PER HALF WITH PIER RESTRICTIONS PER CHART TO LEFT	

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



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

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FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



MAXIMUM FASTENER SPACING CHART			WIND ZONE
CONNECTION			I
SHEATHING TO TOP RAILS OR RIDGEBEAM			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
CENTERLINE FASTENING AT FLOOR	NAILS SCREWS LAGS		24" O.C. 24" O.C. 28" O.C.

MAXIMUM UNIT LENGTH = 16'-0"

LEGACY HOUSING

ON-SITE CONNECTION DETAILS

WIND ZONE 2 (100 MPH) & WIND ZONE 3 (110 MPH)

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")

VERTICAL TIES FACTORY
 INSTALLED AT REQUIRED
 SPACING
 (SEE TIEDOWN SPACING CHART)

16d (135"x3 1/2") NAILS
 OR #8x4" SCREWS
 OR 3/8"x4"
 LAGS SPACED PER CHART

RIDGE INTERCONNECTION PER CHART

1 1/2"x26 GA STRAPS

FASTENED TO
 TRANSVERSE JOISTS WITH 7/16"
 x15 GA STAPLES EACH END
 (1" PENETRATION MIN)

7 FOR WIND ZONE 2, 8 FOR WIND ZONE 3
 SEE CHART FOR SPACING

DOUBLE HEAD
 ANCHOR

ANCHORS AT CENTERLINE
 REQUIRED AT COLUMNS
 GREATER THAN 48"

LOOP TIEDOWN STRAP
 THRU BRACKETS INSTALLED
 PER CHART AND
 ATTACH TO ANCHOR
 (SEE NOTE 5)

6" MAX
 INSET

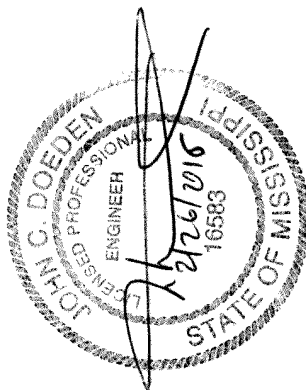
NOTES:

1. ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 3150# (4125# ULTIMATE).
2. DOUBLE HEADED ANCHORS TO BE RATED FOR THE COMBINED LOAD AND SHOULD BE INSTALLED WITH STABILIZER PLATES.
3. DIAGONAL TIES TO BE INSTALLED FROM I-BEAM AT SAME LOCATIONS AS VERTICAL TIES. REFER TO APPLICABLE TABLES STARTING AT 24" FROM EACH END (MAX OPEN END SPACING).
4. MARRIAGE WALL ANCHORS MAYBE SINGLE HEAD WITH A 3150# MIN CAPACITY (4125# ULTIMATE).
5. BRACKETS ARE 1 1/2"x1 1/2"x11 GA (MIN) STEEL ANGLE WITH TWO (2) 7/16" DIAMETER HOLES 3/4" MINIMUM FROM EACH END AND 2" TO 3" IN BETWEEN HOLE CENTERS (BRACKET MUST BE SHIPPED WITH HOME). BRACKET IS LAGGED TO THE CENTERLINE JOIST W/ (2) 5/16"x3" MIN LAGS.
6. FOR 23'-4" WIDES, WIND ZONE 2: MAX. OPENING FOR (1) BRACKET = 24'-6" AND MAX. OPENING FOR (2) BRACKETS = 49'-0" FOR 23'-4" 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.

MAXIMUM FASTENER SPACING CHART

CONNECTION	WIND ZONE 2	WIND ZONE 3
SHEATHING TO TOP RAILS OR RIDGEBEAM	2" O.C.	1 3/4" O.C.
RIDGE INTERCONNECTION #8x4" SCREWS OR 3/8"x5" LAG SCREWS	5" O.C. 6" O.C.	5" O.C. 6" O.C.
CENTERLINE STRAPS AT FLOOR	8'-0" O.C.	8'-0" O.C.
CENTERLINE FASTENING AT FLOOR	15" O.C. 14" O.C. 17" O.C.	12" O.C. 12" O.C. 14" O.C.

MAXIMUM UNIT LENGTH = 76'-0"



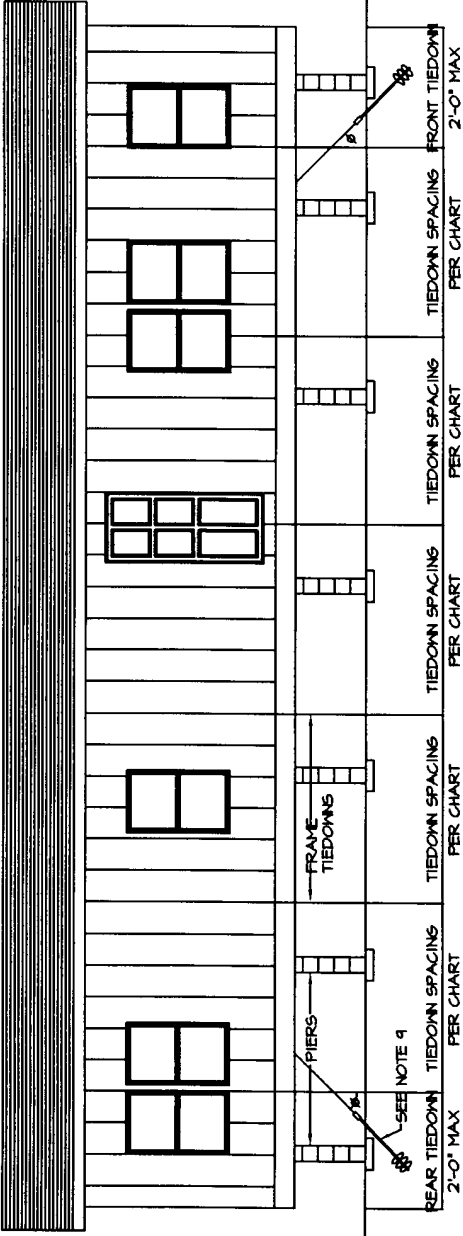
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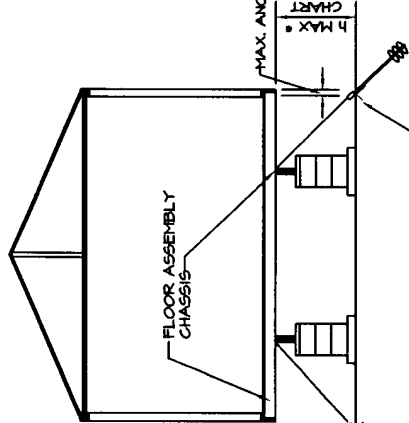
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LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



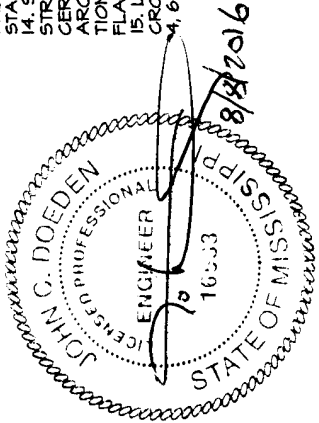
TYPICAL CROSS SECTION SHOWING TIEDOWNS



ANCHOR AND APPROVED STABILIZER PLATE
SPACED PER CHART

APPROVED BY
Revised
Aug 16, 2016
NTA INC.
FOR ALL PROJECTS
CONSTRUCTION AND SAFETY STANDARDS

- 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\"
 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\"
 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 D3953-47, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
 14. STRAPPING TO BE TYPE I, FINISH B, GRADE 1 STEEL STRAPPING, 1-1/4\"
 15. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, AND 7.



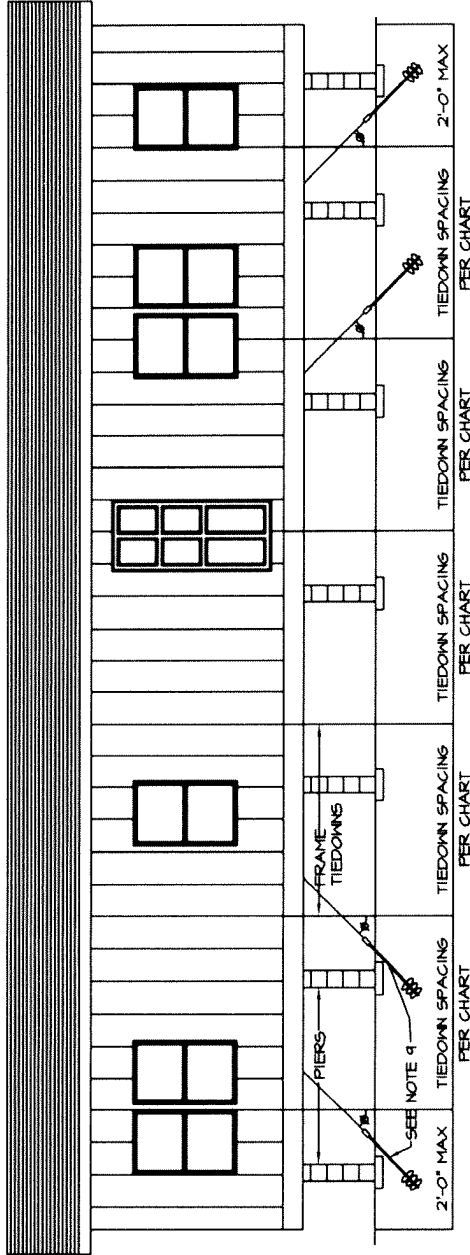
20 DEGREE MAX. ROOF SLOPE

FRAME TIEDOWN SPACING CHART				
FLOOR WIDTH	EAVE OVERHANG	SIDEWALL HEIGHT	SPACING	WIND ZONE I
134 1/2\"	12\" MAX	90\"	1'-0\"	30\"
138\"	12\" MAX	90\"	5'-0\"	44\"
			7'-0\"	28\"
			5'-0\"	41\"
LONGITUDINAL TIEDOWN QUANTITY CHART				
FLOOR WIDTH	SIDEWALL HEIGHT	QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE MIN/MAX	WIND ZONE I
134 1/2\"	90\"	2	30-60	
138\"	90\"	2	30-60	

TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

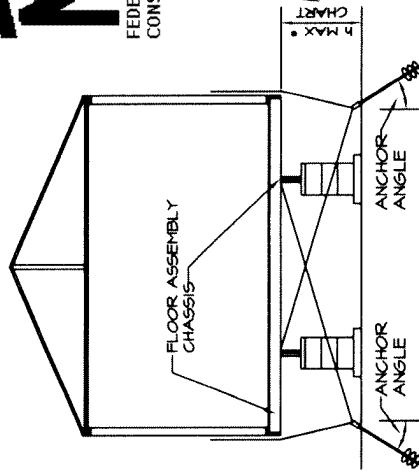
LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH) & WIND ZONE 3 (110 MPH)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTION SHOWING TIEDOWNS

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



TYPICAL CROSS SECTION SHOWING TIEDOWNS

* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

1-25.25

NOTES:

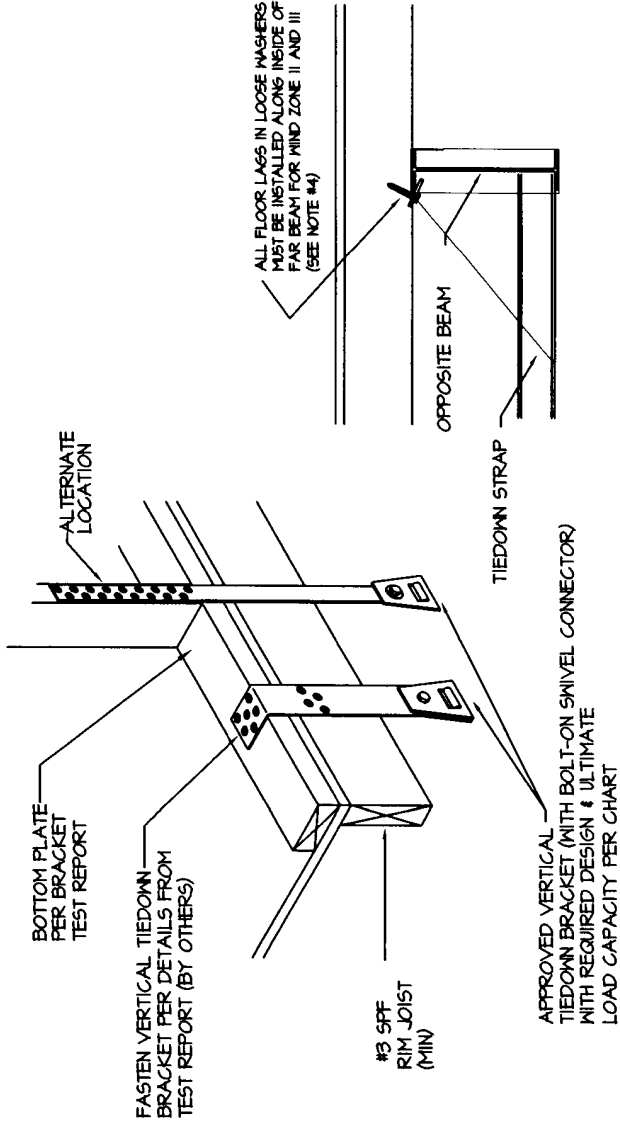
1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE 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 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 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 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		
			SPACING	h" MAX	ANCHOR ANGLE	SPACING	h" MAX
134 1/2" SINGLE	3" MAX	90"	8'-0"	36"	45-50	6'-8"	32"
138" SINGLE	3" MAX	90"	8'-0"	35"	45-50	6'-8"	31"

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)
134 1/2" MAX	90"	2	41-60	3	30-60
138" MAX	90"	2	42-60	3	30-60

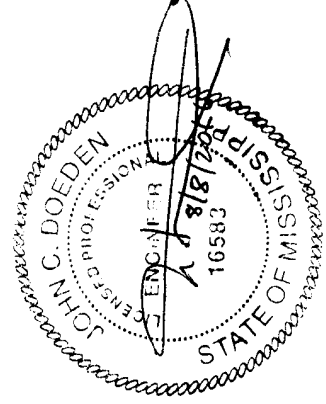
VERTICAL TIEDOWNS
WIND ZONE 2 & 3



UNIT	I-BEAM SPACING	ROOF SLOPE	SIDEWALL HEIGHT	WIND ZONE	SPACING	REQUIRED DESIGN LOAD CAPACITY	REQUIRED ULTIMATE LOAD CAPACITY
134 1/2" SINGLE	99 1/2"	20 DEG. MAX	90"	II	8'-0"	1400#	2100#
				III	6'-8"	1535#	2303#
138" SINGLE	99 1/2"	20 DEG. MAX	90"	II	8'-0"	1440#	2160#
				III	6'-8"	1570#	2355#

APPROVED BY

 Revised Aug 16, 2016
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS



LEGACY HOUSING
FT. WORTH, TEXAS

- FOR USE IN WIND ZONES II AND III.
- 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. 54337A FOR UP TO 1810# DESIGN LOAD CAPACITY OR "SWIVEL L TIE PLATE ASSEMBLY", PART NO. 54339A 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 DOCUMENT HAS BEEN PREPARED BY
HOUSING DESIGN GROUP
1540 Northwood Drive
Evergreen, CO 80439 (303) 674-1719

NO	REVISION BY	DATE	DESCRIPTION

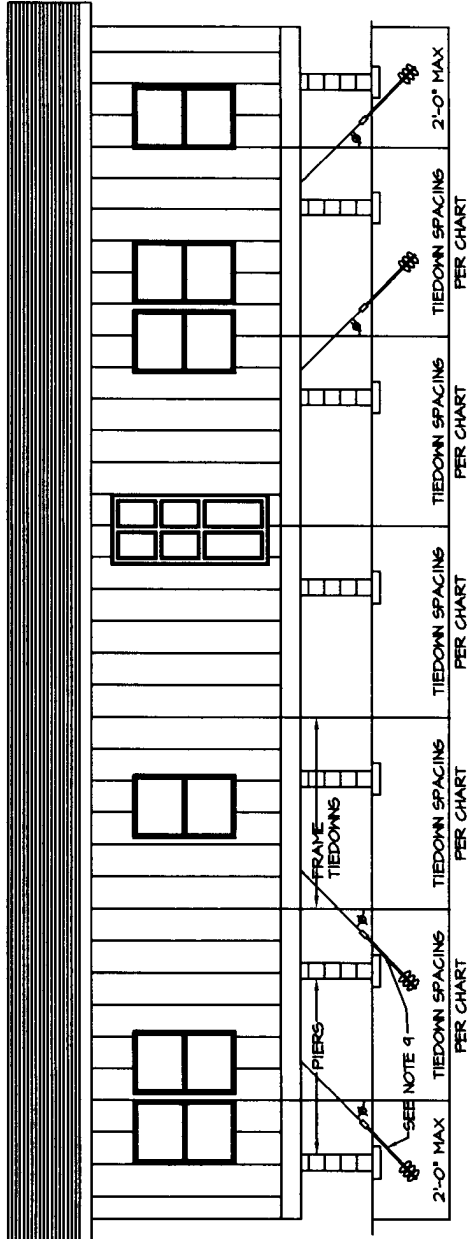
EXTERIOR WALLS

VERTICAL TIEDOWNS

DRAWN BY: R. ULLMAN 11/1/11
CHECKED BY:

DRAWING NO. I-25.26

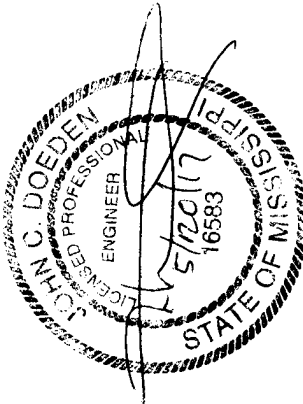
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



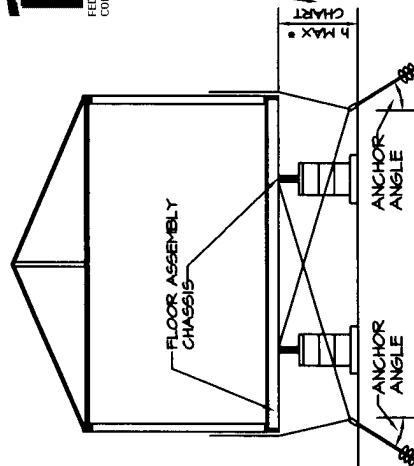
TYPICAL CROSS SECTION SHOWING TIEDOWNS

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FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS



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



TYPICAL CROSS SECTION SHOWING TIEDOWNS

- PIER HEIGHT INCLUDES DEPTH OF I-BEAM

I-25.26.1

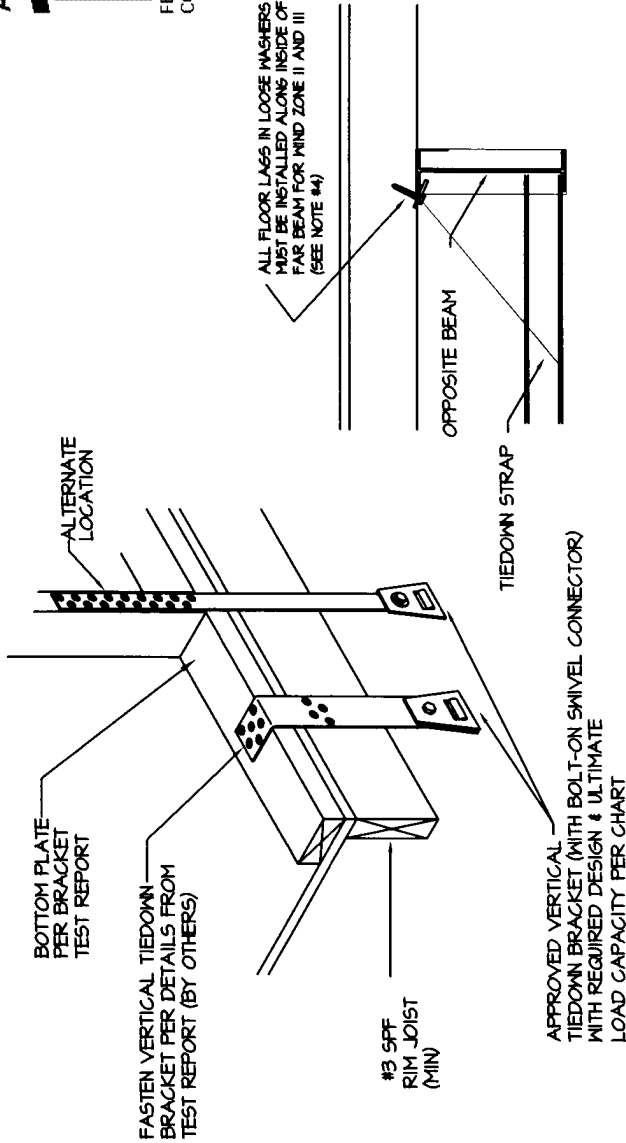
1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE 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 79-1/2" 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 D3463-97.
15. STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS, CHARTS TIMES 15 TO BE RATED FOR LOAD TABULATED IN CHARTS TIMES 15 SAFETY FACTOR OR ULTIMATE LOAD OF 4725# WHICHEVER IS GREATER.
16. STRAPPING TO BY TYPE 1, FINISH B, GRADE 1 STEEL
17. STRAPPING, 1-1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3463-97, STANDARD SPECIFICATION FOR STRAPPING, AT STEEL AND SEAL 5".

20 DEGREE MAX. ROOF SLOPE

FRAME TIEDOWN SPACING CHART (SEE NOTE 10)								
FLOOR WIDTH	EAVE OVERHANG	SIDEWALL HEIGHT	MIND ZONE 2			MIND ZONE 3		
			SPACING	1" MAX	ANCHOR ANGLE	SPACING	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	QUANTITY (MIN) EACH END OF EACH SECTION	MIND ZONE 2		MIND ZONE 3			
			ANCHOR ANGLE MIN/MAX	QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE (DEGREES)			
138" MAX	90"	2	40-60	2	51-60			

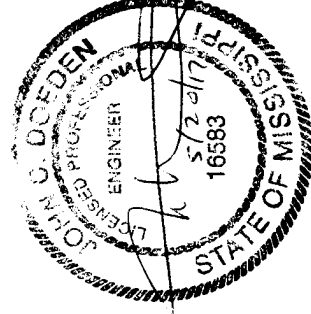
VERTICAL TIEDOWNS
WIND ZONE 2 & 3

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5/30/2017
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ALL FLOOR LAGS IN LOOSE WASHERS
MUST BE INSTALLED ALONG INSIDE OF
FAR BEAM FOR WIND ZONE II AND III
(SEE NOTE #4)

UNIT WIDTH	I-BEAM SPACING	ROOF SLOPE	SIDEWALL HEIGHT	WIND ZONE	REQUIRED DESIGN LOAD CAPACITY	REQUIRED ULTIMATE LOAD CAPACITY
138" SINGLE	74 1/2"	20 DEG. MAX	90"	II	1370#	2055#
				III	1475#	2212#



LEGACY HOUSING
FT. WORTH, TEXAS

- FOR USE IN WIND ZONES II AND III.
- 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. 54337A FOR UP TO 1810# DESIGN LOAD CAPACITY OR "SWIVEL L TIE PLATE ASSEMBLY", PART NO. 54339A 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.

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5940 Northwood Drive
Evergreen, CO 80431 (303) 614-1715

NO	REVISED BY	DATE	DESCRIPTION

EXTERIOR WALLS

VERTICAL TIEDOWNS

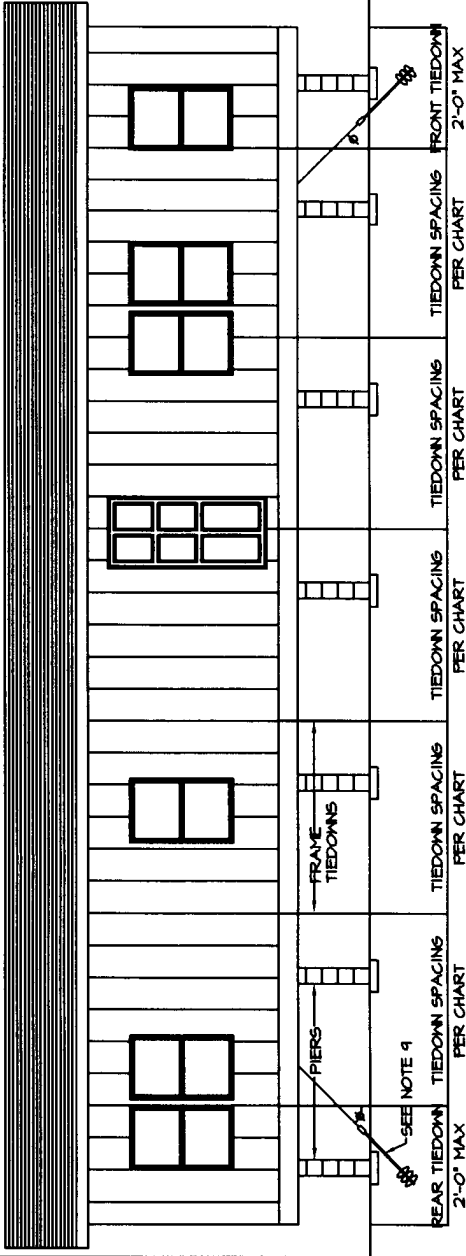
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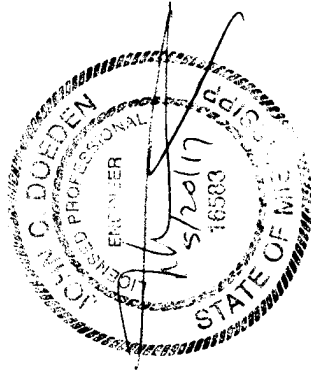
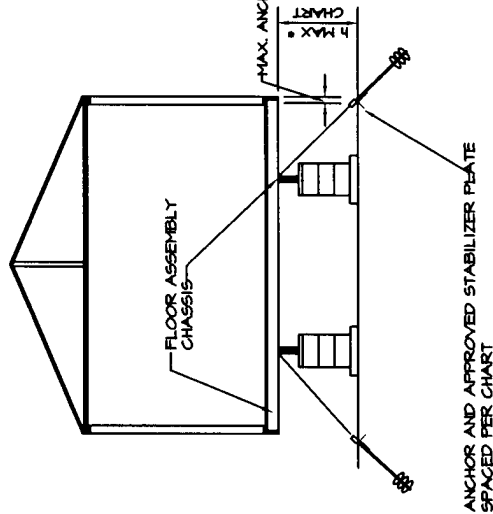
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LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE I (15 PSF LATERAL)

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTION SHOWING TIEDOWNS



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5/30/2017

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
 9. PROVIDED NO DECREASE IN THE TOTAL NUMBER OF FRAME TIEDOWNS RESULTS
 10. DESIGN BASED ON 74 1/2" BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT PER CHART.
 11. ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A REGISTERED PROFESSIONAL ENGINEER OR 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 SHALL 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. 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"
 16. 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

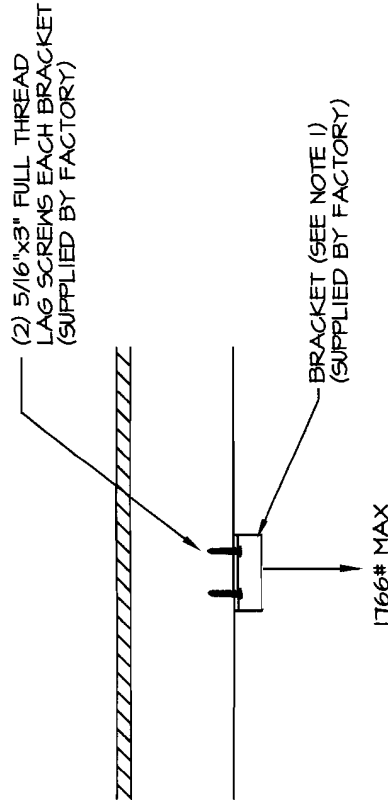
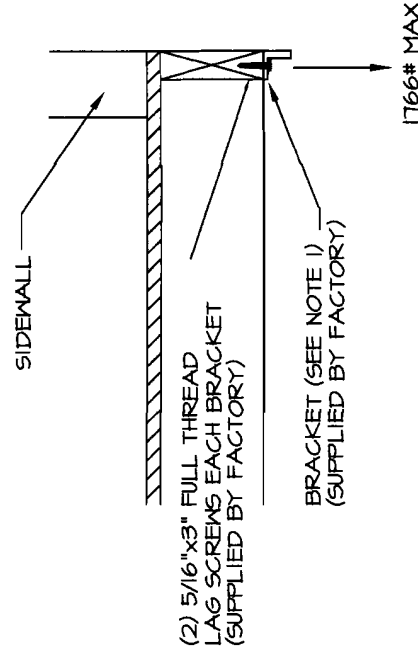
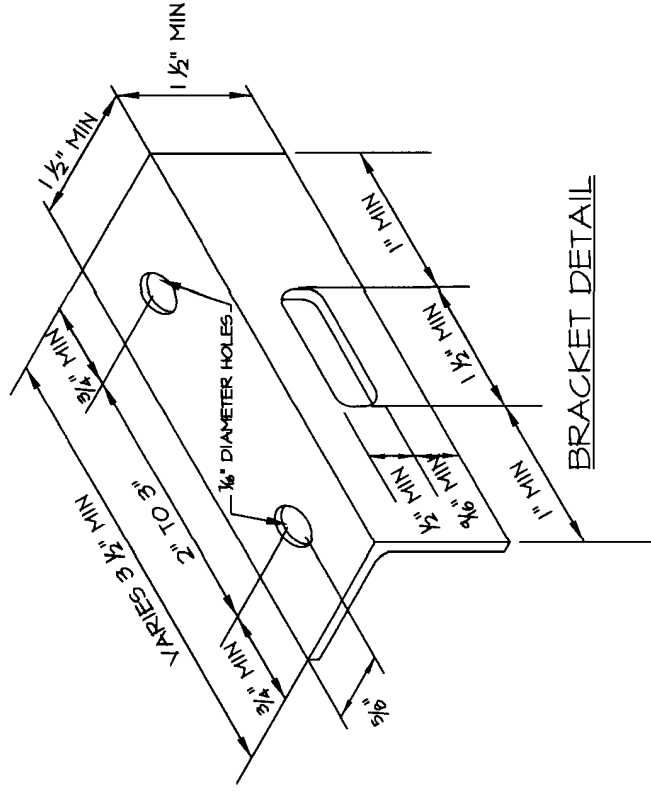
FRAME TIEDOWN SPACING CHART				
FLOOR WIDTH	EAVE OVERHANG	SIDEWALL HEIGHT	WIND ZONE I	
			SPACING	7" MAX
				10'-0"
138" SINGLE	3" MAX	40"	8'-0"	45°
LONGITUDINAL TIEDOWN QUANTITY CHART				
FLOOR WIDTH	SIDEWALL HEIGHT	QUANTITY (MIN) EACH END OF EACH SECTION	WIND ZONE I	
			ANCHOR	ANGLE MIN/MAX
138" SINGLE	40"	2		30-60

NOTES:

1. BRACKETS ARE 1 1/2"x1 1/2"x11 GA. MINIMUM STEEL ANGLE WITH (2) 1/6" 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.
2. 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.
3. PROTECTION SHALL BE PROVIDED AT SHARP CORNERS AT POINT OF LOAD ON STRAP.
4. 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.
Pat O'Toole
11/3/16



LEGACY HOUSING

FT. WORTH, TX

GENERAL NOTES

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

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Evergreen, CO 80431 (303)674-1713

NO.	REVISIONS	DATE	DESCRIPTION

ALTERNATE VERTICAL

TIEDOWN BRACKET

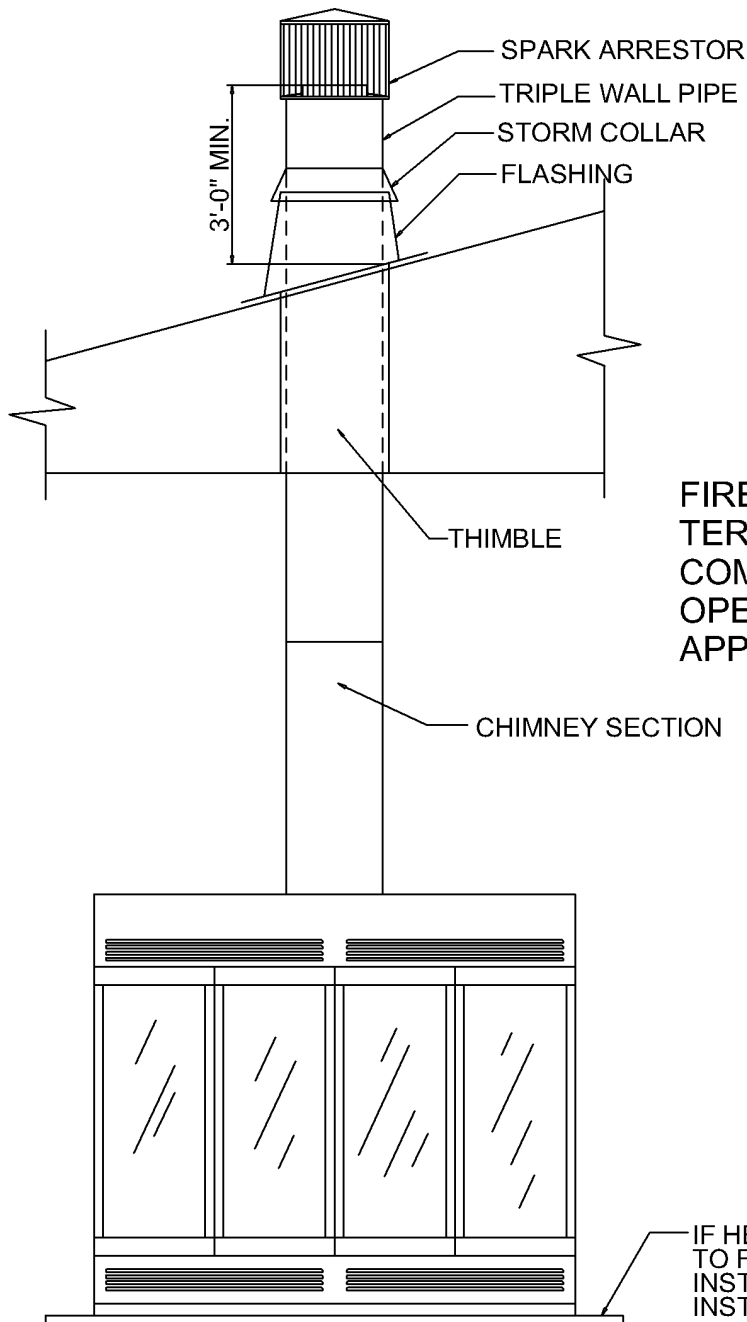
DRAWN BY: R. ULLMAN 11/02/16

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DRAWING NO. I-25.27

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.

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 $\frac{3}{4}$ 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

piping, shut-off valves and pressure reducers, and pipes in water heater compartments with uninsulated doors, from freezing. Otherwise, burst pipes and costly damage may result.

8.2.3.2 Use Of Heat Tapes

Heat tapes (either automatic or non-automatic) can protect exposed plumbing from freezing. USE ONLY HEAT TAPES LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY FOR USE WITH MANUFACTURED HOMES, AND INSTALL THEM ONLY IN ACCORDANCE WITH THE MANUFACTURER'S 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

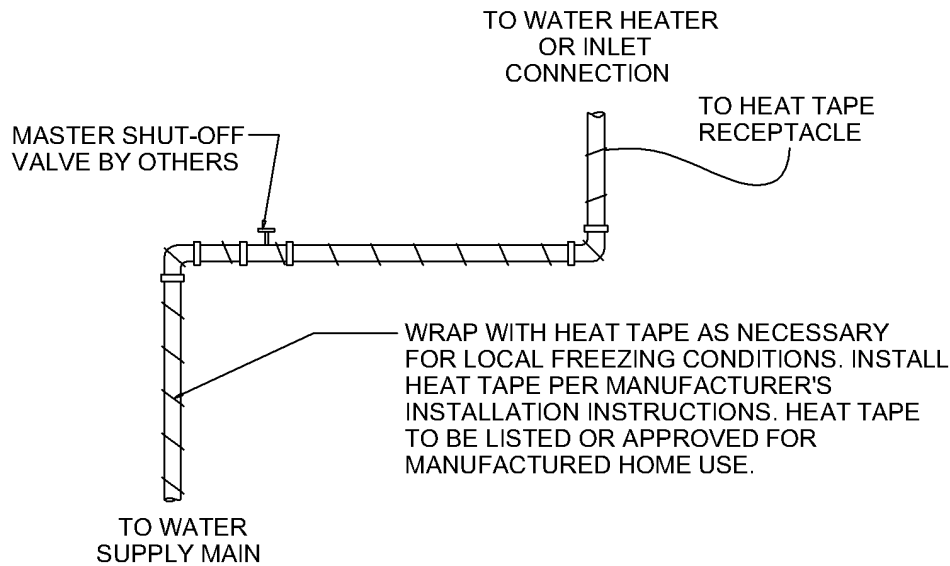
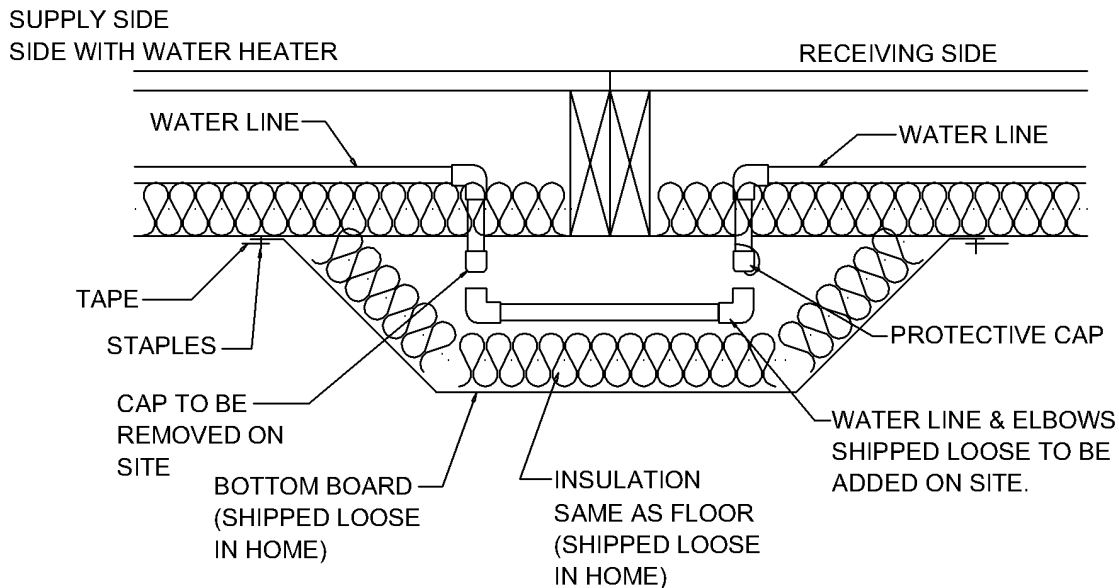
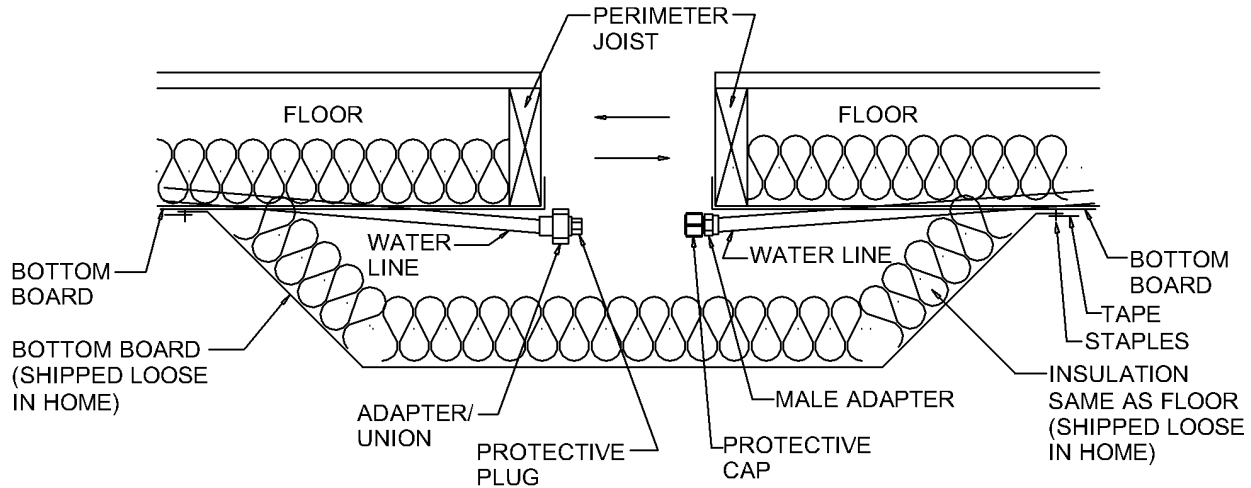


FIGURE 8.2 - TYPICAL WATER LINE CROSSOVER



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 SUPPLIED.

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 (nondisplaceable 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 rechecked 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 at least 6 oz. and no more than 8 oz. Check all gas shut-off valves and flex line connections to valves and appliances for leaks, using soapy water or bubble solution. DO NOT BUBBLE CHECK BRASS FITTINGS WITH SOLUTIONS CONTAINING AMMONIA. Repair any leaks found and retest. Close all equipment shut-off valves upon completion of testing.

8.4.6 Connection Procedures

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

8.4.7 Gas Appliance 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 also on the electrical distribution panel

Because of the importance of proper electrical connections 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

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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 rod, a water pipe, or through the home's hitch caster will not satisfy the important grounding requirement. NEVER USE THE NEUTRAL CONDUCTOR OF THE FEEDER CABLE AS A GROUND WIRE. DO NOT GROUND THE NEUTRAL BAR IN THE ELECTRICAL DISTRIBUTION PANEL.

8.6.3 **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 grounding (green) 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.

8.6.5.2.1 **Polarity And Grounding of Receptacles**

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

8.6.5.2.2 **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 Alarm**

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 or 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 #8.7.1.2) 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

patch 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.

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FIGURE 8.3 - DRAINPIPE SUPPORT METHODS

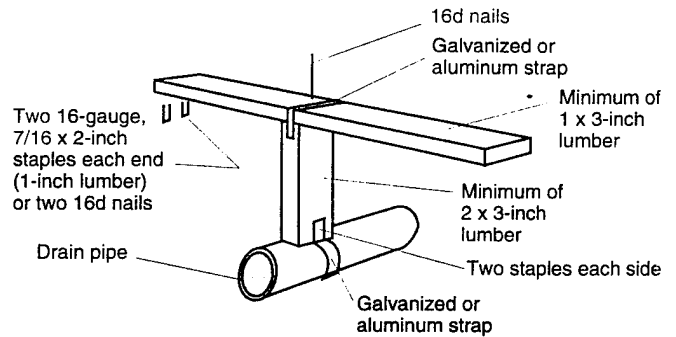
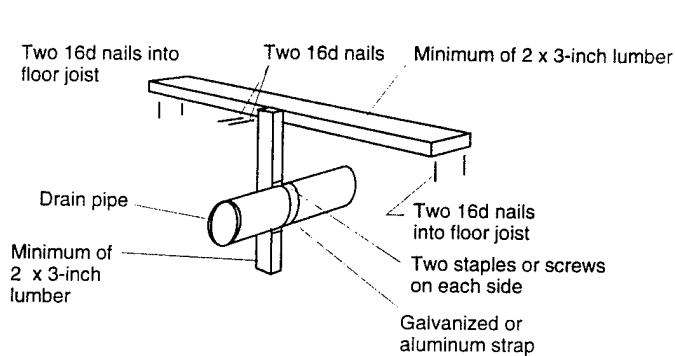
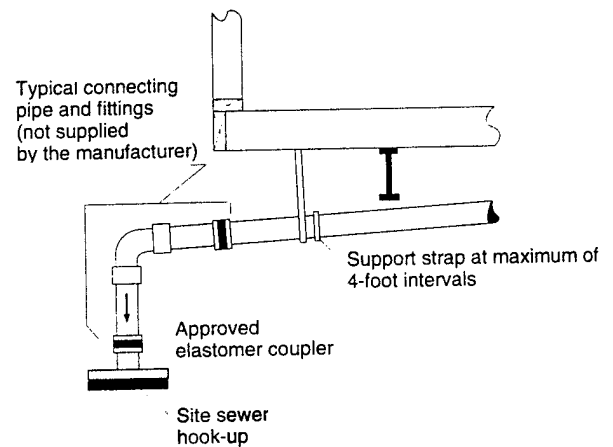
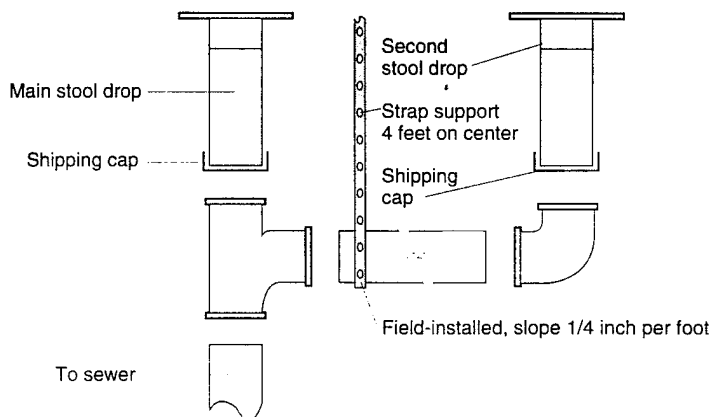


FIGURE 8.4 - DRAINAGE SLOPE & CONNECTIONS

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

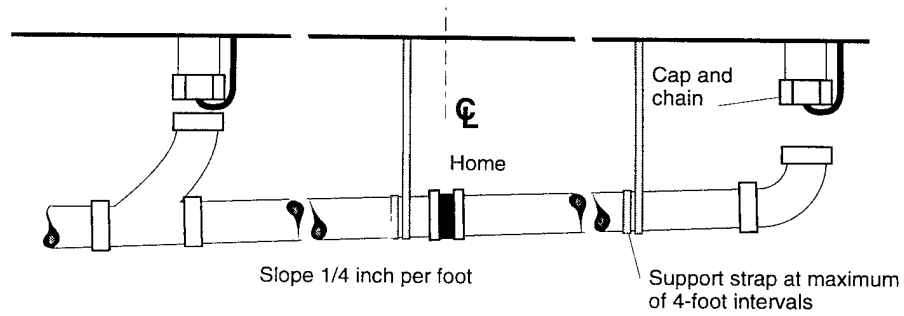
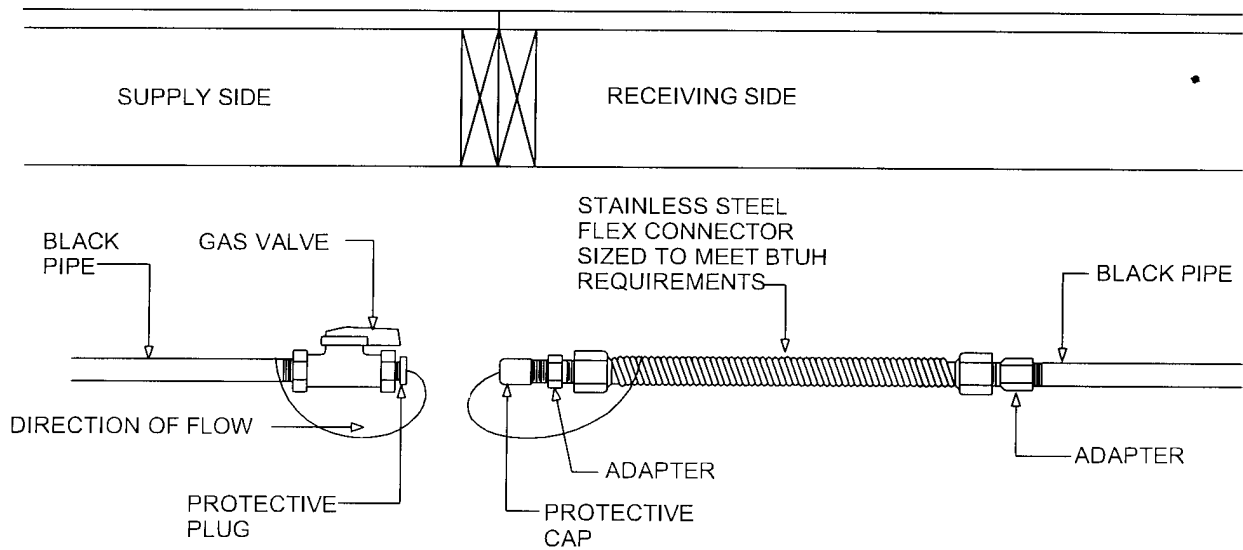
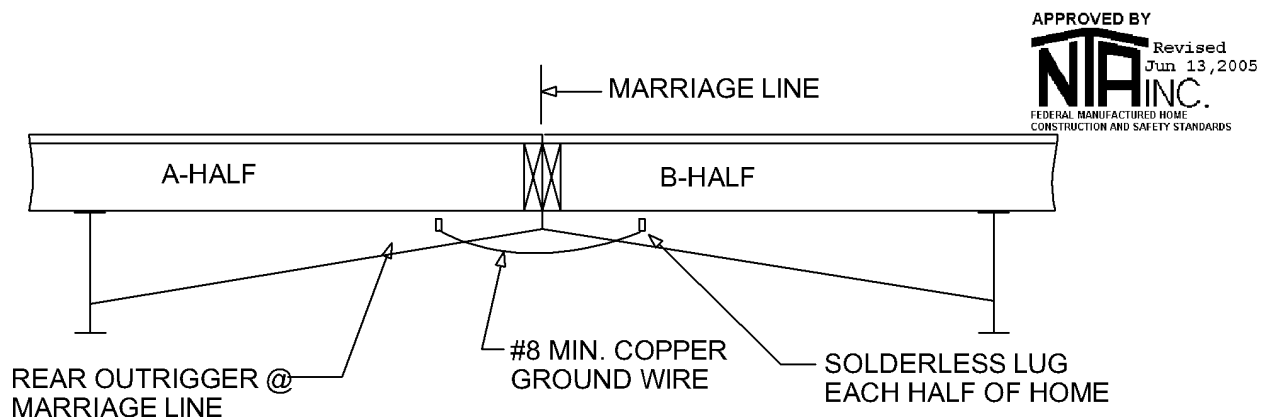


FIGURE 8.7 TYPICAL GAS LINE CROSSOVER



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

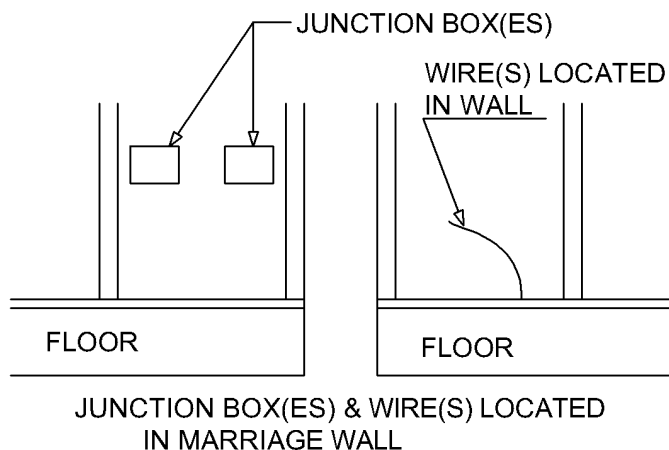
FIGURE 8.9 MULTI-SECTION FRAME BONDING



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:

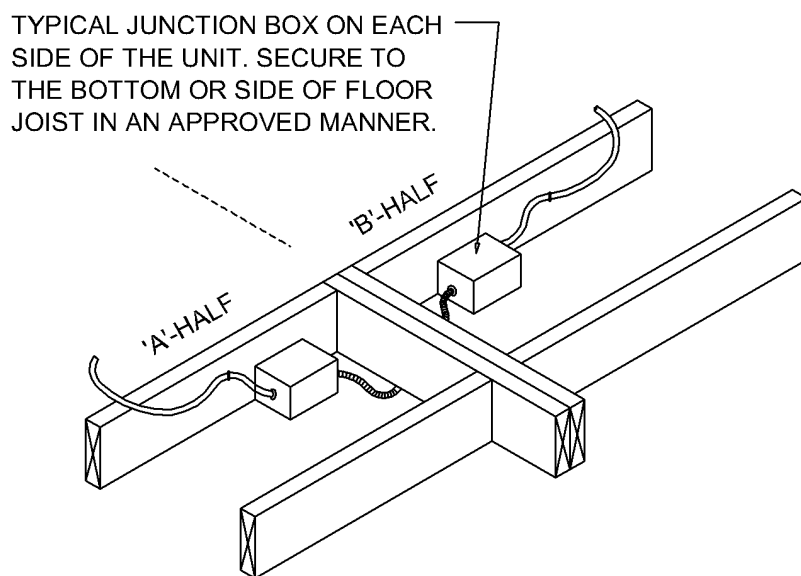
1. LOCATE WIRE(S) IN MARRIAGE WALL WITH APPROVED WIRE NUTS ATTACHED.
2. REMOVE BLANK COVERS FROM JUNCTION BOX(ES) EXPOSING WIRING WITH APPROVED WIRE NUTS ATTACHED.
3. WIRING ON BOTH SECTIONS HAVE IDENTIFI-ABLE MARKING (CIRCUIT #) FOR CORRECT CONNECTIONS OF CIRCUITS.
4. REMOVE THE WIRE NUTS FROM THE WIRING 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:

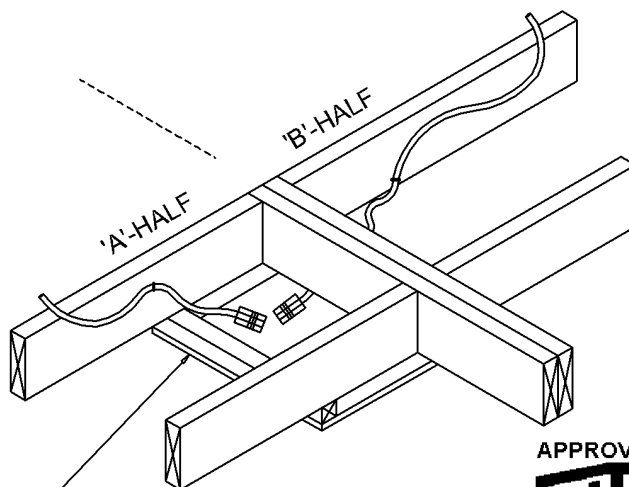
SOME HOMES MAY HAVE MORE THAN ONE CROSSOVER. CHECK ALONG MARRIAGE LINE FOR ADDITIONAL CROSSOVERS.

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

FIGURE 8.10 - ELECTRICAL CROSSOVER (CONTINUED)



METHOD 'A'



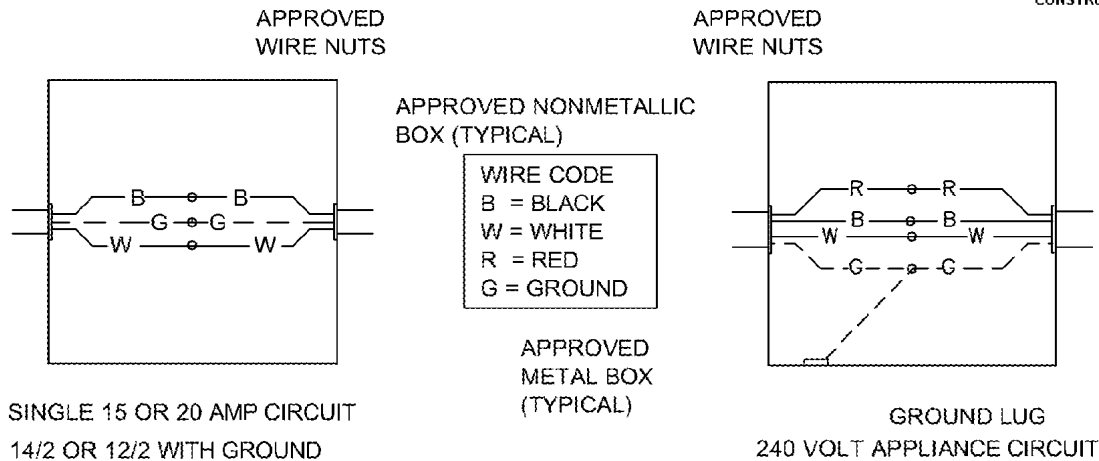
BOX OR COVER TO BE WATERPROOFED WITH PAINT OR EQUIVALENT. FASTENING IS NOT CRITICAL. IF THIS METHOD IS USED, THE BOX OR COVER IS TO BE SHIPPED WITH THE HOME.

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.

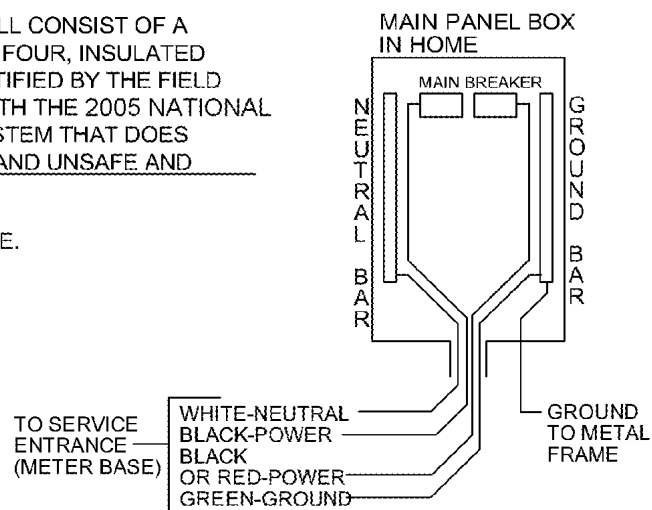


FIGURE 8.12 - ELECTRICAL FEEDER & EQUIPMENT SIZES

ELECTRICAL FEEDER AND EQUIPMENT SIZES

FEEDER SIZE (SEE MAIN BREAKER AND LABEL ON DIS- TRIBUTION PANEL) (AMPS)	MINIMUM SIZES			FEEDER CONDUCTOR SIZES			
	JUNCTION BOX (IN.)	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.

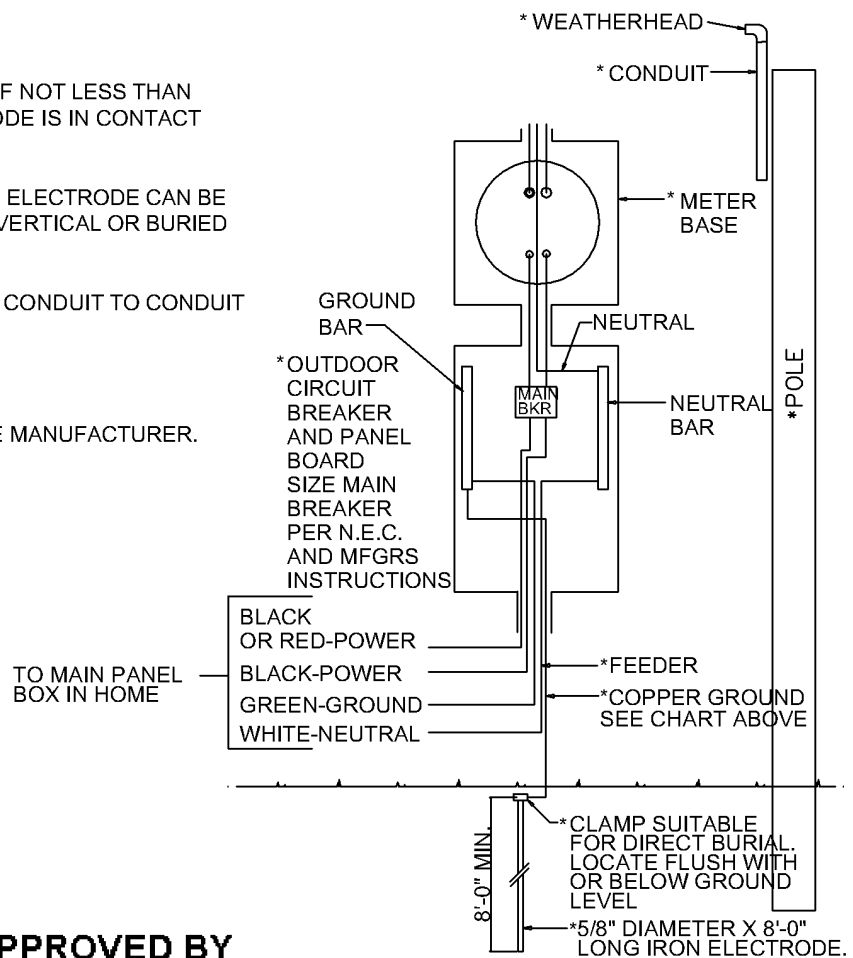
NOTE 2. CONDUCTOR TYPES RH-RHH-RHW-THHW-THW-THWN-TTHN-XHHW-USE

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.



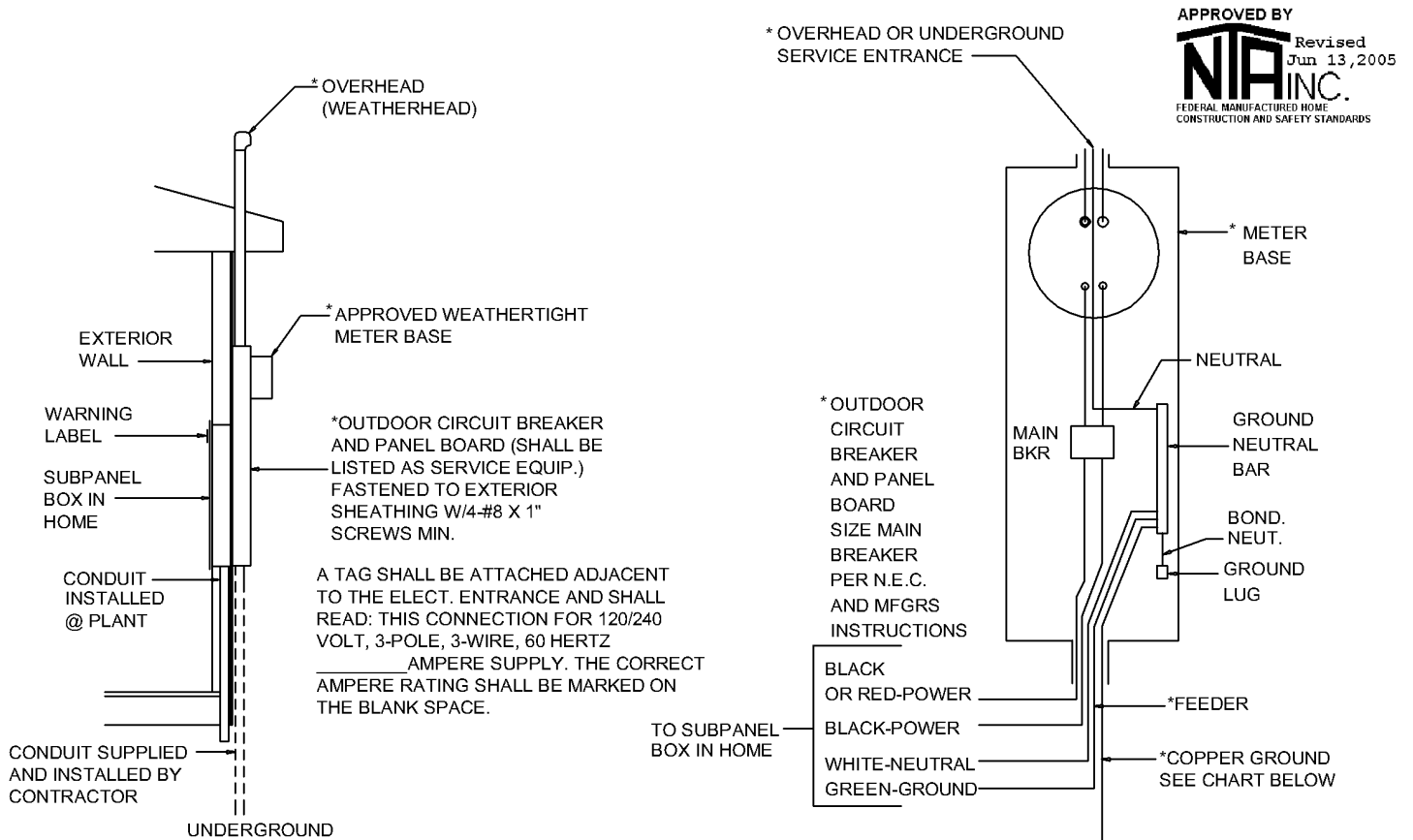
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Jun 13, 2005

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CONSTRUCTION AND SAFETY STANDARDS

FIGURE 8.14 - ON SITE METER BASE INSTALLATION AND GROUNDING



*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 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 home owner 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.



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.

APPROVED BY



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Feb 19, 2008

FEDERAL MANUFACTURED HOME
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

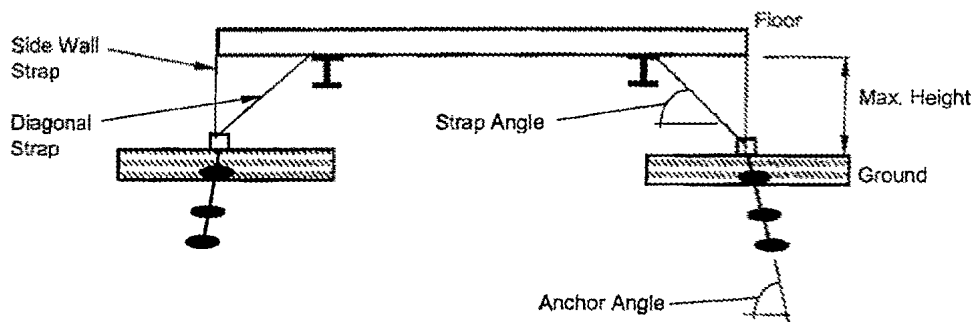
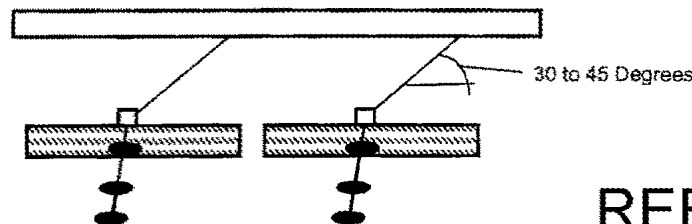
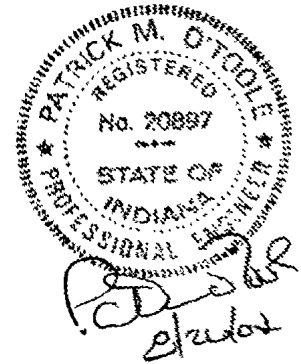
CHAPTER 12
WIND ZONE II AND III
INSTALLATION INSTRUCTIONS

APPROVED BY
**Dec 17, 1999**
INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

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)

REF. CALC. PG.

CA-I - 141.01 - 141.12

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.

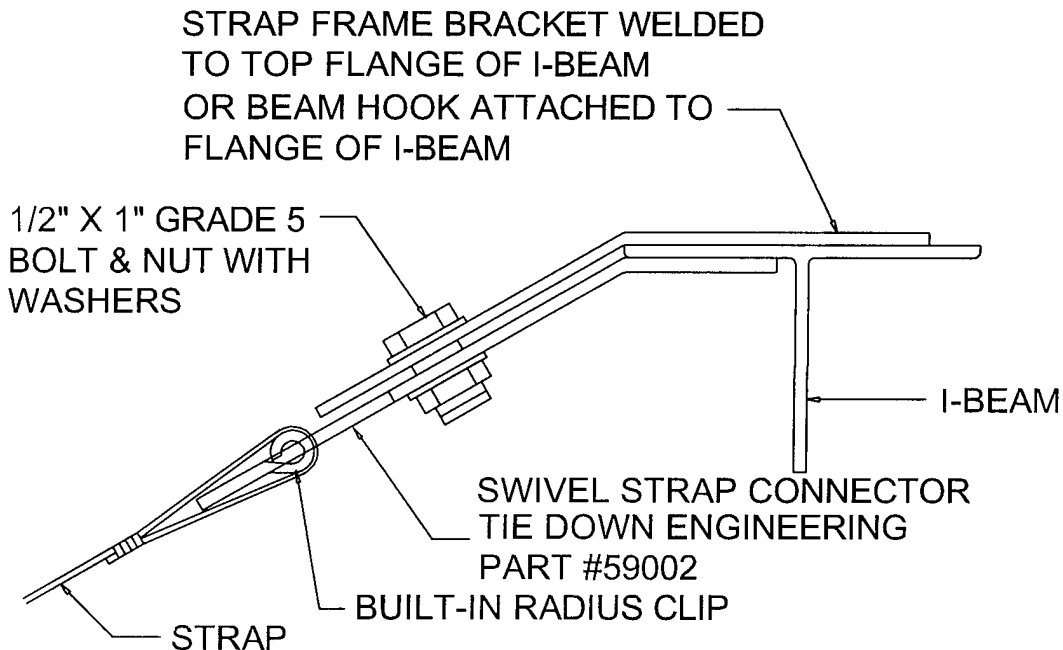
19. the longitudinal straps must be fastened to the i-beam via an approved method.

SWIVEL STRAP FRAME CONNECTOR

APPROVED BY



Sep 01, 2004



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.

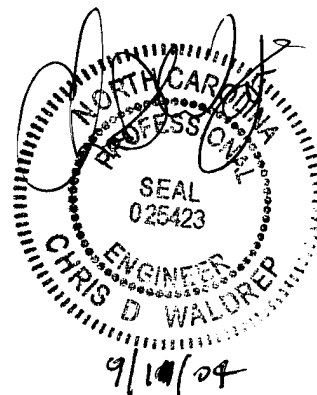
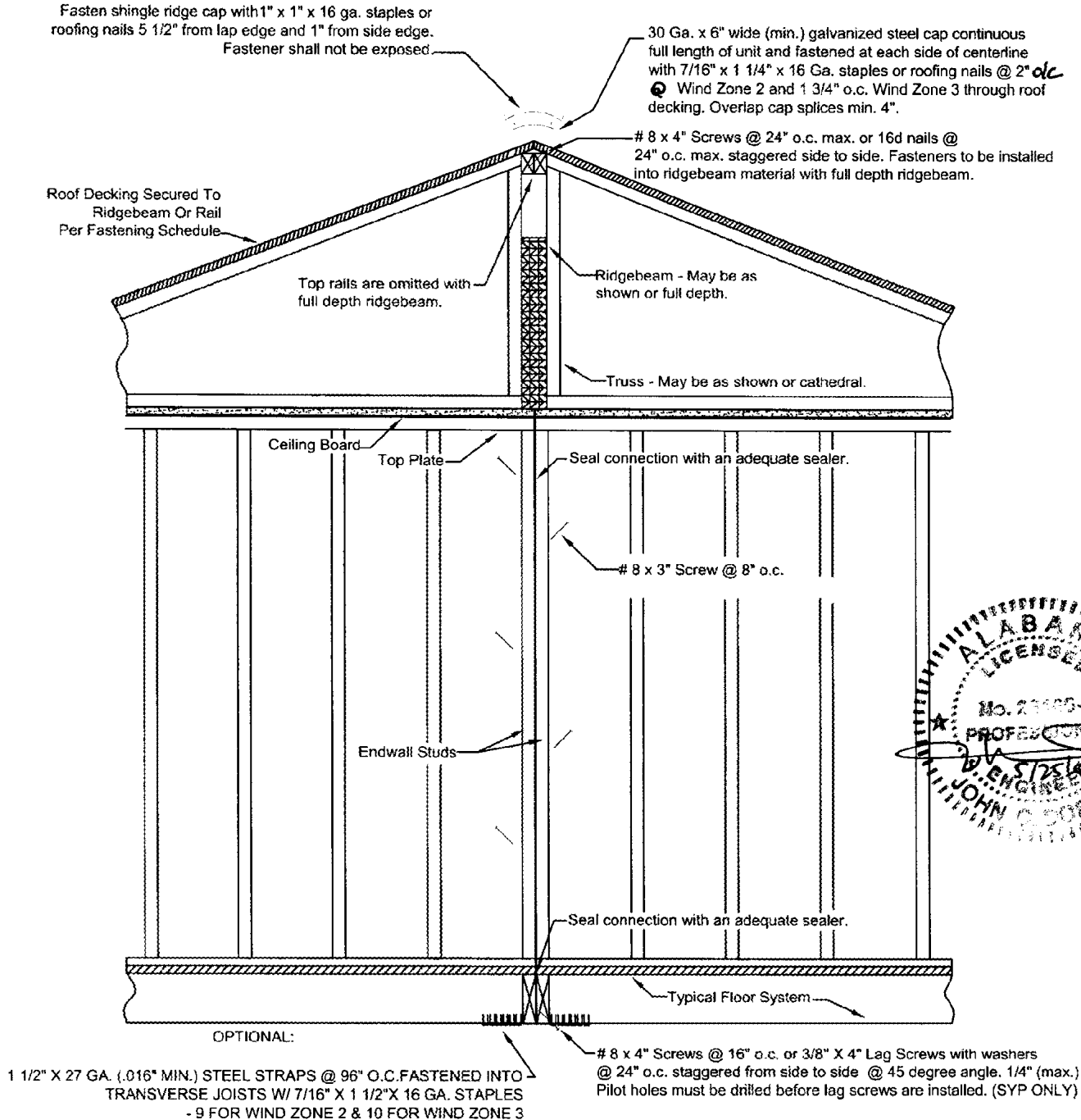


FIGURE 12.10 - Doublewide Onsite Fastening - Wind Zone 2 & 3
20 Degree Max. Roof Slope, 84" Sidewall, 184" Floor Width

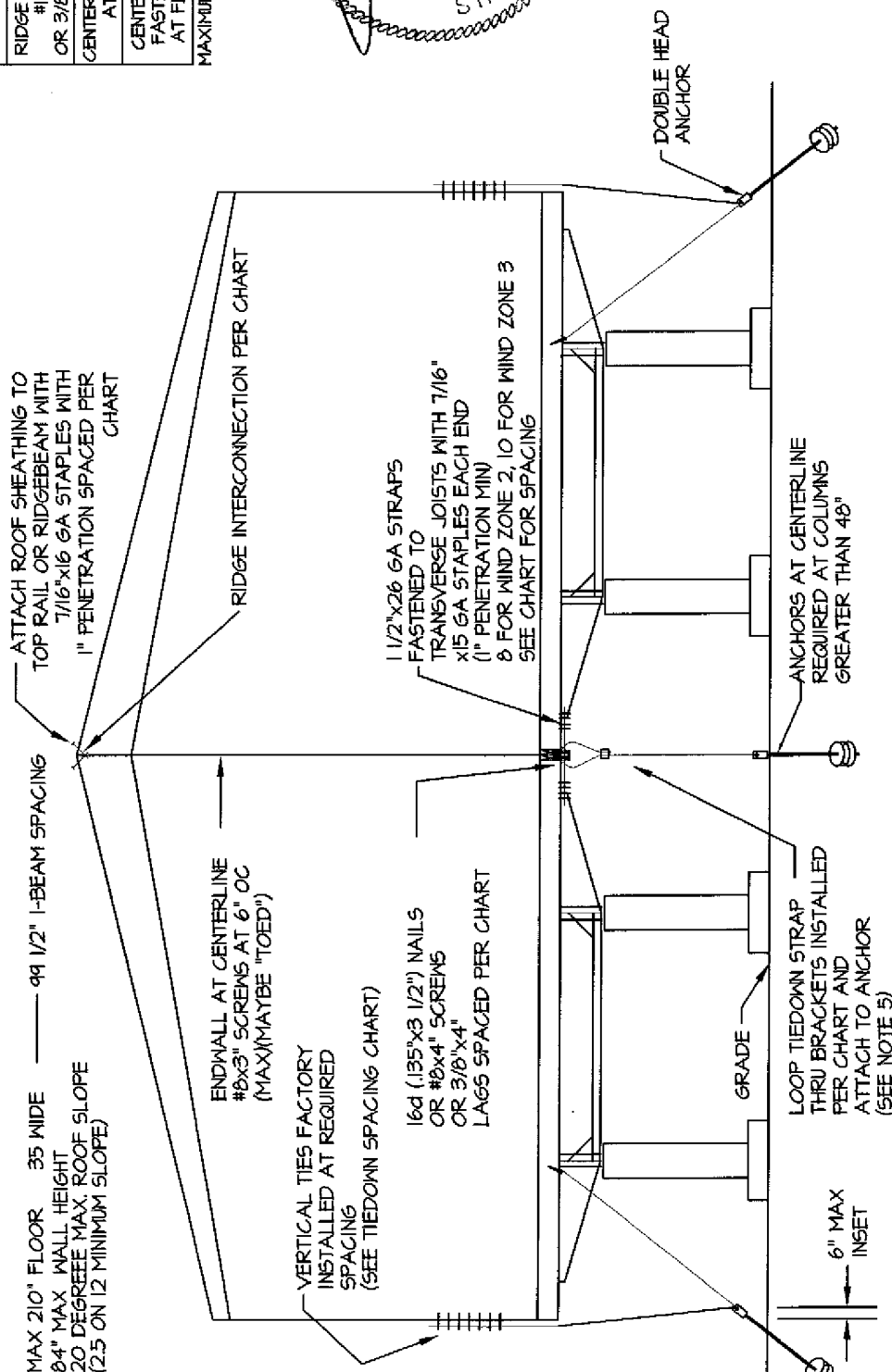
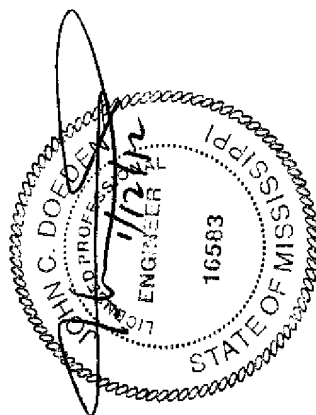


NOTES:

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.

LEGACY HOUSING

MAXIMUM FASTENER SPACING CHART 84" SIDEWALL HEIGHT		
	WIND ZONE 2	WIND ZONE 3
CONNECTION		
SHEATHING TO TOP RAILS OR RIDGEBEAM	2 1/4" O.C.	1 7/8" O.C.
RIDGE INTERCONNECTION #10x4" SCREWS OR 3/8"x5" LAG SCREWS	8" O.C. 12" O.C.	6 3/4" O.C. 10" O.C.
CENTERLINE STRAPS AT FLOOR	46" O.C.	46" O.C.
CENTERLINE FASTENING AT FLOOR	22" O.C. 21" O.C. 26" O.C.	20" O.C. 19" O.C. 22" O.C.
MAXIMUM UNIT LENGTH = 76'-0"		



- NOTES:
1. ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 3150# (4125# ULTIMATE).
 2. DOUBLE HEADED ANCHORS TO BE RATED FOR THE COMBINED LOAD AND SHOULD BE INSTALLED WITH STABILIZER PLATES.
 3. DIAGONAL TIES TO BE INSTALLED FROM I-BEAM AT SAME LOCATIONS AS VERTICAL TIES. REFER TO TABLES (FIGURES 5.8.1) STARTING AT 24" FROM EACH END (MAX OPEN END SPACING).
 4. MARRIAGE WALL ANCHORS MAYBE SINGLE HEAD WITH A 3150# MIN CAPACITY (4725# ULTIMATE).
 5. BRACKETS ARE 1/2"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.
 6. FOR 35'-0" WIDES, WIND ZONE 2: MAX. OPENING FOR (1) BRACKET = 16'-4" AND MAX. OPENING FOR (2) BRACKETS = 32'-8" FOR 35'-0" 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.
- (SEE NOTE 3)

APPROVED BY

NTA
INC.

Jan 24, 2012

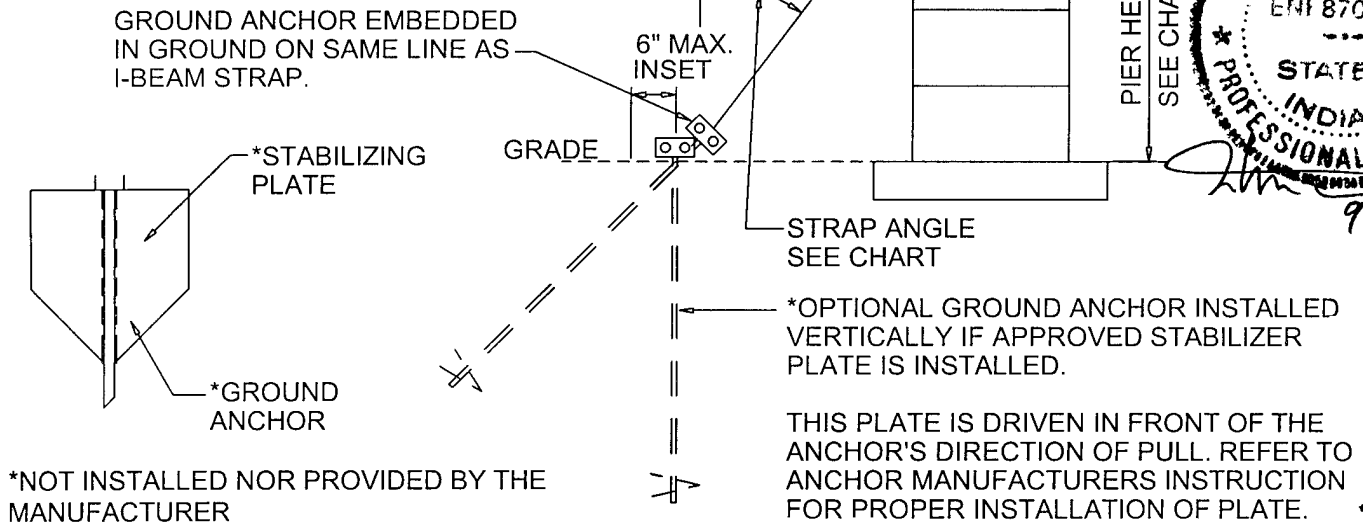
Ref. C-I-179.01 - 179.08

Appendix A – Frame tie installation – Wind zone 1

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 Jun 10, 2005
 FEDERAL MANUFACTURED HOME
 CONSTRUCTION AND SAFETY STANDARDS

STEEL ANCHORING EQUIPMENT
 EXPOSED TO THE WEATHER SHALL
 BE PROTECTED WITH AT LEAST
 0.30 OZ. OF ZINC PER SQUARE
 FOOT OF STEEL.



NOTE: If anchoring system is not installed as shown a registered engineer shall be consulted for an acceptable design.

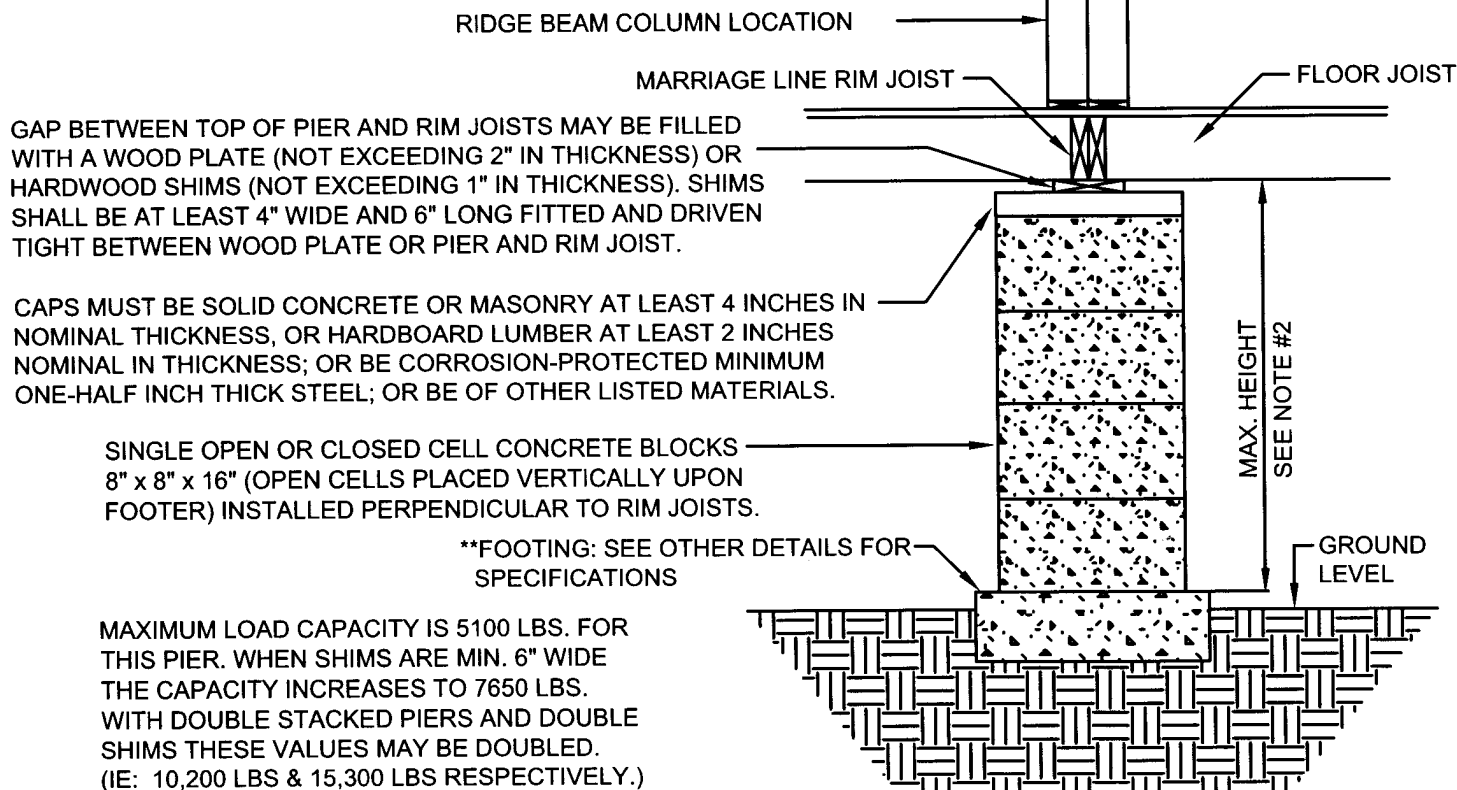
1. All tie down straps shall be 1 1/4" x .035 galvanized steel conforming to ASTM Standard (D3953-91) specification for strapping, flat steel and seal with an ultimate load capacity of 4725 lbs.
2. Ground anchors shall be capable of resisting a tensile load of 3150 lbs. per strap.
3. Tiedowns must start no more than 2'-0" from each end of unit (i.e. open anchorage). Protection shall be provided at sharp corners where the anchoring system requires external straps or cables. In all cases, no exposed part of anchoring system shall protrude past edge of floor.
4. Install the frame tie down straps on the outermost I-Beam of the home using the spacing shown in this manual.
5. Ground anchors should be installed to their full depth and embedded below the frost line and be at least 12" above the water table.
6. See Chapter 11 for Minute Man Anchor installation instructions.
7. Tie down straps must be tightened alternately on opposite sides of the home or the home may be pulled off it's supports.
8. Over the roof tie downs (i.e. park straps) are not required and shall not be used in lieu of frame tiedowns. (May be used in addition to frame ties). Optional over the roof tie down straps may be installed by the manufacturer. Location to be as close to the ends as possible, but not greater than 8'-0". Over the roof tie down strap material must be of the same material as the required tie down straps. (See note 1 above). 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.

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 $1\frac{1}{2}$ " x 8" BEARING AREA FOR 5100 LBS. AND $1\frac{1}{2}$ " 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".



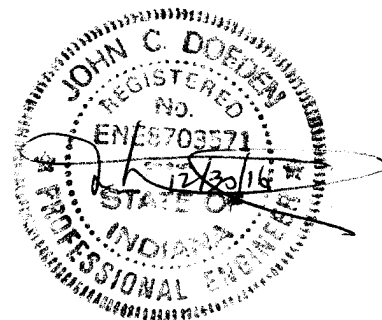
**PLACE BOTTOM OF FOOTING BELOW FROST LEVEL
OR MINIMUM 4" BELOW GRADE (WHICHEVER IS GREATEST).

NOTE:

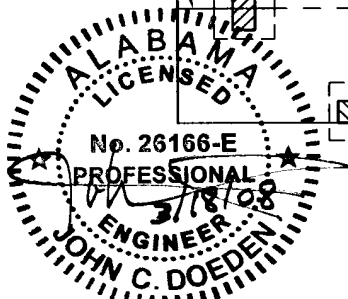
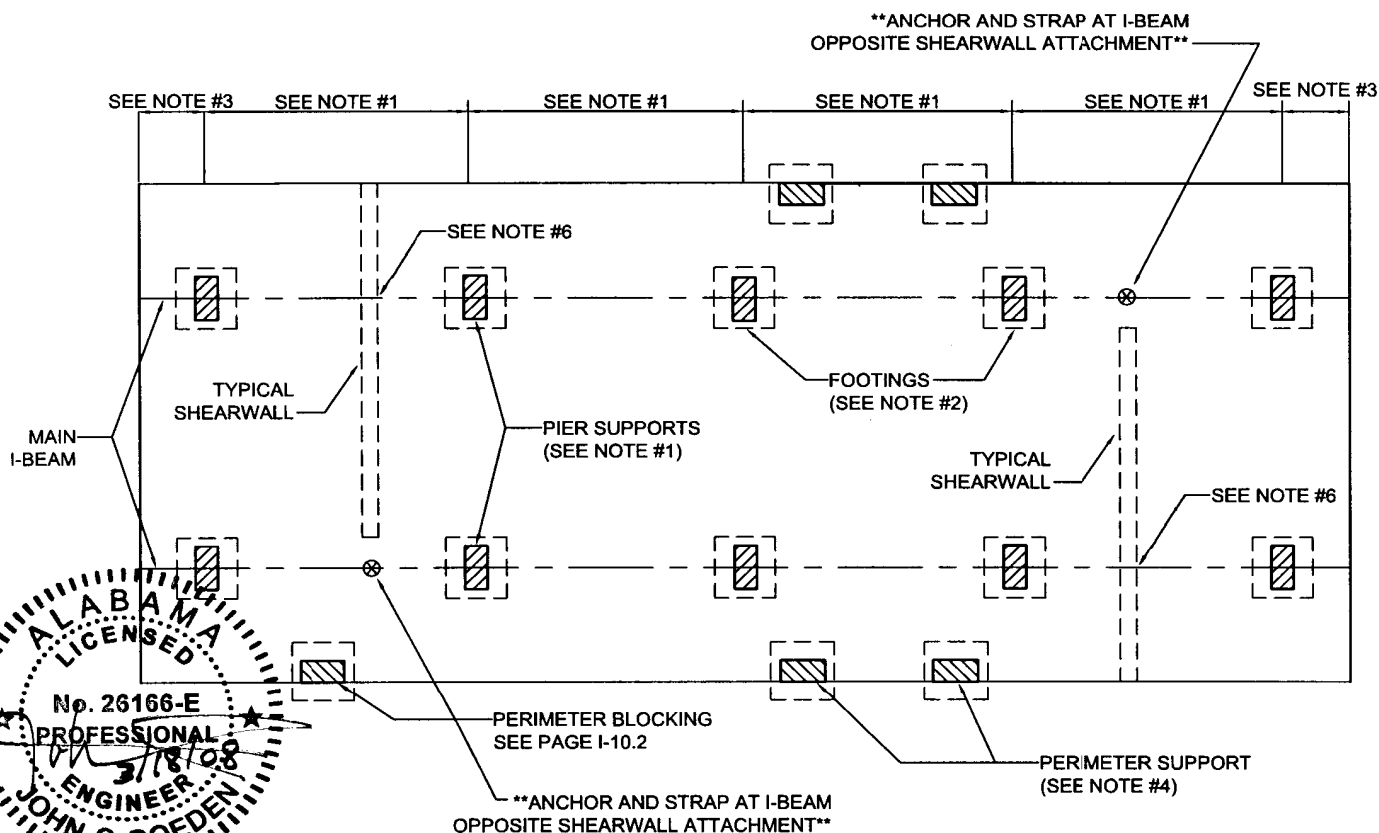
PIER LOCATIONS ARE IDENTIFIED BY LABELS OR PAINT ON THE BOTTOM BOARD AT THE COLUMN SUPPORT LOCATIONS.

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CONSTRUCTION AND SAFETY STANDARDS
REVISED
1/25/2017

I-A-2



TYPICAL BLOCKING LAYOUT FOR SINGLE SECTION HOMES WIND ZONE 1

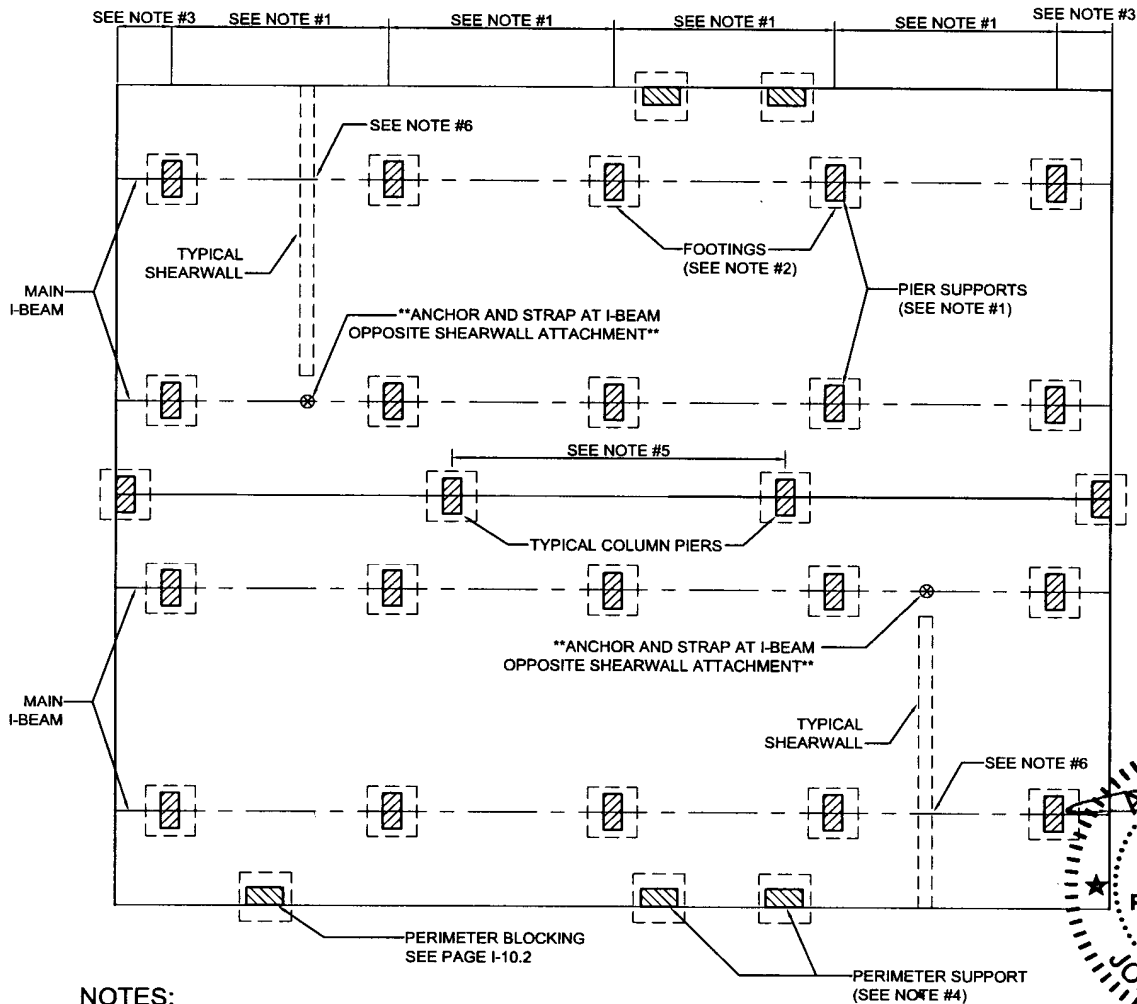


NOTES:

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:

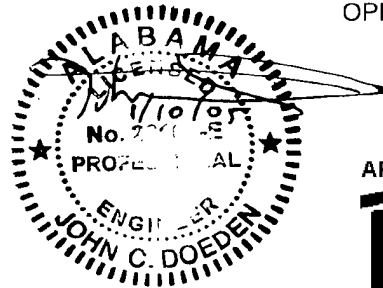
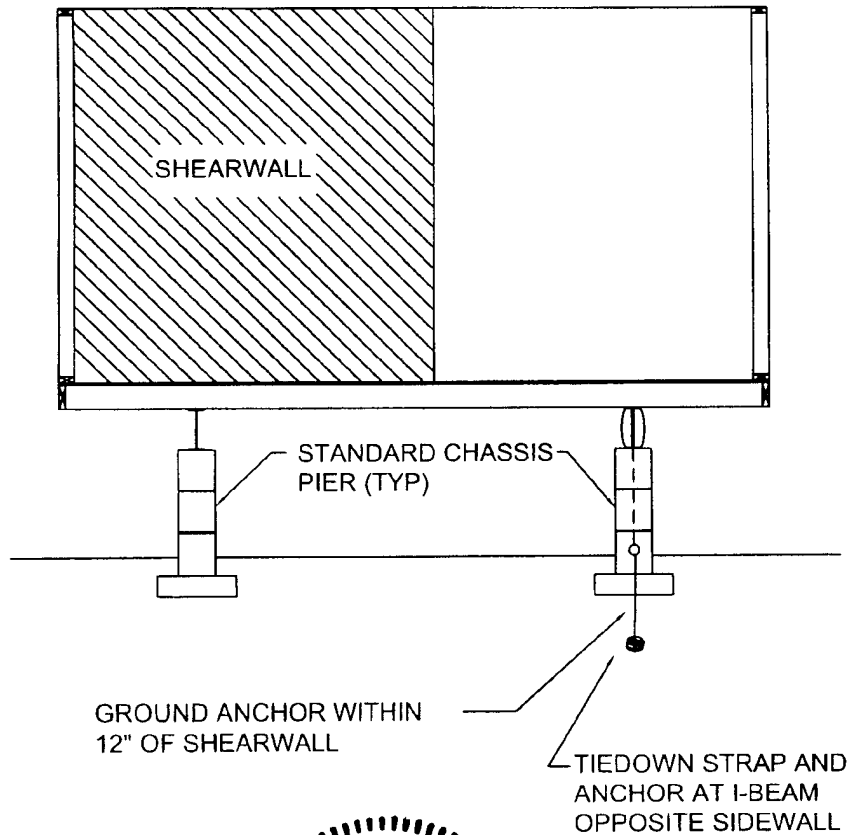
1. SEE OTHER PAGES IN SETUP MANUAL FOR REQUIRED CAPACITY AND SPACING.
2. SEE OTHER PAGES IN SETUP MANUAL FOR FOOTING REQUIREMENTS.
3. PIERS SHALL BE LOCATED A MAXIMUM OF 2 FEET FROM BOTH ENDS.
4. PIERS SHALL BE LOCATED AT EACH SIDE OF ALL PERIMETER OPENINGS FOUR (4) FEET OR WIDER IN WIDTH AS IDENTIFIED 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
NIA INC.
FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

TYPICAL SHEARWALL TIEDOWN INSTALLATION WIND ZONE 1

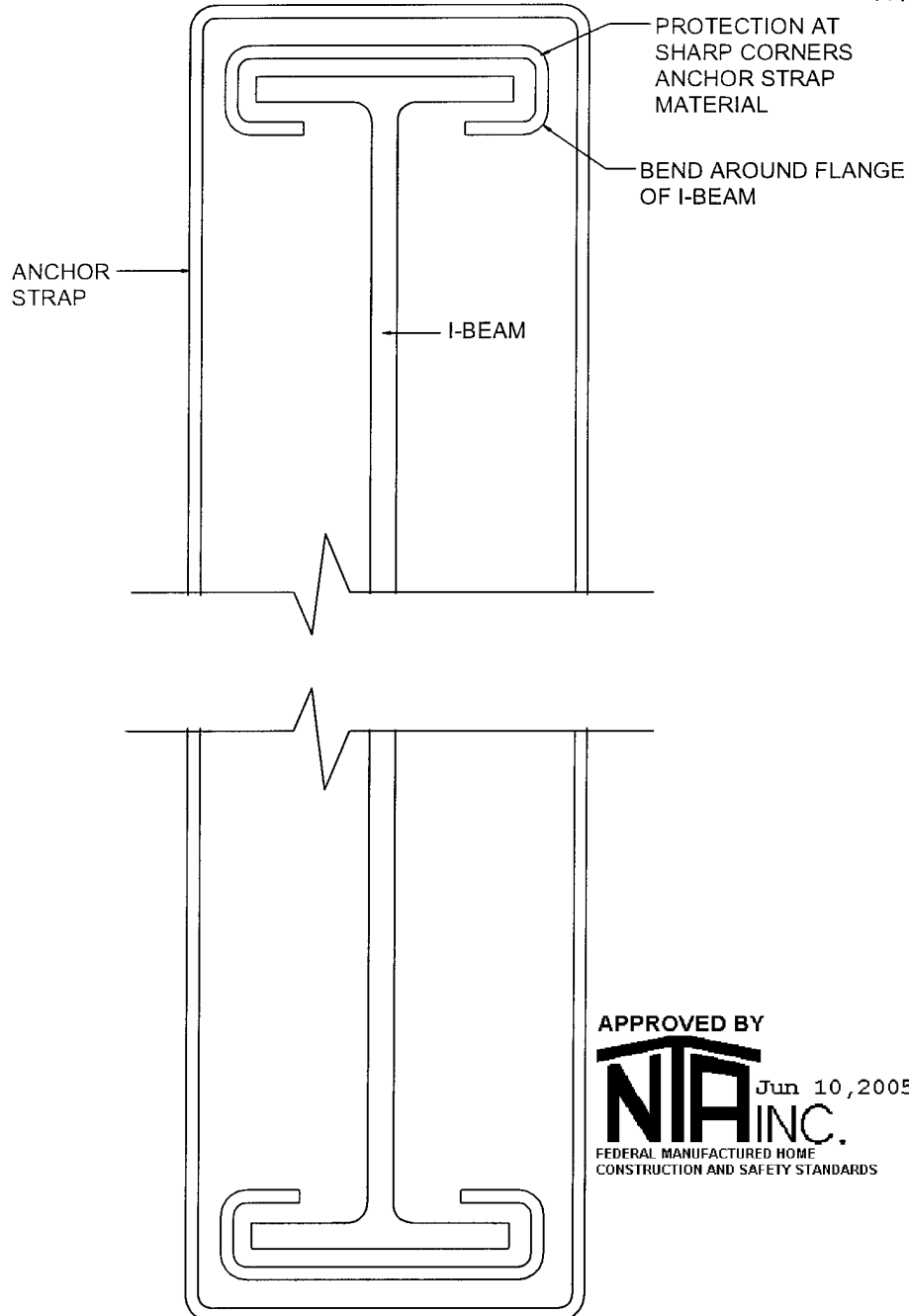
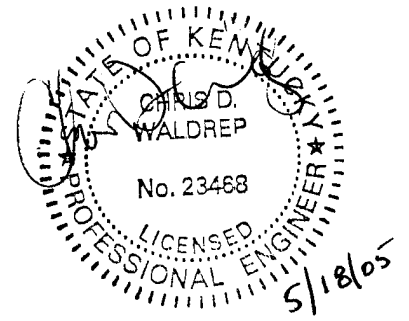


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NOTES:

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

PROTECTION OF SHARP CORNERS FOR TIEDOWN STRAPS

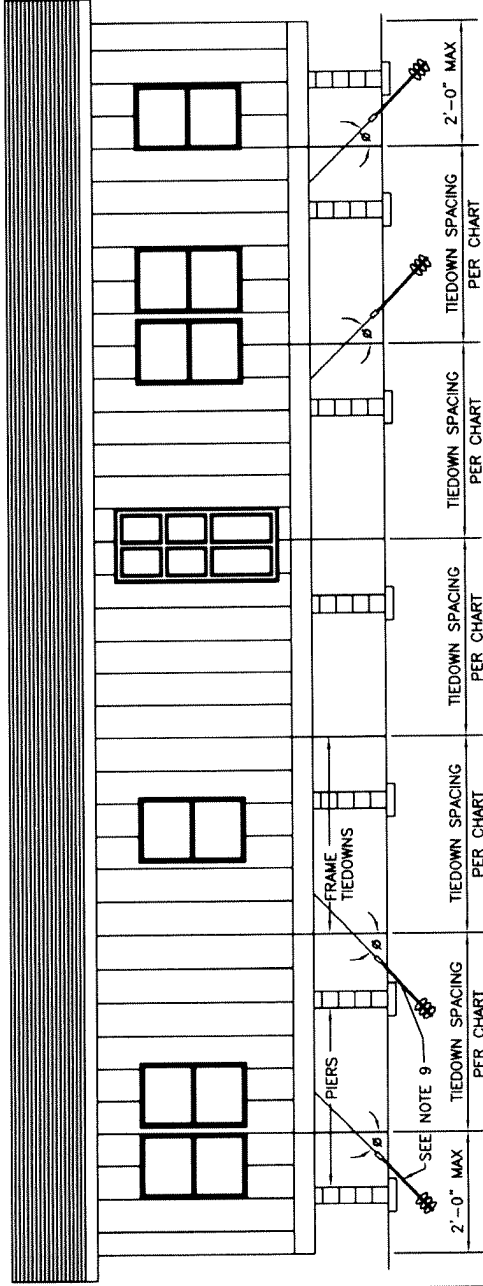


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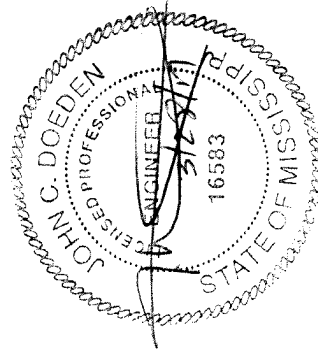
Protection of sharp corners for tiedown straps must be provided at sharp corners, such as where strap is bent around steel I-Beams. Protection is to be provided by means of a piece of anchor strap material placed between I-Beam and strap at sharp corners.

TIEDOWN SYSTEM WIND ZONE 2 (100 MPH)

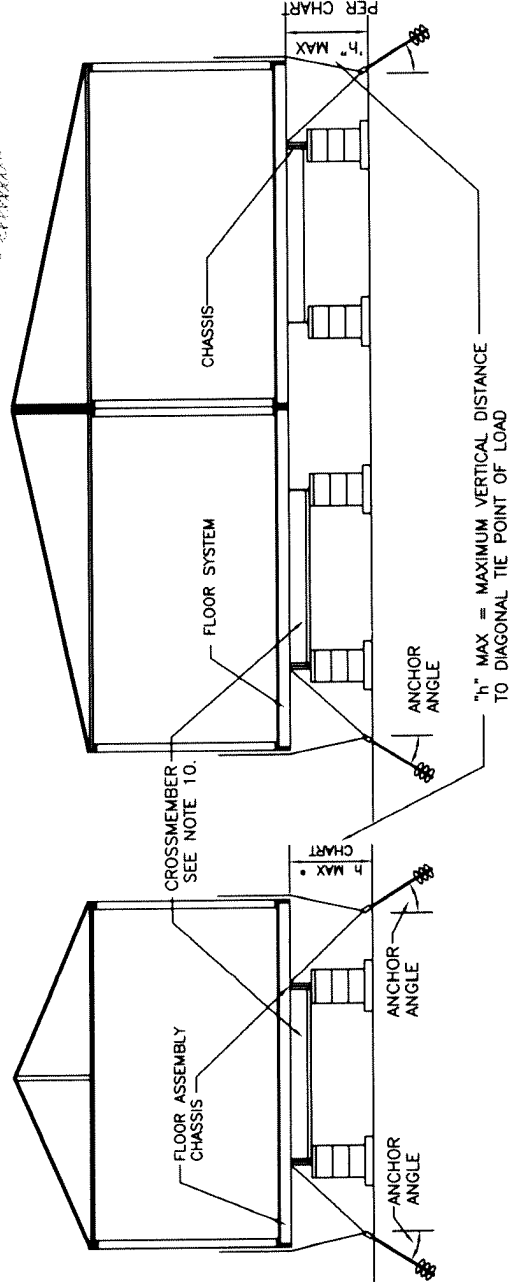
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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REVISED 4/7/2017
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CONSTRUCTION AND SAFETY STANDARDS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



• PIER HEIGHT INCLUDES DEPTH OF I-BEAM

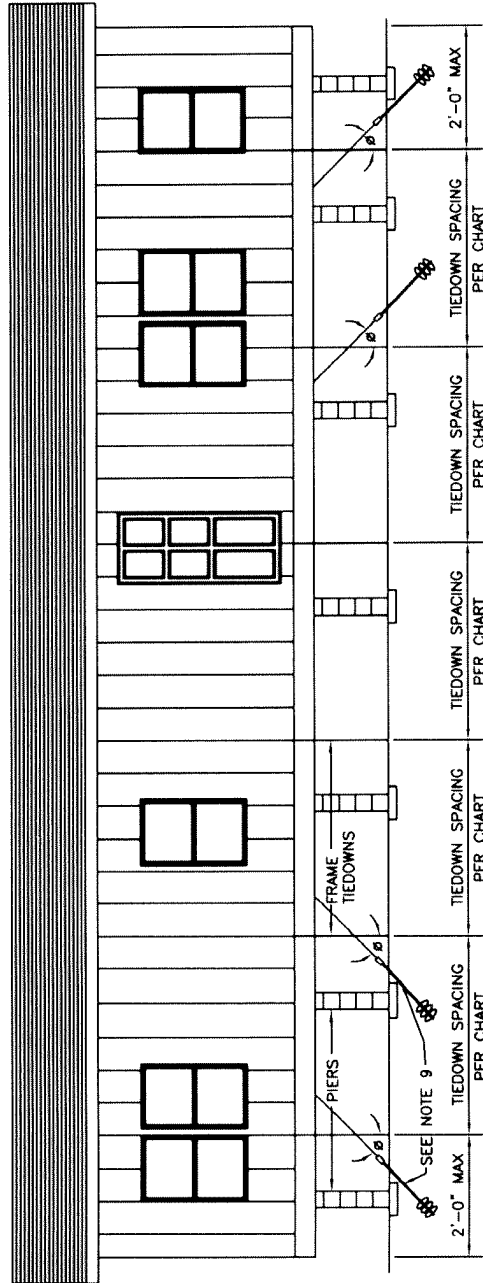
- NOTES:
1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
 2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
 3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE 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 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 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 DEPTH, AND STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
 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 CHART'S 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

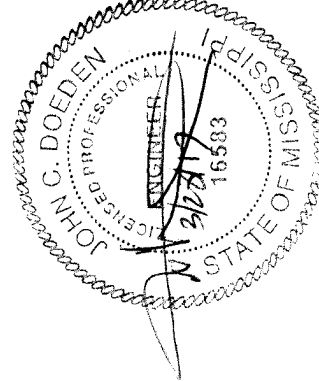
FRAME TIEDOWN SPACING CHART (SEE NOTE 10)			
FLOOR WIDTH	EAVE OVERHANG	SPACING	WIND ZONE 2 h" MAX ANCHOR ANGLE
15'-4" SINGLE	8" MAX	6'-8"	30° 30-40
		5'-4"	25-30
30'-8" DOUBLE	8" MAX	6'-8"	29° 30-40
		5'-4"	25-30
17'-6" SINGLE	3"	6'-8"	38° 35-40
		5'-4"	30-35
35'-0" DOUBLE	8" MAX	6'-8"	37° 35-40
		5'-4"	25-30
LONGITUDINAL TIEDOWN QUANTITY CHART			
FLOOR WIDTH	QUANTITY (MIN) 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	

TIEDOWN SYSTEM WIND ZONE 3 (110 MPH)

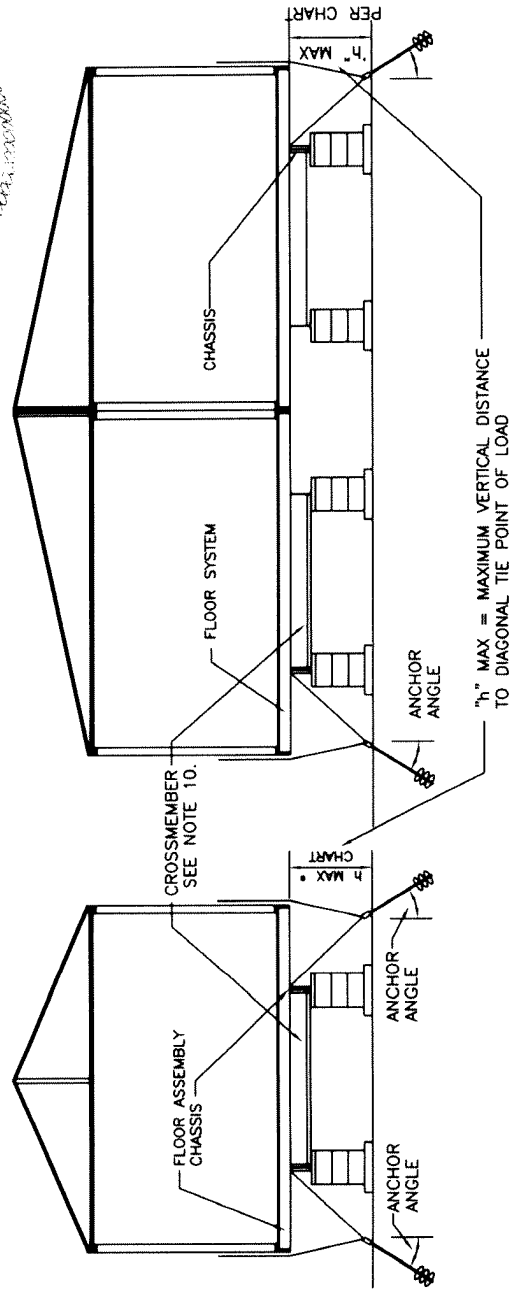
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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4/7/2017
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CONSTRUCTION AND SAFETY STANDARDS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

I-B-1.1

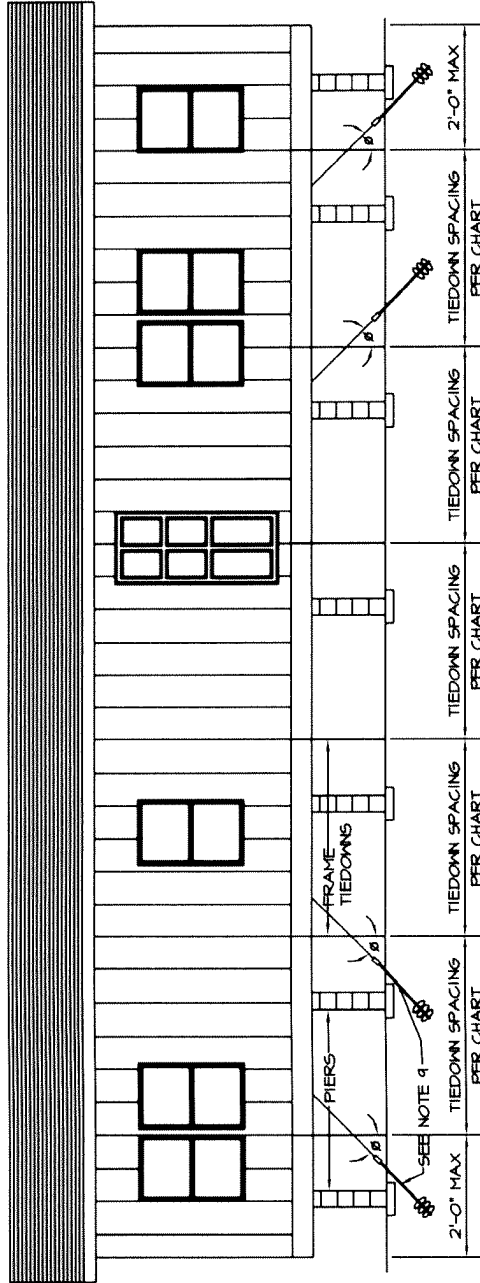
- NOTES:
1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
 2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
 3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE 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.
 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

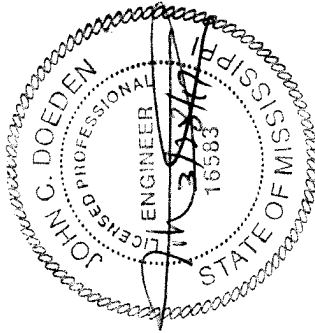
FRAME TIEDOWN SPACING CHART (SEE NOTE 10)				
FLOOR WIDTH	EAVE OVERHANG	SPACING	h" MAX	ANCHOR ANGLE
15'-4" SINGLE	8" MAX	5'-4"	28"	30-35
30'-8" DOUBLE	8" MAX	4'-0"	52"	25-30
17'-6" SINGLE	3" MAX	5'-4"	28"	30-35
35'-0" DOUBLE	8" MAX	4'-0"	48"	25-30
		5'-4"	66"	30-35
		4'-0"	62"	25-30
LONGITUDINAL TIEDOWN QUANTITY CHART				
FLOOR WIDTH	QUANTITY (MIN) 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		

LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE 2 (100 MPH)

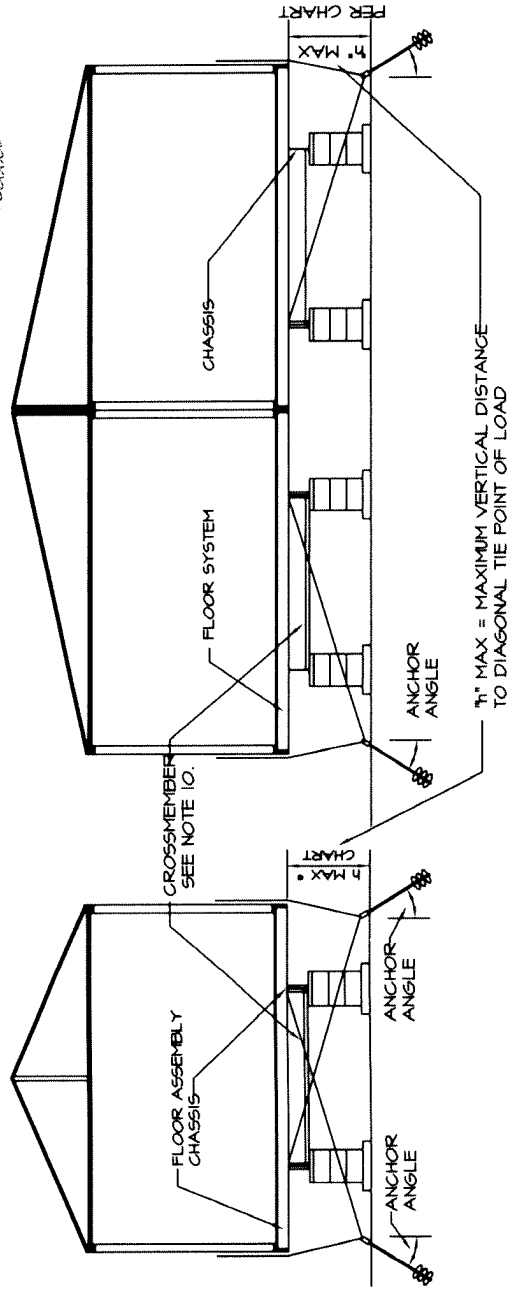
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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4/7/2017
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CONSTRUCTION AND SAFETY STANDARDS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

I-B-1.2

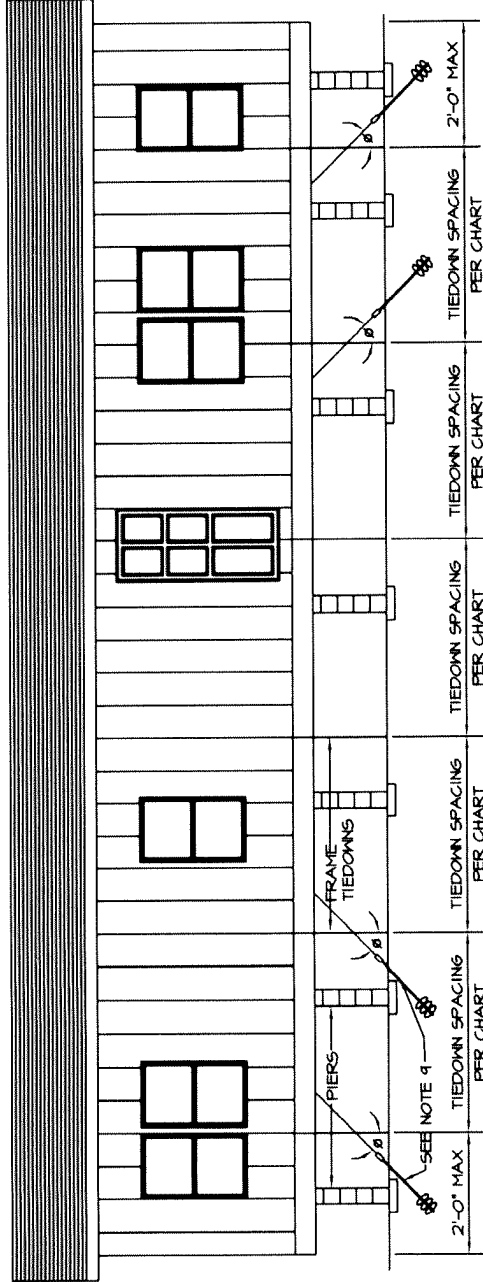
- NOTES:
1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
 2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
 3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE 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 94-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL 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 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 .095 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 MAXIMUM ROOF SLOPE

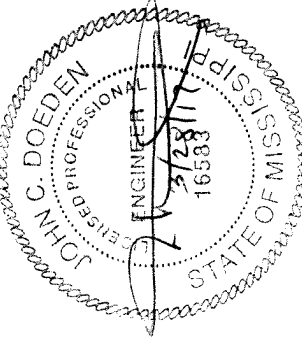
FRAME TIEDOWN SPACING CHART (SEE NOTE 10)				
FLOOR WIDTH	EAVE OVERHANG	SPACING	T ₁ MAX	ANCHOR ANGLE
184" MAX SINGLE	8" MAX	8'-0"	42"	50-55
184" MAX DOUBLE	8" MAX	8'-0"	44"	45-50
LONGITUDINAL TIEDOWN QUANTITY CHART				
FLOOR WIDTH	QUANTITY (MIN) EACH SECTION	ANCHOR ANGLE (DEGREES)		
184" MAX SINGLE	4	30-60		
184" MAX DOUBLE	3	44-60		

LEGACY HOUSING
TIEDOWN SYSTEM
WIND ZONE 3 (110 MPH)

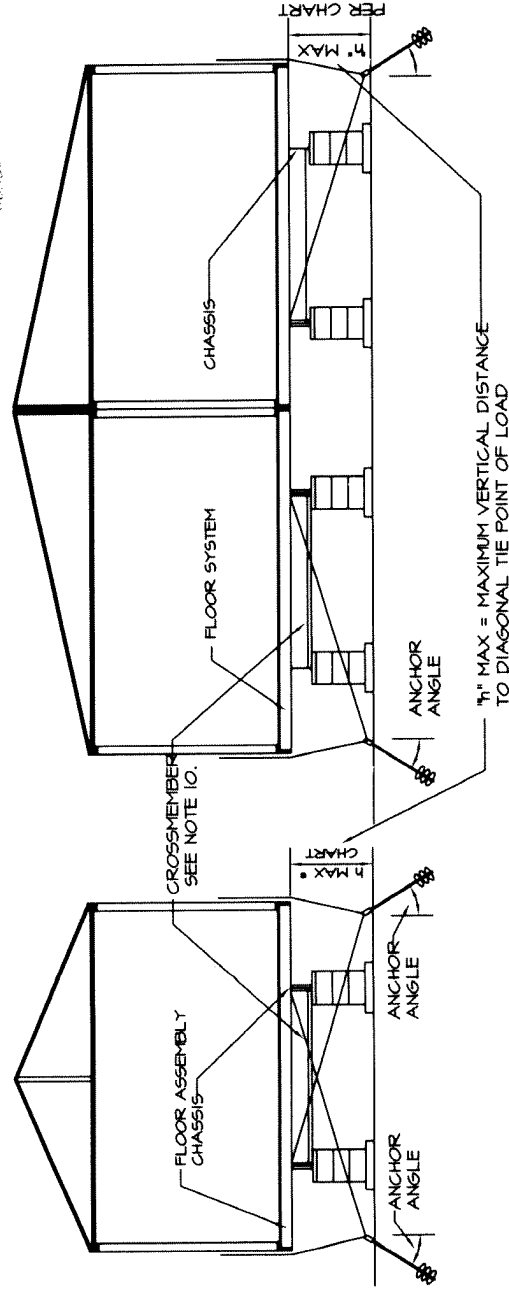
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



* PIER HEIGHT INCLUDES DEPTH OF I-BEAM

I-B-1.3

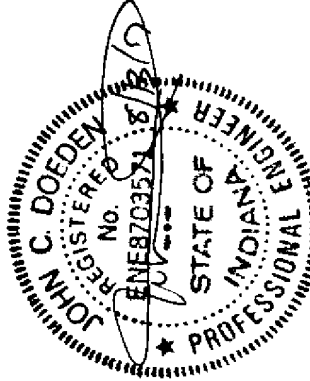
- NOTES:
1. THE ANCHORING SYSTEM, WHEN PROPERLY INSTALLED, WILL SECURE THE HOME FOR THE DESIGN WIND LOADS.
 2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
 3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE 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 94-1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-6".
 9. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT NOTES 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 D3953-07.
 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 D3953-07, 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	1" MAX	ANCHOR ANGLE
104" MAX SINGLE	8" MAX	6'-8"	36"	45-50
104" MAX DOUBLE	8" MAX	6'-8"	32"	45-50
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		

SPECIAL NOTE:
A COPY OF THIS DRAWING
IS TO BE SHIPPED WITH
THE HOME AS PART OF
THE INSTALLATION INSTRUCTIONS
MANUAL

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Aug 27, 2007
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OPPOSITE SIDE WITHOUT CUT CORNER.
SEE NOTE 1.

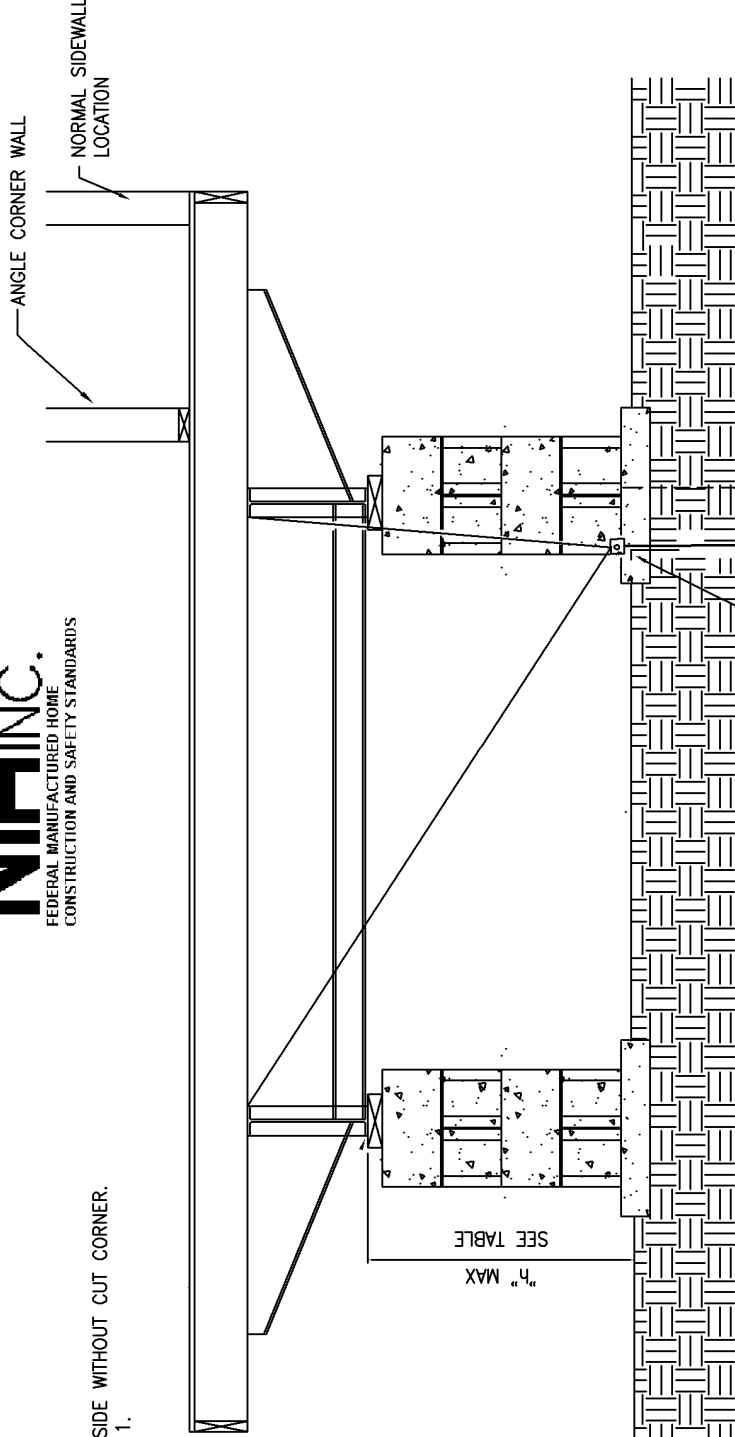


TABLE FOR TIEDOWNS		
WIND ZONE	184" UNIT WIDTH	
	h MAX	DISTANCE TO 2nd TIEDOWN FROM ENDWALL *
II	48"	8'-8"
III	46"	7'-4"

* 2nd TIEDOWN AND BEYOND TO BE INSTALLED
IN ACCORDANCE WITH STANDARD DESIGN.

6" MAX.
LOCATED 2'-0" MAX. FROM ENDWALL

1st TIEDOWN MUST BE TIED TO BOTH I-BEAMS
AS SHOWN. 2nd TIEDOWN IS TO BE PER STANDARD
METHOD WITH VERTICAL TIEDOWN LOCATED FROM
ENDWALL A DISTANCE AS SPECIFIED IN TABLE.

LEGACY HOUSING

GENERAL NOTES

- THIS DETAIL APPLIES ONLY TO CUT CORNERS. ALL OTHER ANCHORS ARE TO BE INSTALLED ACCORDING TO THE STANDARD METHOD OF TIEDOWN.
- VERTICAL TIE IS TO BE FURNISHED AND INSTALLED BY INSTALLER. VERTICAL TIE TO BE ATTACHED TO RIM AND TO LINE UP WITH DIAGONAL TIE ON I-BEAMS.
- WIND ZONE II (100 MPH & III (110 MPH).
- MAXIMUM DISTANCE TO NEXT TIEDOWN PER TABLE
- ANCHORS RATED AT 4725# ULTIMATE LOAD MUST NOT BE LOCATED WITHIN 3'-0" OF ANY OTHER ANCHORS
- 184" UNIT WIDTH WITH 99 1/2" BEAM SPACING.
- STEEL BRACKETS, WASHERS AND FASTENERS PENETRATING OR IN CONTACT WITH PRESSURE TREATED LUMBER TO BE G185 OR ZMAX GALVANIZED COATED OR STAINLESS STEEL.

THIS DOCUMENT HAS BEEN PREPARED BY
HOUSING DESIGN GROUP
1885 S. QUEBEC WAY #E15
DENVER, CO 80231 (303)696-8758

REVISIONS	
NO	DESCRIPTION

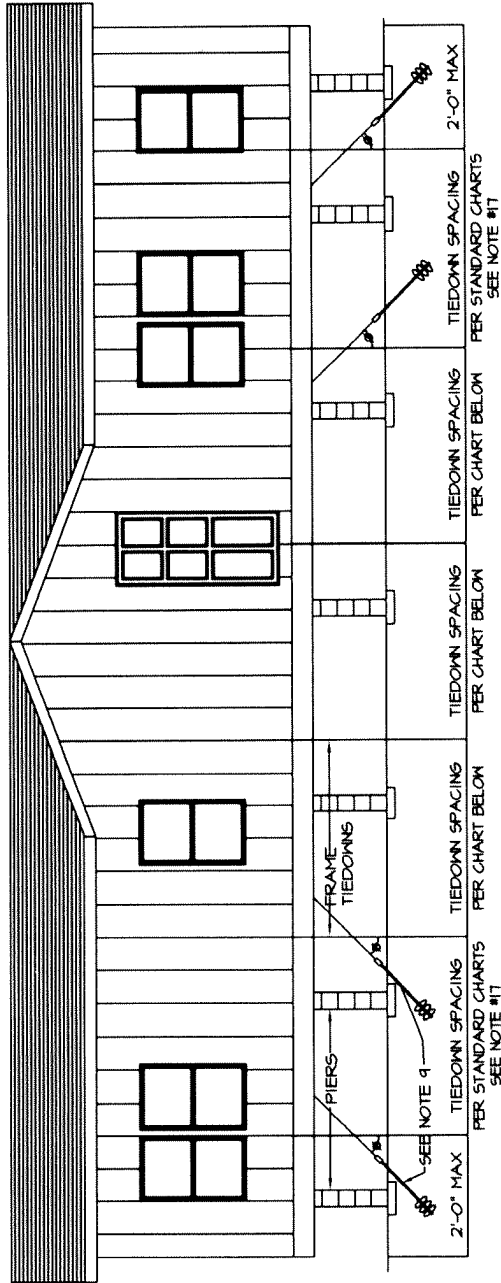
TIE DOWN AND

ANCHORING DETAIL

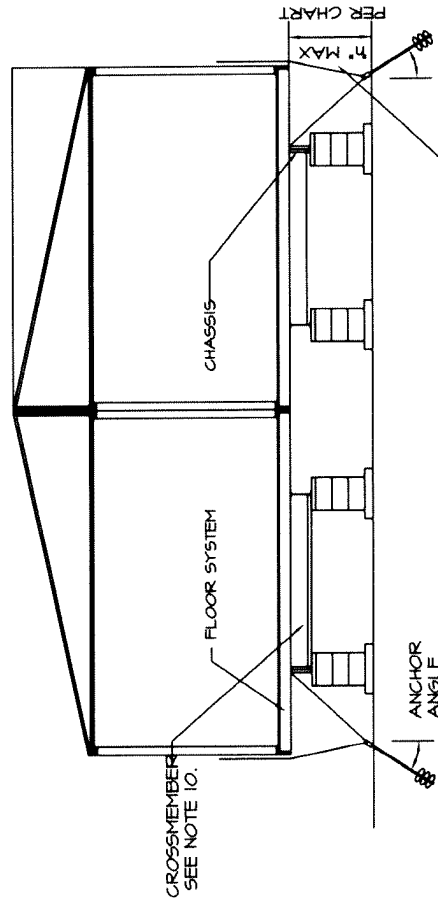
DRAWN BY: R. ULLMAN 06/30/97
CHECKED BY:

DRAWING NO. I-B-2

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



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

REvised
4/7/2017

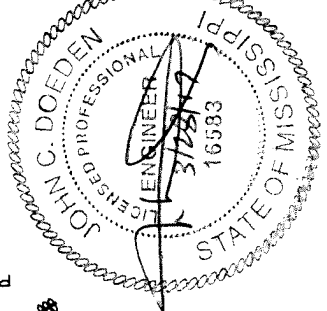
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NOTES:

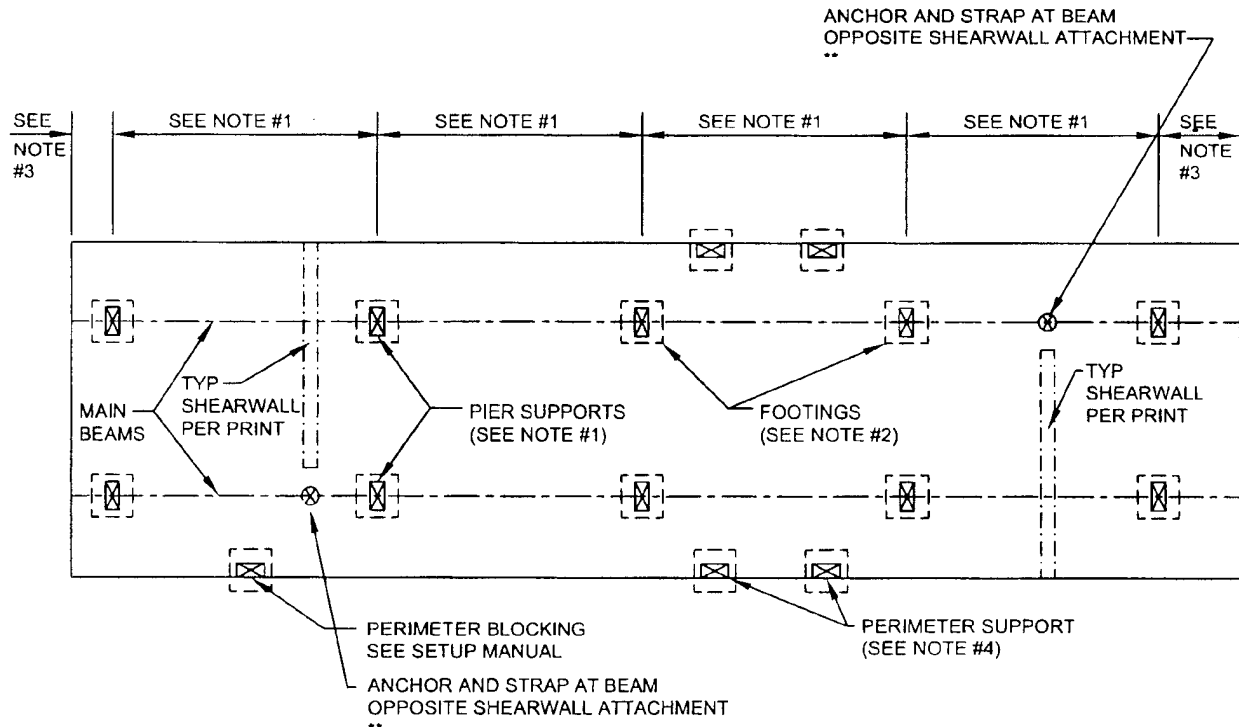
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2. HOMES LOCATED IN WIND ZONE 2 OR 3 MUST HAVE A VERTICAL TIE INSTALLED AT EACH DIAGONAL TIE LOCATION.
3. EACH VERTICAL TIE (AT DIAGONAL TIE LOCATIONS) MUST BE SECURED IN CONJUNCTION WITH THE DIAGONAL TIE TO A DOUBLE HEADED ANCHOR INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE OR AN APPROVED 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 9/1 1/2" BEAM SPACING AND A MAXIMUM PRISMATIC WALL HEIGHT OF 4'-6" AT HIGHEST POINT. (7'-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 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 D969-97.
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 D969-97, "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	SPACING	WIND ZONE 2
30'-0" DOUBLE	8' MAX	4'-0" 06	40°
30'-0" DOUBLE	8' MAX	4'-0" 06	30-35
LONGITUDINAL TIEDOWN QUANTITY CHART			
FLOOR WIDTH	QUANTITY (MIN) EACH END OF EACH SECTION	ANCHOR ANGLE MIN Ø	
18'-0" MAX DOUBLE	SEE STANDARD CHARTS		



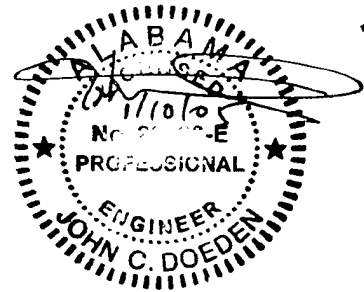
TYPICAL BLOCKING LAYOUT FOR SINGLE-SECTION HOMES WIND ZONE 2 & 3



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.

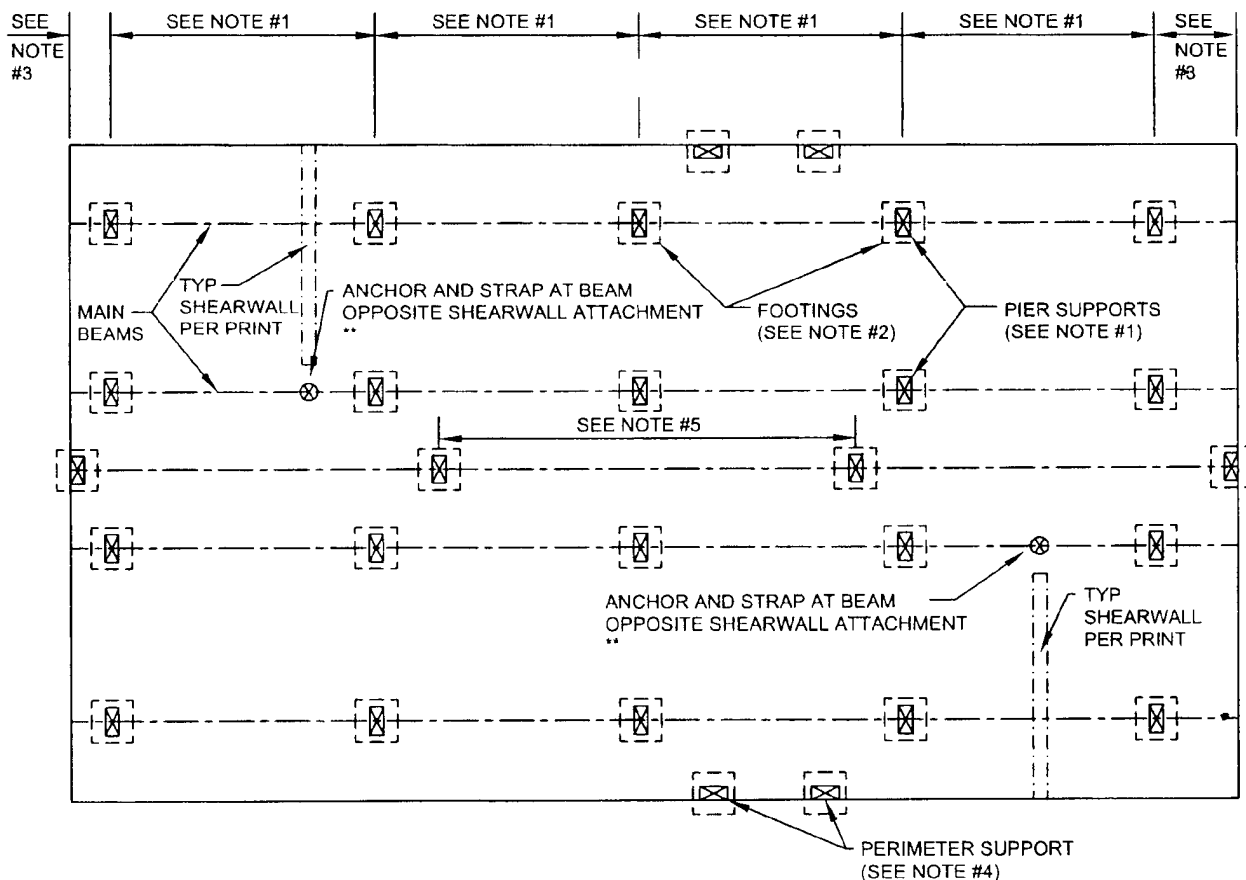


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I-B-3

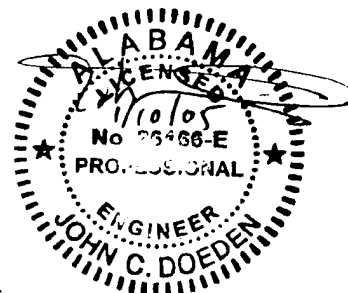
TYPICAL BLOCKING LAYOUT FOR MULTI-SECTION HOMES WIND ZONE 2 & 3



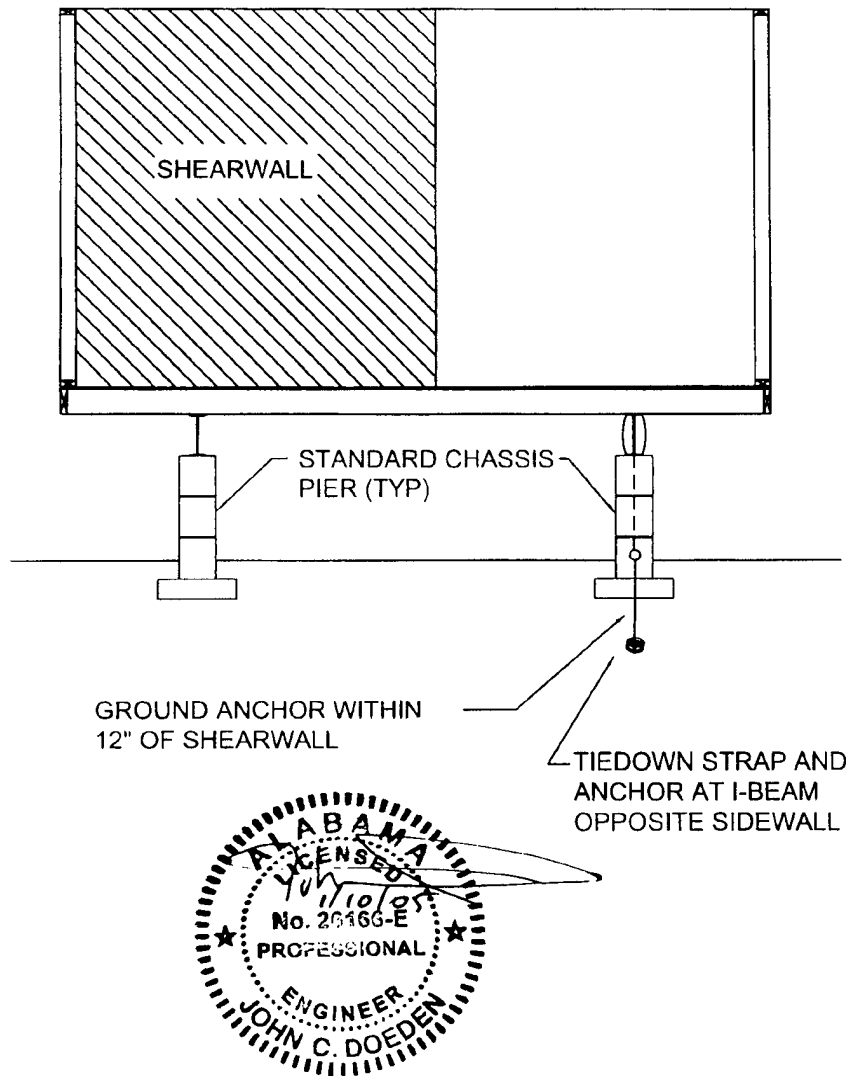
NOTES:

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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.

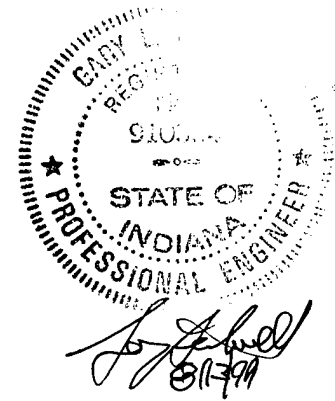
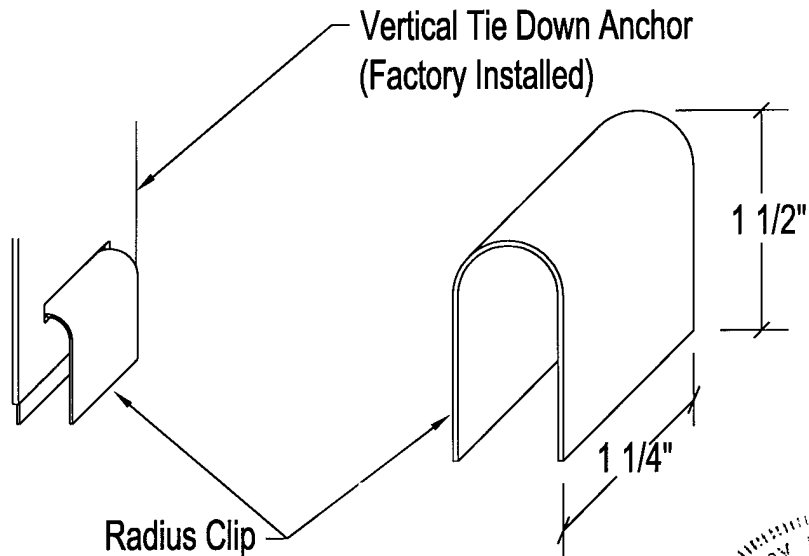
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Jun 10, 2005

I-B-5

Tie Down Radius Clip



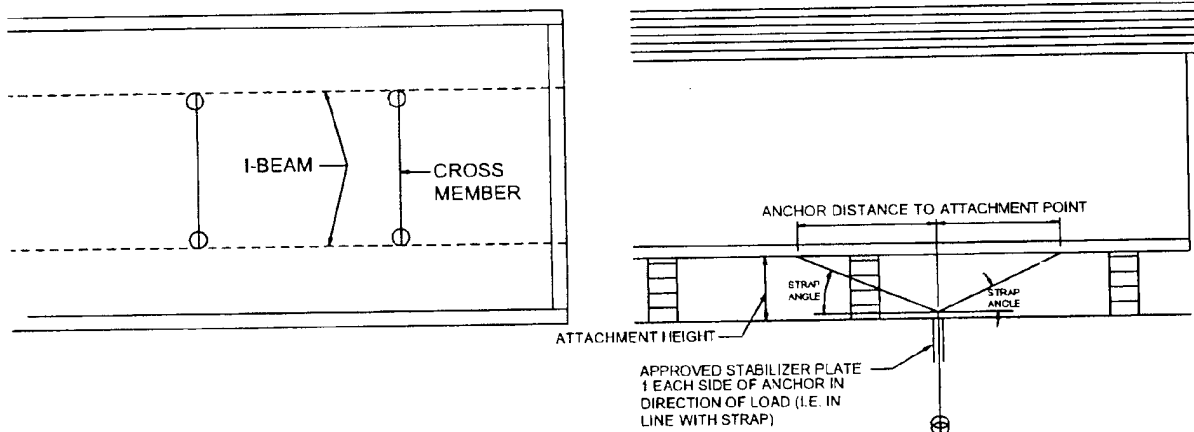
General Notes:

- 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.

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LONGITUDINAL TIE DOWN WIND ZONE 2 & 3



DOUBLE HEADED ANCHOR (MIN. 2 STRAPS PER ANCHOR AS SHOWN); LOCATE ANYWHERE ALONG UNIT LENGTH. QUANTITY PER CHART PER UNIT (ANCHOR AND STRAP MIN. 3150 LBS. WORKING LOAD); ATTACH STRAPS TO CROSSMEMBERS WITH LISTED CRIMP CONNECTORS. (STRAP TO BE LOCATED A MAXIMUM OF 3" FROM UNIT I-BEAM) NOTE: WHEN SINGLE HEADED ANCHOR IS USED QTY. SHOWN IS PER EACH END OF UNIT. OTHER APPROVED METHODS OF LONGITUDINAL ANCHORING MAY BE USED AS LONG AS THEY ARE APPROVED FOR THE APPLIED LOADS AND CONDITIONS PRESENT.

	WIND ZONE 2														WIND ZONE 3													
	DIAG. STRAP ANGLE														DIAG. STRAP ANGLE													
	20	25	30	35	40	45	50	20	25	30	35	40	45	50														
UNIT WIDTH/ROOF PITCH/WALL HEIGHT																												
160" UNIT WIDTH AND 4.34/12 ROOF PITCH /84" WALL HGT.	2	2	2	2	2	3	3	2	2	2	3	3	3	3														
160" UNIT WIDTH AND 4.34/12 ROOF PITCH /96" WALL HGT.	2	2	2	2	3	3	3	3	3	3	3	3	3	3														
180" UNIT WIDTH AND 4.34/12 ROOF PITCH /84" WALL HGT.	2	2	2	2	3	3	3	3	3	3	3	3	3	4														
180" UNIT WIDTH AND 4.34/12 ROOF PITCH /96" WALL HGT.	3	3	3	3	3	3	3	3	3	3	3	4	4	4														
284" UNIT WIDTH AND 4.34/12 ROOF PITCH /96" WALL HGT.	4	4	4	4	5	5	5	4	5	5	5	5	6	6														
320" UNIT WIDTH AND 4.34/12 ROOF PITCH /96" WALL HGT.	4	5	5	5	5	6	6	5	5	6	6	6	7	7														
320" UNIT WIDTH AND 6.9/12 ROOF PITCH /96" WALL HGT.	5	5	5	6	6	6	7	6	6	6	7	7	7	8														
360" UNIT WIDTH AND 4.34/12 ROOF PITCH /96" WALL HGT.	5	5	6	6	6	7	7	6	6	7	7	7	8	8														
360" UNIT WIDTH AND 6.9/12 ROOF PITCH /96" WALL HGT.	6	6	6	7	7	8	8	7	7	8	8	8	9	10														
320" UNIT WIDTH AND 4.34/12 ROOF PITCH /108" WALL HGT.	4	5	5	5	6	6	6	5	5	6	6	7	7	8														
360" UNIT WIDTH AND 4.34/12 ROOF PITCH /108" WALL HGT.	5	5	6	6	6	7	7	6	6	7	7	8	8	9														

ATTACHEMENT HEIGHT	DISTANCE FROM ANCHOR TO POINT OF ATTACHMENT						
	20 DEG	25 DEG	30 DEG	35 DEG	40 DEG	45 DEG	50 DEG
24"	66"	51"	42"	34"	29"	24"	20"
32"	88"	69"	55"	46"	38"	32"	27"
40"	110"	86"	69"	57"	48"	40"	34"
48"	132"	103"	83"	69"	57"	48"	40"
56"	154"	120"	97"	80"	67"	56"	47"
64"	176"	137"	111"	91"	76"	64"	54"

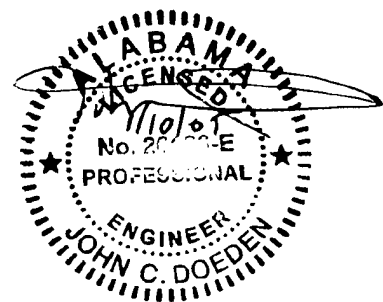
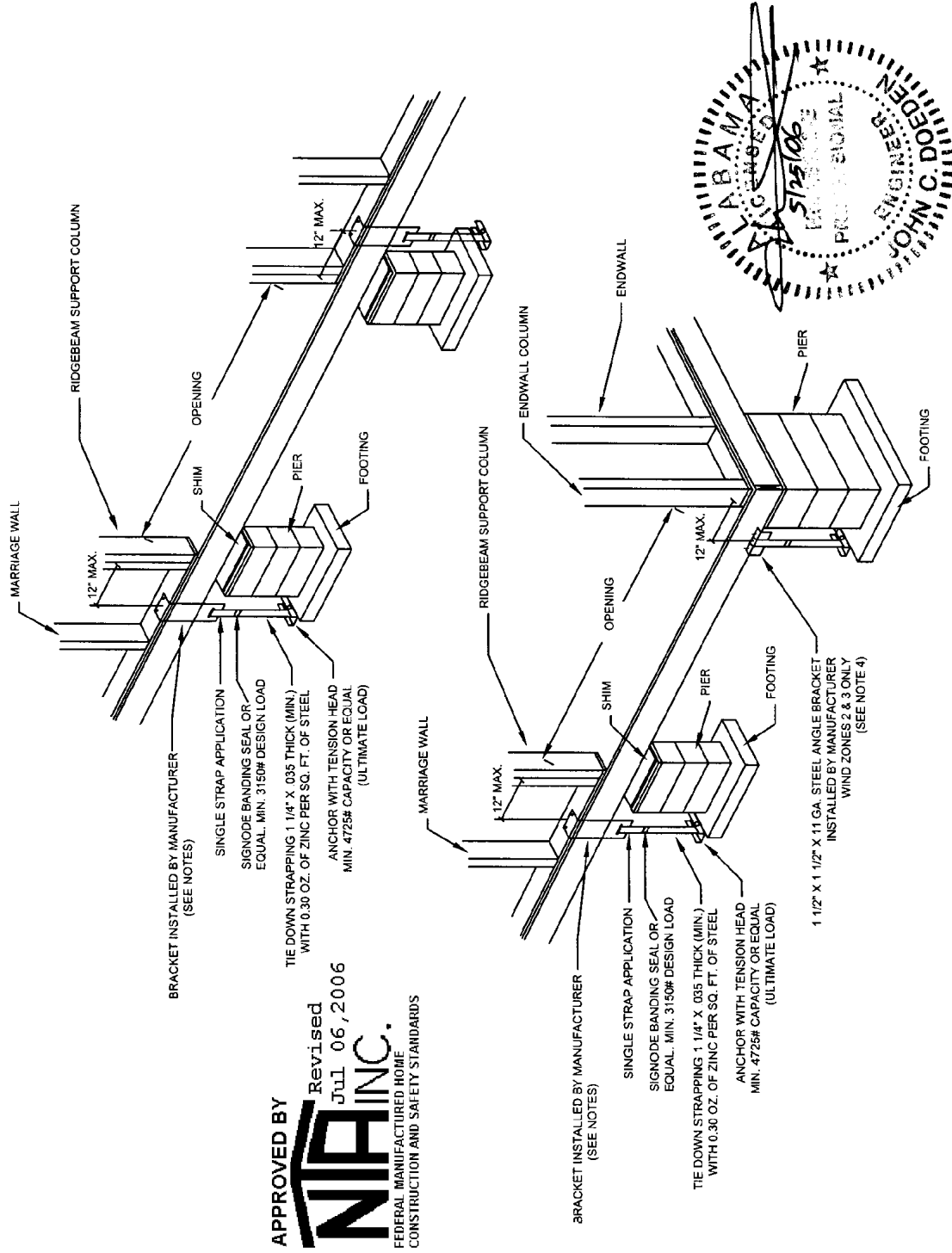


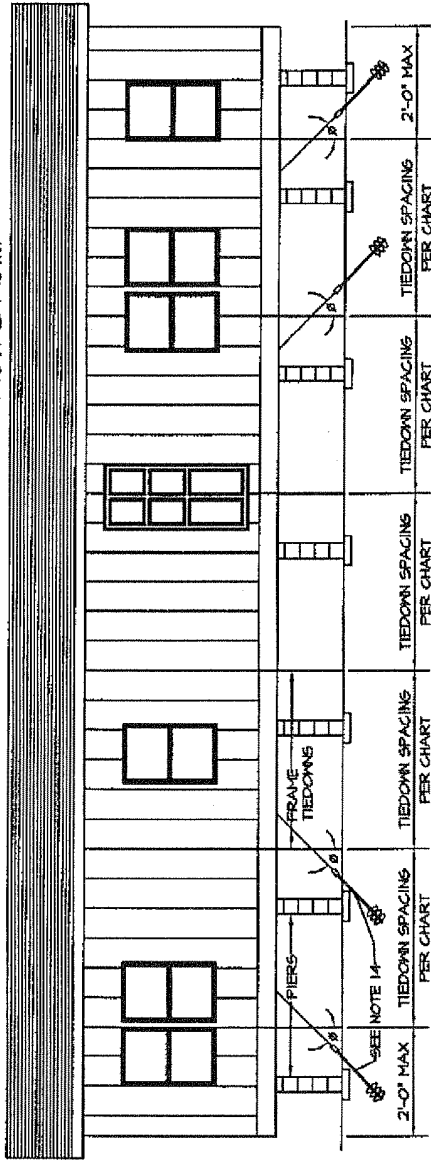
FIGURE 5.9 - RIDGEBEAM COLUMN TIE DOWN AND SUPPORT PIER - WIND ZONES 1, 2, & 3



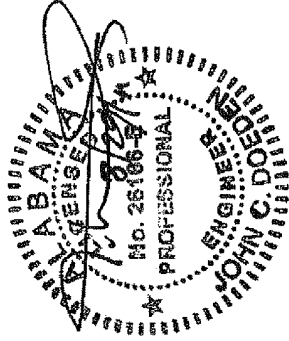
- NOTES:**
1. BRACKETS ARE INSTALLED BY MANUFACTURER PER OTHER DETAILS. TIE DOWN STRAPS AND ACCESSORIES ARE NOT PROVIDED NOR INSTALLED BY THE MANUFACTURER. 1 OR 2 BRACKETS INSTALLED PER ANCHOR FOR SPAN (SEE NOTE 4).
 2. BRACKETS ARE IDENTIFIED BY PAINT ON THE BOTTOM OF HOME.
 3. MINIMUM BRACKET DESIGN CAPACITY (WORKING LOAD) = 1750#.
 4. 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

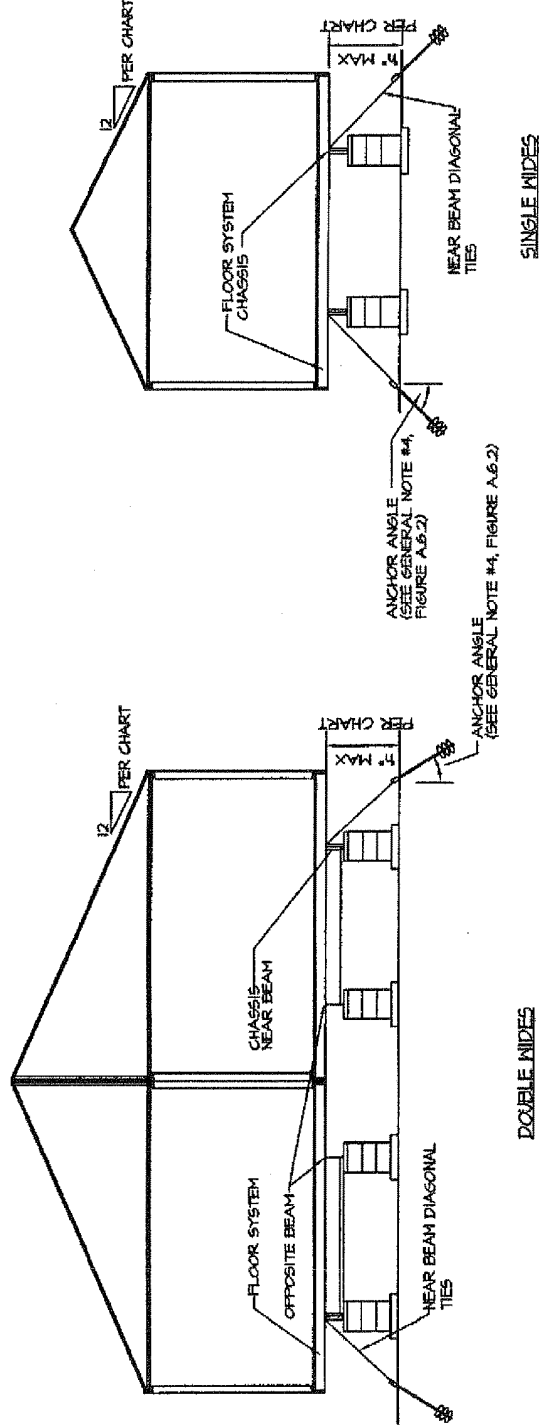
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



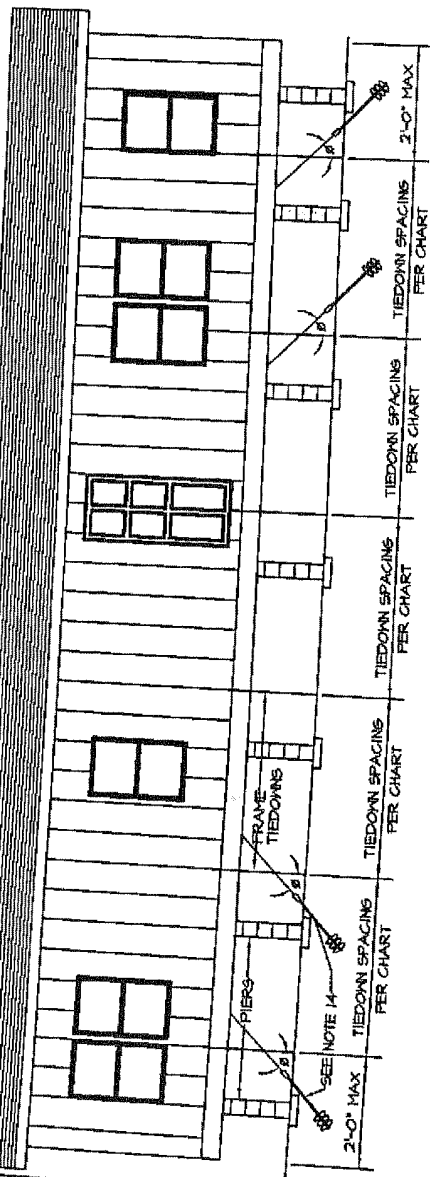
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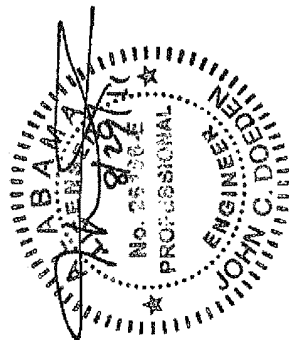
TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



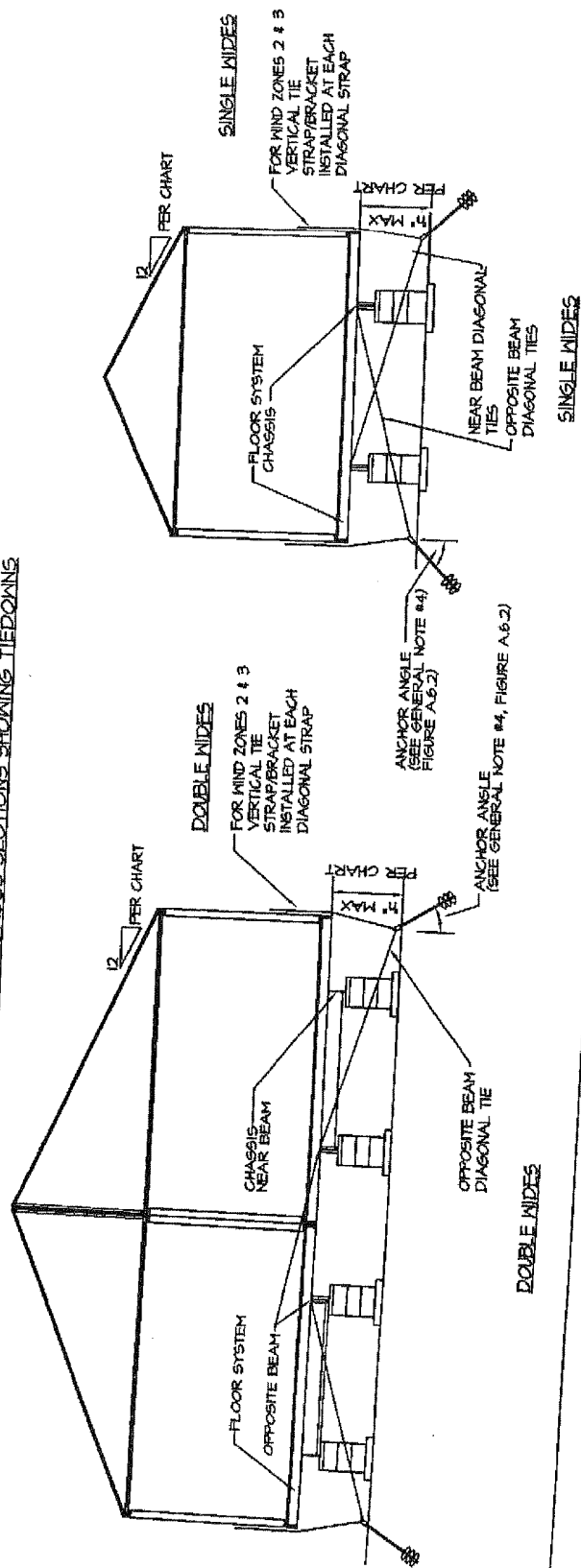
TIEDOWN SYSTEM
TYPICAL DETAILS
WIND ZONE 1, 2 AND 3
FIGURE A6.1.2



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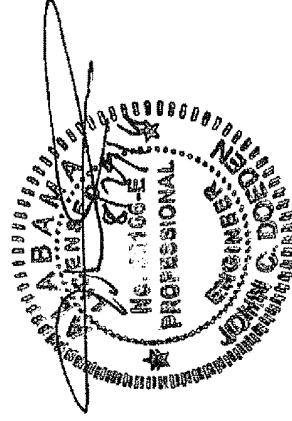


TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



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 D3543-41, "Standard Specification For Strapping, Flat Steel and Seals".
13. Strapping to be Type I, Finish B, Grade 1 steel strapping, 1/4" wide and 0.035" in thickness, certified by a Registered Professional Engineer or Architect as conforming with ASTM Standard Specification D3543-41, "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 96 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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**TIEDOWN SYSTEM
CHARTS
WIND ZONE 1
FIGURE A6.3**

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WIND ZONE 1 TIE DOWN REQUIREMENTS CHART

FLOOR WIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME 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	34
210" SINGLE SECTION	3" MAX	20 Deg Max	96"	10'-0"	54	40-45	NEAR	N/A	41
184" DOUBLE SECTION	8" MAX	20 Deg Max	96"	10'-0"	44	40	NEAR	N/A	34

WIND ZONE 2 TIE DOWN REQUIREMENTS CHART

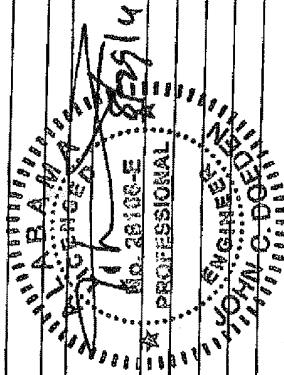
FLOOR WIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME TIEDOWNS			NOTES
						ANCHOR ANGLE	NEAR OR OPPOSITE BEAM	VERTICAL TIE LOAD (LBS)	
184" SINGLE SECTION	3" MAX	20 Deg Max	96"	8'-0"	31"	50-55	OPPOSITE	1280	SEE NOTE #1 BELOW
210" SINGLE SECTION	3" MAX	20 Deg Max	96"	8'-0"	64"	45-50	OPPOSITE	1055	SEE NOTE #1 BELOW
184" DOUBLE SECTION	8" MAX	20 Deg Max	96"	8'-0"	30"	50-55	OPPOSITE	1220	SEE NOTE #1 BELOW
					64"	45-50	OPPOSITE	1040	SEE NOTE #1 BELOW

WIND ZONE 3 TIE DOWN REQUIREMENTS CHART

FLOOR WIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME 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	SEE NOTE #1 BELOW
210" SINGLE SECTION	3" MAX	20 Deg Max	96"	6'-0"	30"	50-55	OPPOSITE	1365	SEE NOTE #1 BELOW
184" DOUBLE SECTION	8" MAX	20 Deg Max	96"	5'-4"	64"	40-50	OPPOSITE	1130	SEE NOTE #1 BELOW
					31	40-45	OPPOSITE	1300	SEE NOTE #1 BELOW
					31	40-45	OPPOSITE	1300	SEE NOTE #1 BELOW

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



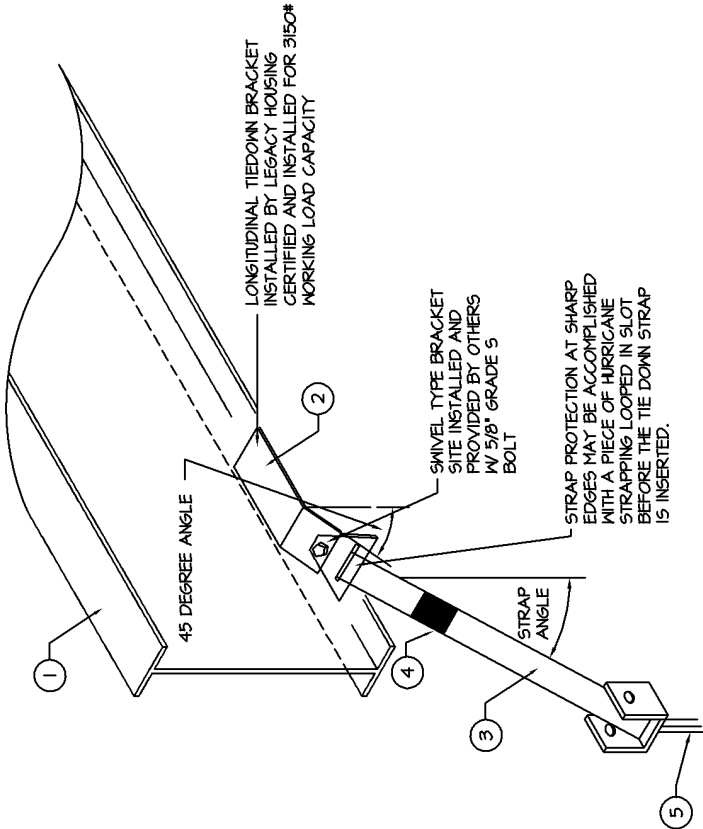
LONGITUDINAL TIEDOWN ATTACHMENT DETAIL
WIND ZONE 1, 2 AND 3
FIGURE A6.4

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

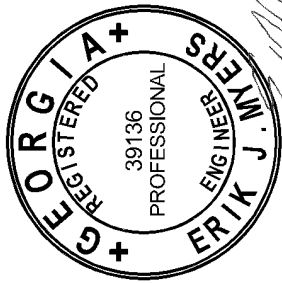
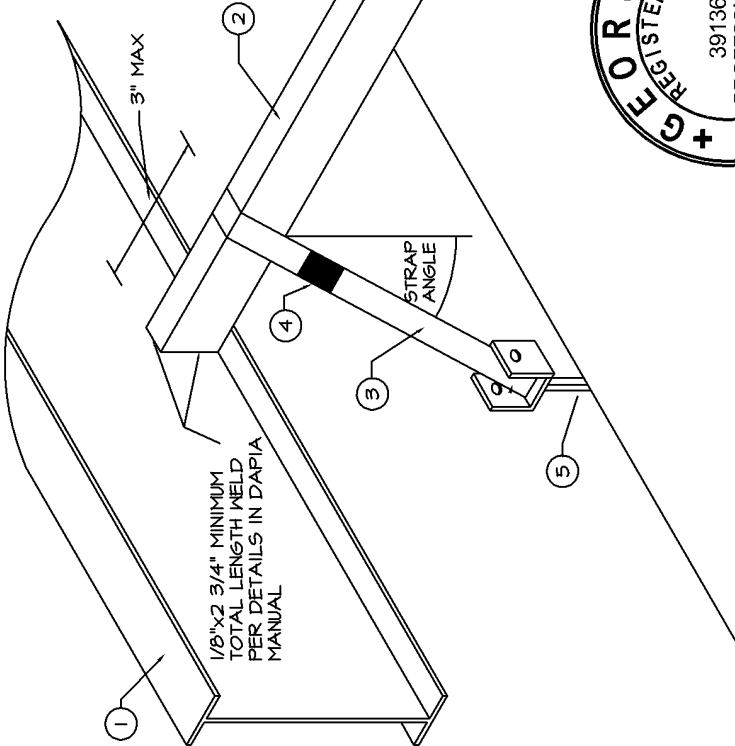
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Ref. CA-I-174.01 thru 174.19

ALTERNATE ATTACHMENT DETAIL #2

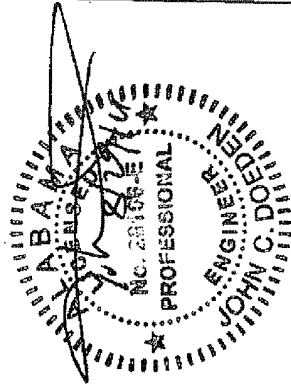
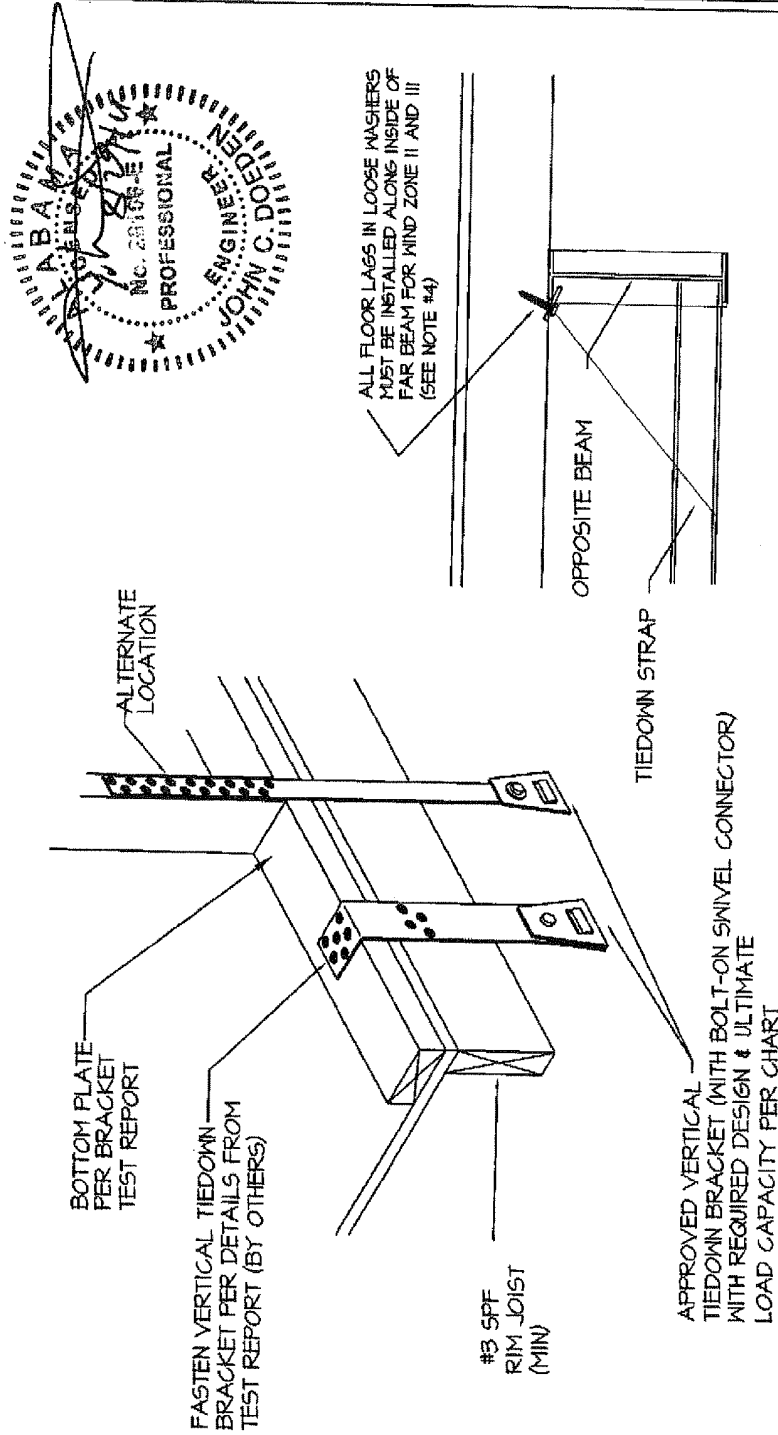
- 1: TYPICAL LONGITUDINAL I-BEAM
- 2: TYPICAL FRAME CROSSMEMBER
(1 1/2" x 2" x 1 1/2" x 13 GA MINIMUM)
- 3: TIEDOWN STRAP
- 4: BANDING SEAL
- 5: GROUND ANCHOR - INSTALLED TO FULL DEPTH OF ANCHOR HEAD



I-B-13

03/11/2016

VERTICAL TIEDOWNS
WIND ZONE 2 AND 3
FIGURE A6.5



UNIT	SIDEWALL HEIGHT	ROOF SLOPE	WIND ZONE	SPACING	REQUIRED DESIGN LOAD CAPACITY	REQUIRED ULTIMATE LOAD CAPACITY
104" SINGLE	96"	20 DEG MAX	II	8'-0"	1280#	1920#
104" SINGLE	96"	20 DEG MAX	II	6'-8"	1055#	1583#
104" SINGLE	96"	20 DEG MAX	III	5'-4"	1175#	1762#
104" DOUBLE	96"	20 DEG MAX	II	8'-0"	1320#	1980#
104" DOUBLE	96"	20 DEG MAX	III	5'-4"	1300#	1950#
210" SINGLE	96"	20 DEG MAX	II	8'-0"	1220#	1830#
210" SINGLE	96"	20 DEG MAX	II	6'-8"	1040#	1635#
210" SINGLE	96"	20 DEG MAX	III	5'-4"	1130#	1695#

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LEGACY HOUSING FORT WORTH, TEXAS

- FOR USE IN WIND ZONES II AND III.
- 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 SNIVEL STRAP ASSEMBLY", PART NO. 54337A FOR UP TO 1910# DESIGN LOAD CAPACITY OR "SNIVEL L TIE PLATE ASSEMBLY", PART NO. 54339A 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 DOCUMENT HAS BEEN PREPARED BY
HOUSING DESIGN GROUP
2640 Northwood Drive
Everett, WA 98201

REVISIONS
NO. REVISED BY DATE DESCRIPTION

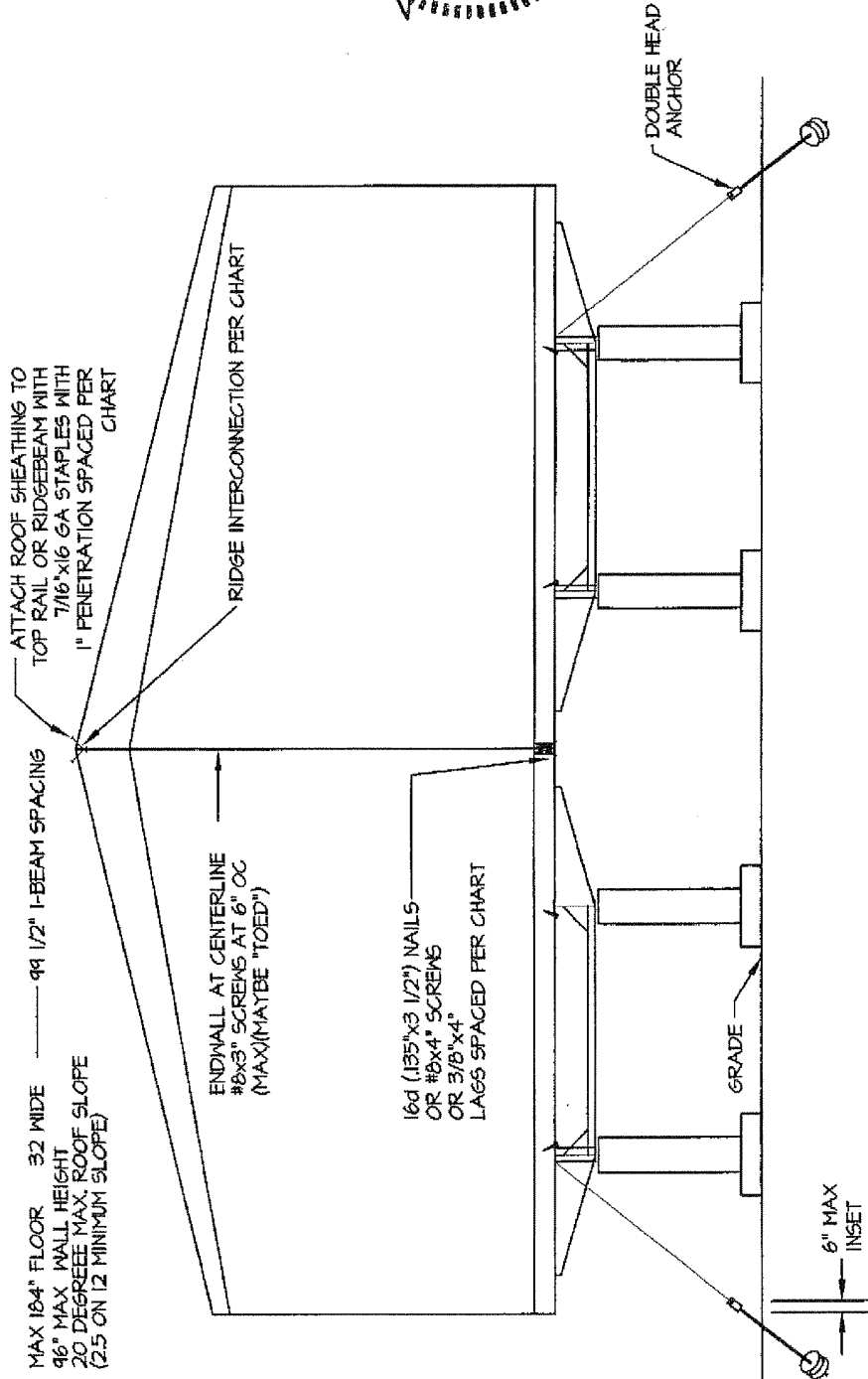
NO.	REVISED BY	DATE	DESCRIPTION

EXTERIOR WALLS
VERTICAL TIEDOWNS

DRAWN BY: R. BULLMAN 02/14/11
CHECKED BY:

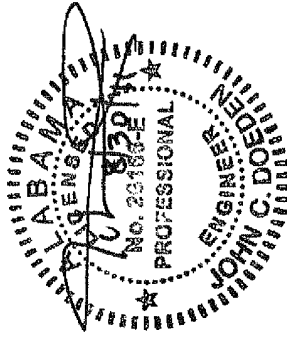
DRAWING NO.

LEGACY HOUSING
ON-SITE CONNECTION DETAILS
WIND ZONE I (15 PSF LATERAL)
FIGURE A66.1



NOTES:
1. ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 3500# (4125# ULTIMATE).

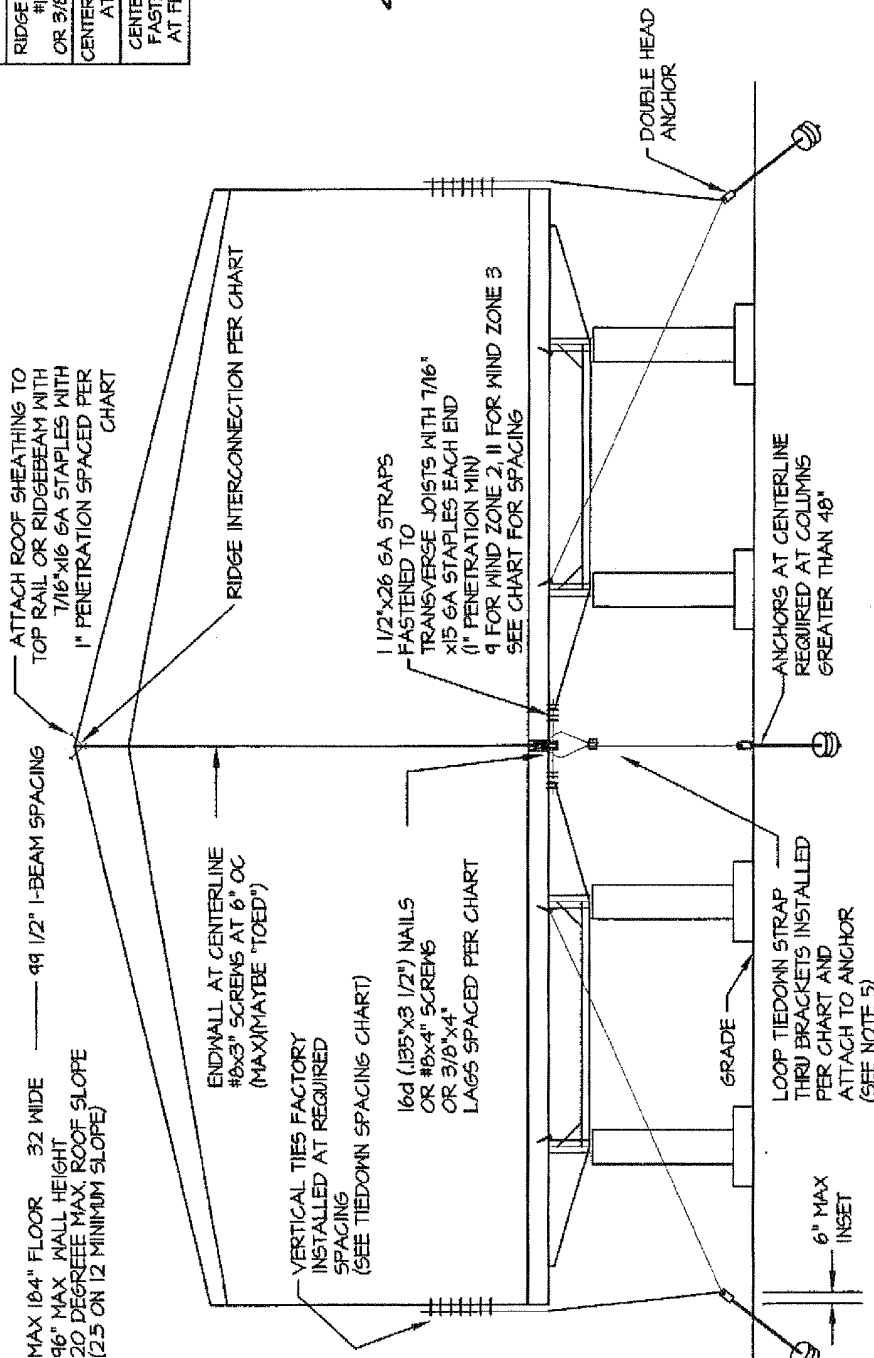
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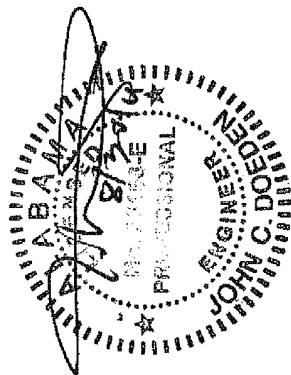
MAXIMUM FASTENER SPACING CHART 96" SIDEWALL HEIGHT	
CONNECTION	WIND ZONE
SHEATHING TO TOP RAILS OR RIDGEBEAM	6" o.c.
RIDGE INTERCONNECTION #10x4" SCREWS OR 3/8"x5" LAG SCREWS	12" o.c. 11" o.c.
CENTERLINE STRAPS AT FLOOR	N/A
CENTERLINE FASTENING AT FLOOR	20" o.c. 19" o.c. 23" o.c.

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

LEGACY HOUSING
ON-SITE CONNECTION DETAILS
WIND ZONE 2 (100 MPH) & WIND ZONE 3 (110 MPH)
FIGURE A6.6.1



- NOTES:
1. ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 3500# (4725# ULTIMATE).
 2. DOUBLE HEADED ANCHORS TO BE RATED FOR THE COMBINED LOAD AND SHOULD BE INSTALLED WITH STABILIZER PLATES.
 3. DIAGONAL TIES TO BE INSTALLED FROM I-BEAM AT SAME LOCATIONS AS VERTICAL TIES. REFER TO TABLES (FIGURES 5.8.1) STARTING AT 24" FROM EACH END (MAX OPEN END SPACING).
 4. MARRIAGE WALL ANCHORS MAYBE SINGLE HEAD WITH A 3500# MIN CAPACITY (4725# ULTIMATE).
 5. BRACKETS ARE 1 1/2" x 1 1/2" x 1/2" 6A (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.
 6. FOR 30'-8" WIDES, WIND ZONE 2: 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.



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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 Mananchors,[®] inc.

APPROVED BY



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



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

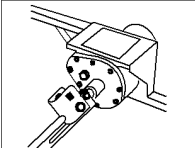
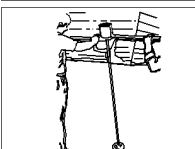
There are two basic methods of installing anchors, each equally effective in properly securing manufactured homes to the ground.

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.

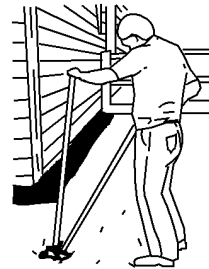
MACHINE INSTALLATION

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

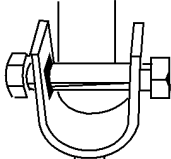
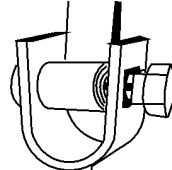
A hole is dug to a depth of approximately $\frac{1}{2}$ the length of the anchor, in the proper position as explained under machine installation.



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.

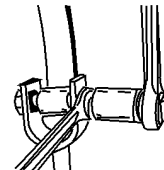
After anchor is installed full depth, earth is repacked, six inches at a time.

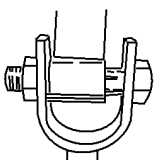
PROPER TENSIONING OF STRAP TO ANCHOR HEAD

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.

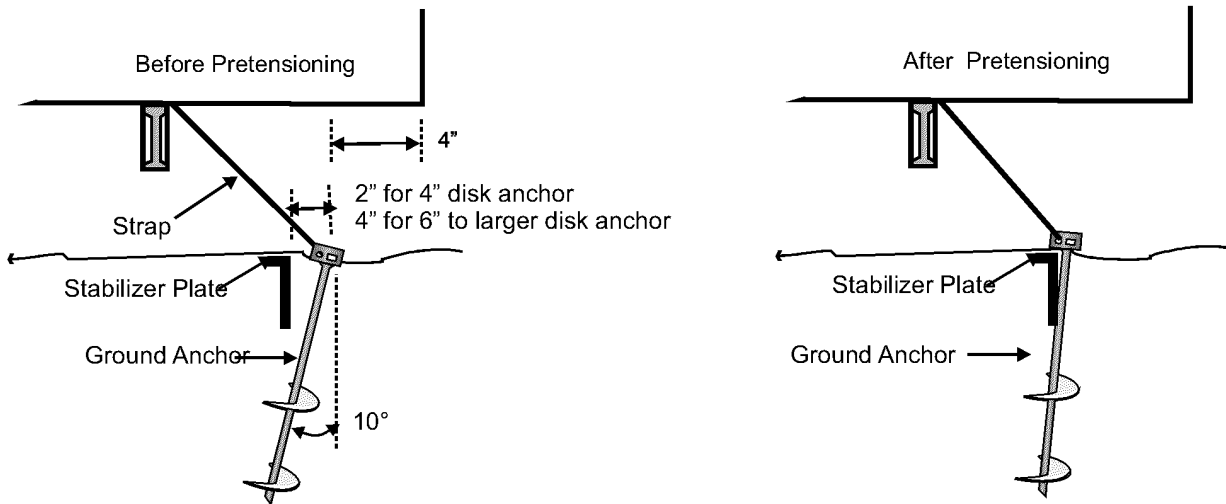
Note: The tensioning bolt can be inserted in the head from either side.

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.

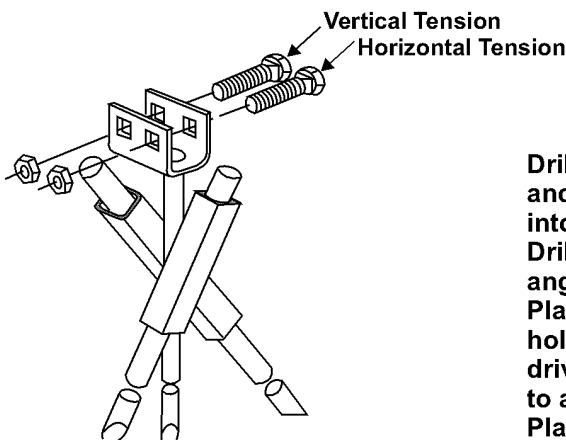
MINUTE MAN ANCHORS, INC.

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

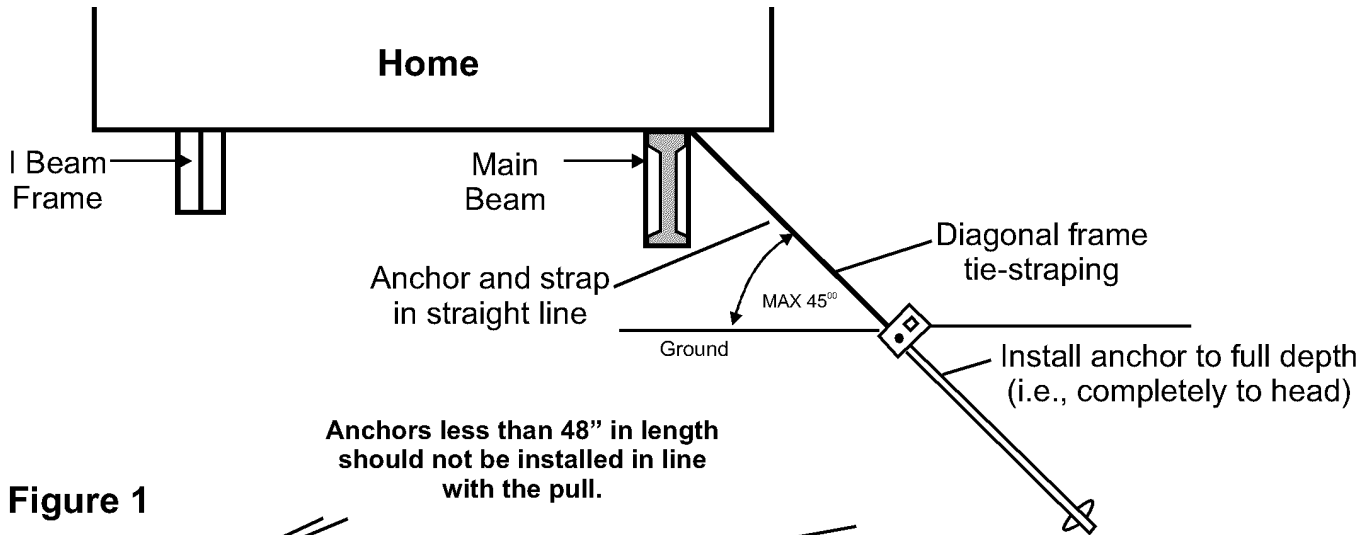


Figure 1

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

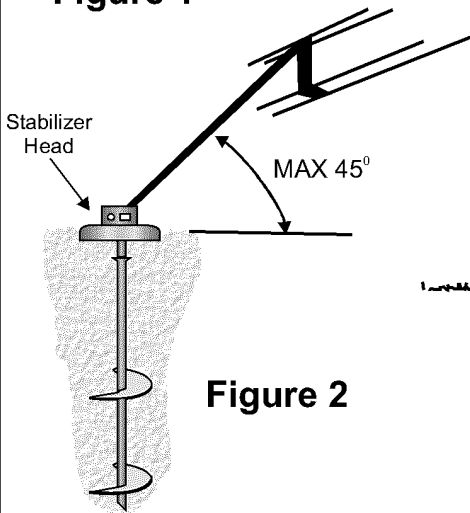


Figure 2

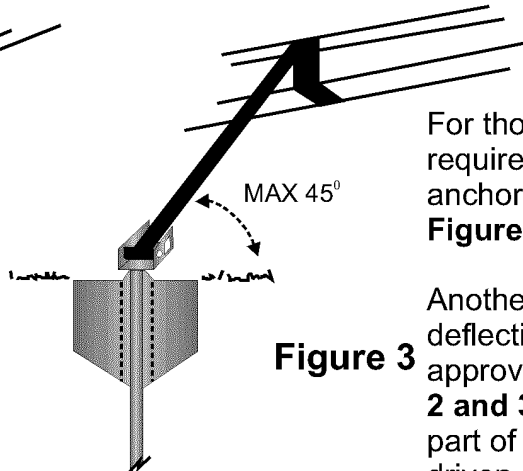


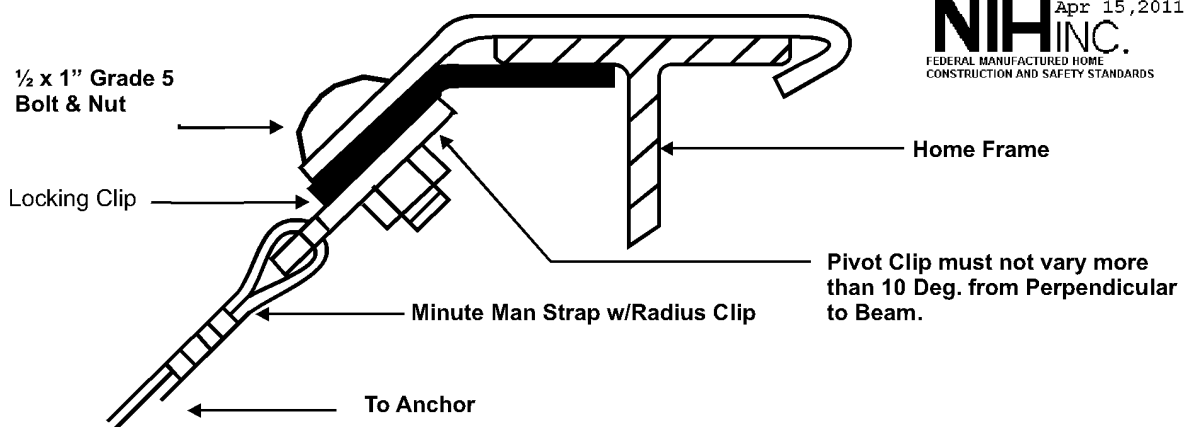
Figure 3

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

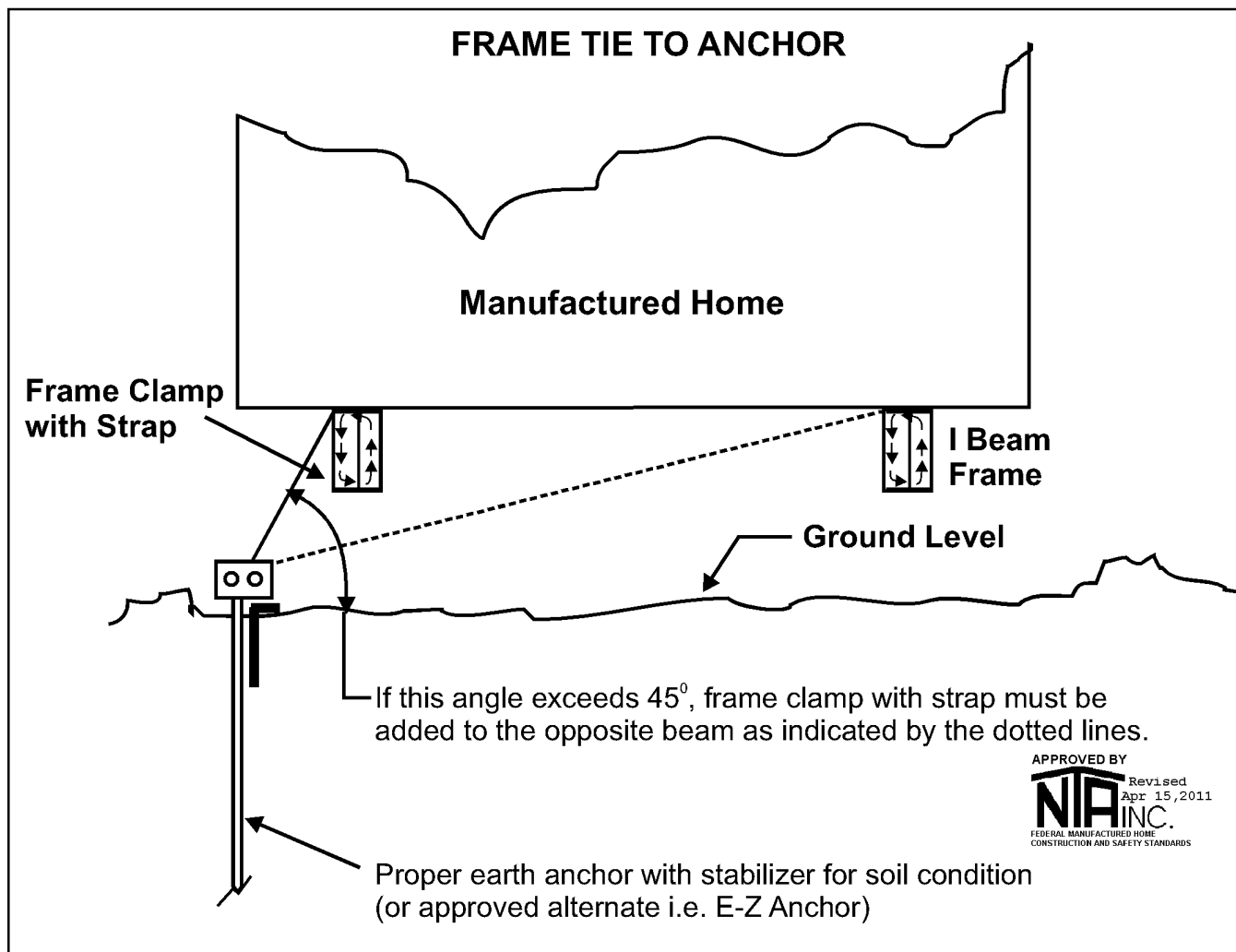
Another accepted way to limit lateral deflection is by use of a tested and approved Metal Stabilizing Device. **Figure 2 and 3.** In **Figure 2**, the Stabilizer is a part of the anchor. In **Figure 3**, the plate is driven in front of the anchor's direction of pull and will act to minimize the anchor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

See Top of Page 2.

LOCKING FRAME CLAMP II MMA-33 ASSEMBLED UNIT



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FRAME TIE INSTALLATION INSTRUCTIONS

Frame Tie With Buckle	Single Slot Buckle With Strap	Frame Tie With Hook	
1. 2.	Enlarged View of Frame Beam	Enlarged View of Frame Beam	4.
3. Thread sufficient length of frame tie strap through buckle as shown. Next, thread long end of strap between frame and floor of home. Bring strap around frame and back through buckle as shown in diagram and fasten to anchor head. Diagram showing strap in position around frame and through buckle. It is important to remove all slack from system. Note: Use of a single buckle is an appropriate alternate.	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.	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.	

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.

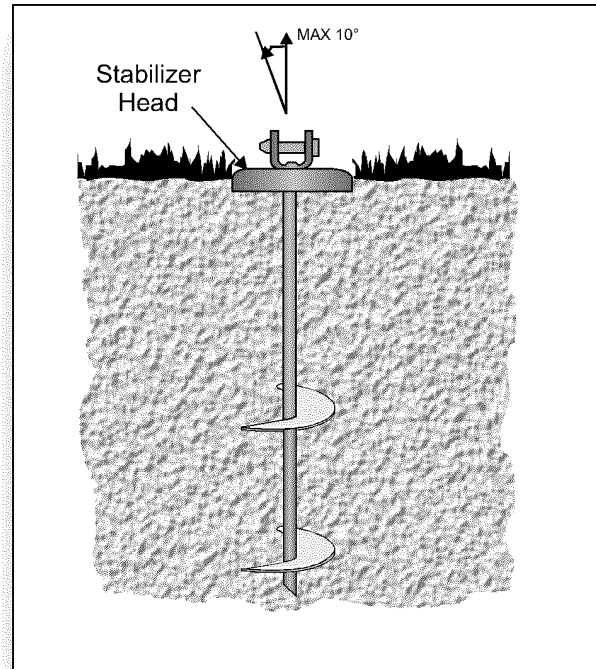


Figure A

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.

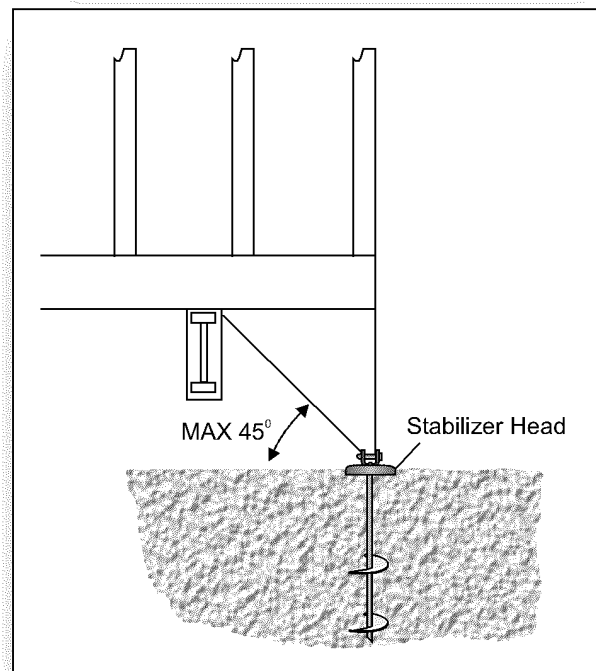


Figure B

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

Minute Man Anchors, inc.®

INSTALLATION

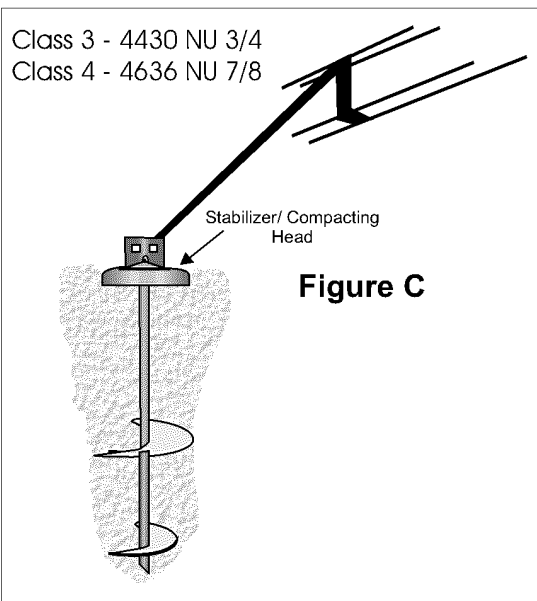
NU-CONCEPT ANCHOR

CLASS 3&4

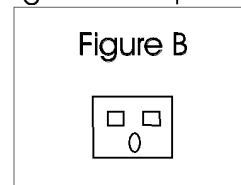
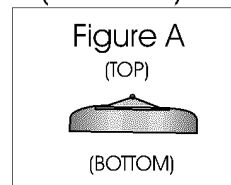
Patent Pending

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.

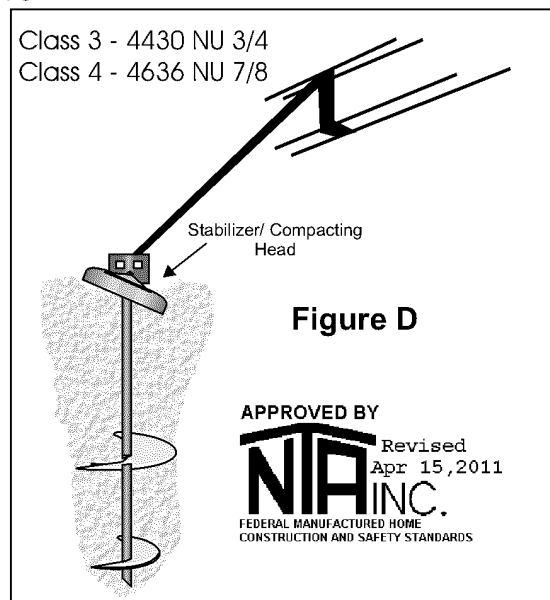
- I. Attach stabilizer/ compaction cap to the tension head of the anchor. This is done by sliding the cap over the top of the tension head, aligning 9/32" holes in cap with 1/4" elongated hole in tension head. Insert 1/4" x 2-1/4", grade 5 bolt (included). Hand tighten. Cap must be installed at any time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



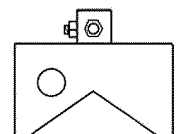
- III. Anchor is pre-loaded. Pre-load causes the cap to rotate downward in the direction of pull, further compacting the soil and presenting a larger surface area, resisting both horizontal and vertical movement. See *Figure D*. When used with rigid support tubes, rather than strap systems, pre-loading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



- 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°



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



GW-2 NU CONCEPT ANCHOR

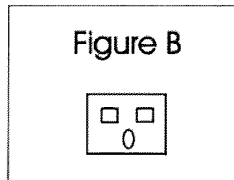
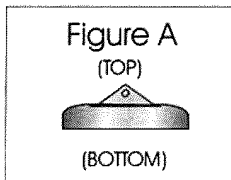
INSTALLATION

CLASS 2+3

Patent # 6,871,455

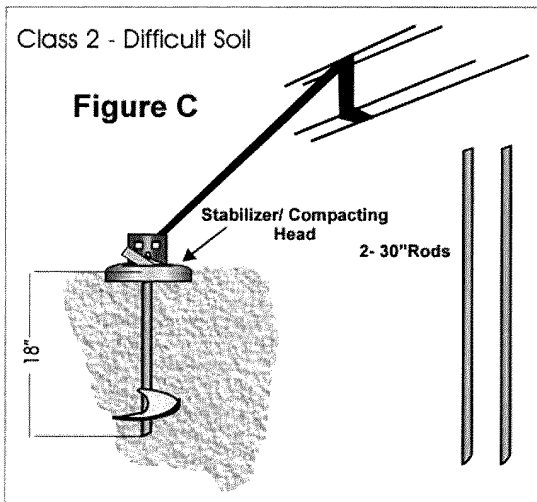
The Nu-Concept GW-2 Anchor combines a patented elongated hole in the tension head with a stabilizing and compaction cap with drive rod guides. When combined with a grade 5 bolt, the anchor will rotate in all directions allowing adjustment to uneven terrain. Under load conditions the cap, rotates down 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*.

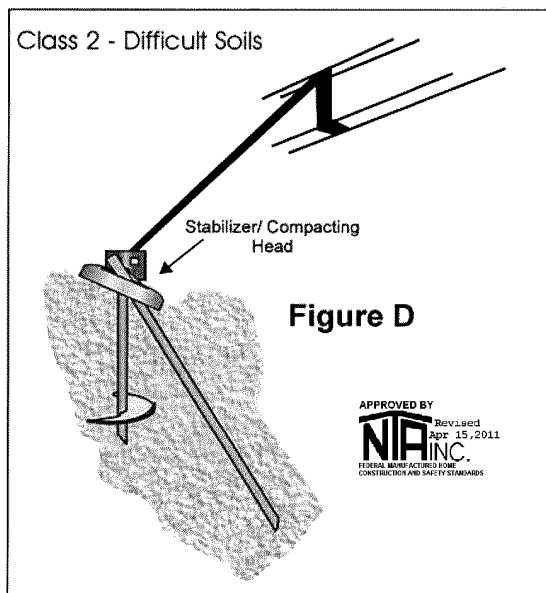


- II. The Drive Machine is started and the anchor is turned into the ground to a point where the bottom of the tension head is at or slightly below ground level. At this point, the drive rod guides on the top of the cap should be slanted away from the outer wall of the home allowing the installer to 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°

Class 2 - Difficult Soil

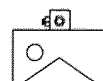


- III. Anchor is pre-loaded. Pre-load causes the cap to rotate downward in the direction of pull, further compacting the soil and presenting a larger surface area, resisting both horizontal and vertical movement. See *Figure D*. When used with rigid support tubes, rather than strap systems, pre-loading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



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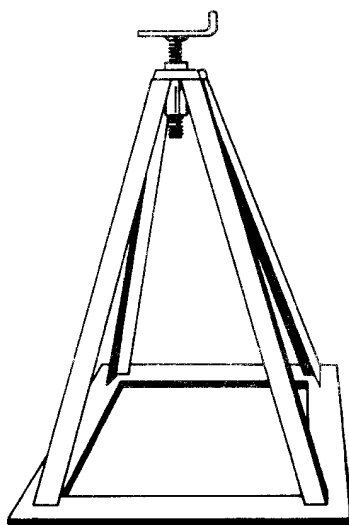
Note: A special adapter is available to insure against tension head and bolt damage



Revised 3-14-07

7.

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.

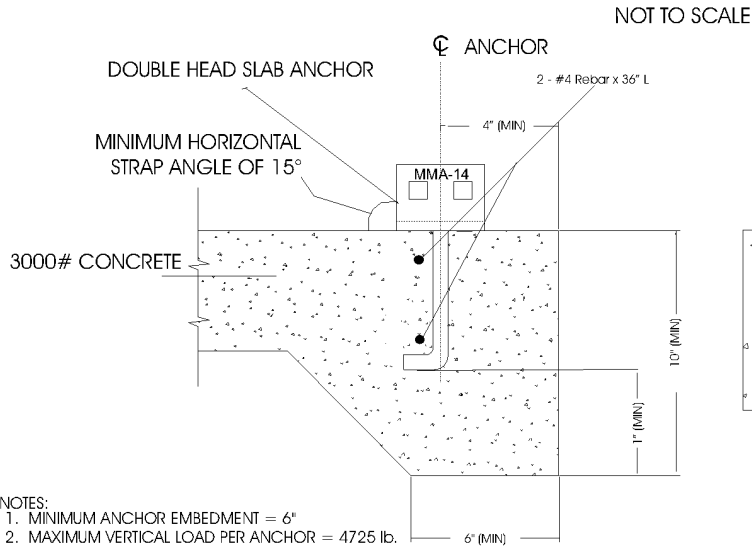
Minute Man piers should be placed directly under the main support frames on both sides of the home spaced in accordance with the home manufacturer's instructions.

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

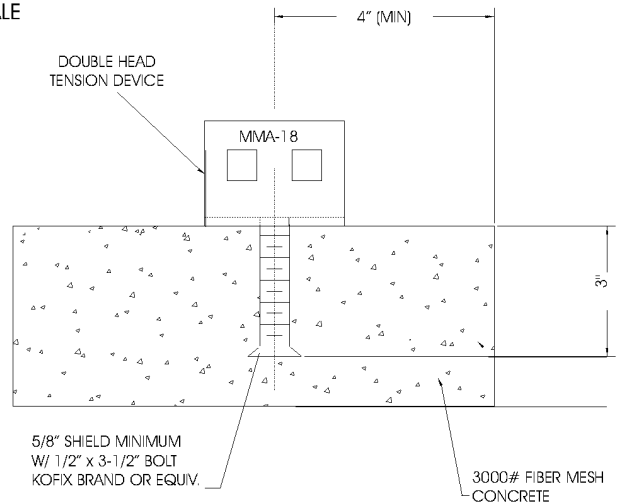
210 PDH CONCRETE ANCHOR



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

THDHL CONCRETE ANCHOR



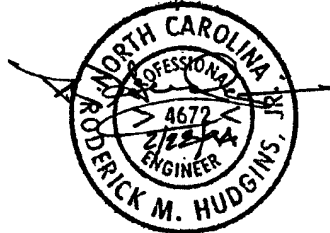
1. MAXIMUM VERTICAL LOAD PER ANCHOR = 4725 lb.
3,150 lbs. WORKING LOAD.
2. MINIMUM SLAB AREA PER BOLT
4" SLAB = 95 S.F.
6" SLAB = 65 S.F.
8" SLAB = 48 S.F.
3. MARK: MMA 18

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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

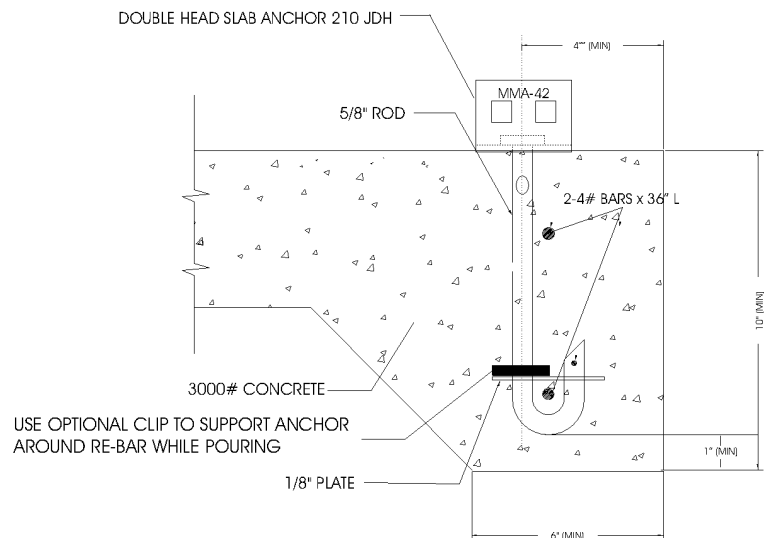


210 JDH CONCRETE ANCHOR

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, THDHL, 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.



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

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.**

-
- Diagram illustrating the connection of a post to a footing and the load capacity.
- Cross-section view (Left):**
- Post diameter: 1" TOP
 - Component: TUBE & BASE PL.
- Side view (Right):**
- Structures: RIM JOIST, FLOOR JOIST
 - Dimension: 2 1/2" MAX (between floor joist and post)
 - Post: MAX FOOTING LOAD 8x4x16
 - Footing: FOOTING 8"x4x16"
 - Ground level: GROUND
- MAX FOOTING LOAD**
- | Soil Type | Load Capacity (LBS) |
|---------------|---------------------|
| 8x4x16 | 838 |
| 1000 PSF SOIL | 838 |
| 2000 PSF SOIL | 1500 |

DESIGN WIND-LOAD ZONES:

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		

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			

10. I-C-14

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

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

NIA INC.

Apr 15, 2011

FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

Revised 3/14/07



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

APPROVED BY



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:

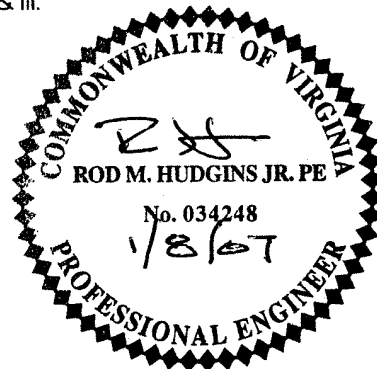
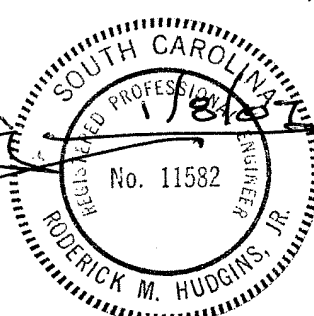
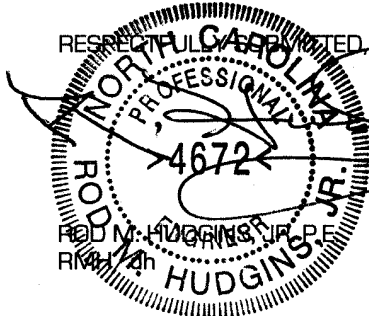
I HAVE ANALYZED DESIGN DRAWING, PHYSICAL TESTING REPORTS AND INSTALLATION INSTRUCTIONS FOR THE MINUTE MAN PRODUCTS LISTED AS FOLLOWS:

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
		210 JDH	SBN
4636 DH 3/4	4450 DH 11/16	100 DH	MMASD2
4636 NCI 7/8	4450 DH 3/4		MMASDA2
4430 EZDH		CT/WS CORNER TIE	
636 EZDH 3/4		LLBS LONGITUDINAL & LATERAL BRACING SYSTEM	
650 EZDH 3/4		MMA 31 LONGITUDINAL FRAME TIE	
660 EZDH 3/4		MMA 33 LOCKING FRAME CLAMP 11	
6650 EZVDH 3/4 W/ VERT. STABILIZER		MMSP LONG STAB SYSTEM	
8860 EZVDH 3/4 W/ VERT. STABILIZER		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 MAN 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.



INSTALLATION INSTRUCTIONS

FIRST CHECK FOR UNDERGROUND UTILITY LOCATION:

EZDH EARTH AUGERS

1. SEE DETAIL THIS BOOKLET FOR INSTALLATION INSTRUCTIONS.

EARTH AUGERS

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

CROSS DRIVE ANCHORS

1. CROSS DRIVES ARE USED WHERE HARD ROCKY SOIL OCCURS. IF THE GROUND SURFACE IS OTHER THAN ROCK OR MINIMUM 2" ASPHALT, INSTALL MMA-SD2 STABILIZER PLATE, OR PLACE 12"x12"x12" DEEP CONCRETE.

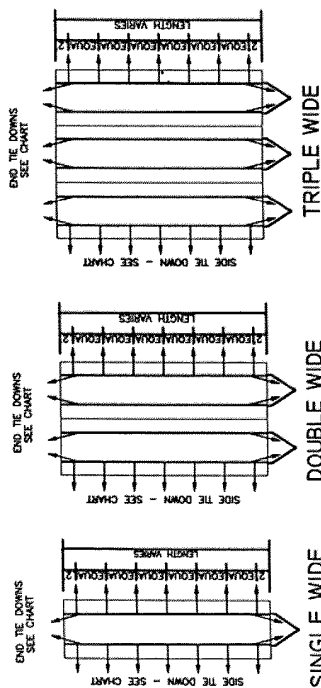
CONCRETE SLAB ANCHORS

1. CONCRETE SLAB TO BE MINIMUM 3 1/2" THICK AND IN GOOD CONDITION.
2. MINIMUM SLAB AREA REQUIRED FOR EACH ANCHOR IS 28 SQ. FEET.
3. DRILL PROPER SIZE HOLE IN SLAB MINIMUM 12" FROM ANY EDGE.

ALL APPLICATIONS

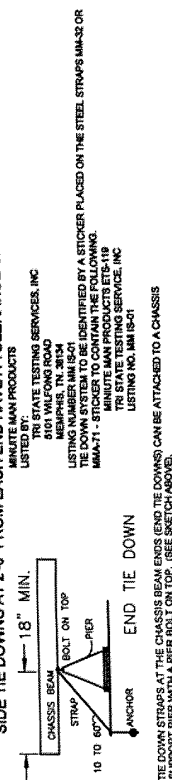
1. ATTACH STRAPS TO CHASSIS BEAM IN MANNER SHOWN.
2. INSERT STRAP THROUGH SPLIT NUT, CUT OFF EXCESS STRAP AND TIGHTEN UNTIL SNUG.

TIE DOWN LOCATIONS



EARTH AUGERS		CROSS DRIVE ANCHORS		CONCRETE SLAB ANCHORS	
MAX LENGTH OF MFGD HOME	MAX LENGTH OF MFGD HOME	MAX LENGTH OF MFGD HOME	MAX LENGTH OF MFGD HOME	MAX LENGTH OF MFGD HOME	MAX LENGTH OF MFGD HOME
36'	64' 72'	32'	42' 52' 62' 73'	34'	42' 50' 59' 69'
MAX NO. OF SIDE TIE DOWNS	MAX NO. OF SIDE TIE DOWNS	MAX NO. OF SIDE TIE DOWNS	MAX NO. OF SIDE TIE DOWNS	MAX NO. OF SIDE TIE DOWNS	MAX NO. OF SIDE TIE DOWNS
2	3	3	4	4	5
3	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"



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

MINUTE MAN ANCHORS, INC.

200 WEST 10TH STREET
 EAST PLATONCK, NC 28726
 TEL: (800) 438-7777

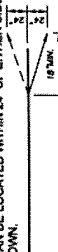
ENGINEERED TIE DOWN SYSTEM
 DESIGN & GENERAL NOTES

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-385391
- EARTH AUGERS 2802# MIN. (TESTED TO 4750# MIN.)
- CROSS DRIVES 1727# (CALCULATED)
- CONCRETE SLAB ANCHORS 1300# (CALCULATED)

GENERAL NOTES:

1. THE CHARTS SHOWN HEREIN ARE FOR THE REQUIRED NUMBER OF TIE DOWNS ON THE SIDES OF THE MANUFACTURED HOME.
2. TIE DOWNS ARE REQUIRED AT EACH CHASSIS BEAM. EACH END OF EACH TRANSPORTABLE SECTION OF THE MANUFACTURED HOME AND CAN BE ANY OF THE TYPES SHOWN HEREIN.
3. COMBINATIONS OF THE DIFFERENT TYPES OF TIE DOWNS CAN BE USED.
4. IN THE EVENT AN EARTH AUGER CANNOT BE INSTALLED DUE TO AN OBSTRUCTION, USE OF CROSS DRIVE ANCHORS IS PERMITTED, PROVIDED (2) CROSS DRIVES ARE INSTALLED FOR EACH EARTH AUGER THAT CANNOT BE INSTALLED.
5. FOR ALL TIE DOWN INSTALLATIONS, THE MFGD HOME CHASSIS MEMBERS ARE TO BE USED FOR TIE DOWN ATTACHMENT PURPOSES ONLY. CHASSIS BEAMS CAN ALSO BE "C" SHAPED OR "TRFC" SHAPED.
6. END TIE DOWNS CAN BE LOCATED WITHIN 24" OF EITHER SIDE OF CHASSIS BEAM AXIS AS SHOWN.
7. 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.
8. THIS TIE DOWN SYSTEM CAN BE USED WITH 10' WIDE MANUFACTURED HOME SECTIONS WITH 100' CHASSIS CENTERS PROVIDED THE HEIGHT FROM GRADE TO THE BOTTOM OF THE CHASSIS BEAM DOES NOT EXCEED 19'.
10. TIE DOWN STRAPS IN THE LONGITUDINAL OR TRANSVERSE DIRECTION CAN BE BOLTED TO THE HITCH ATTACHMENT PLATE THAT IS WELDED TO THE CHASSIS BEAM.



ENGINEER APPROVAL

SEE PAGE 2 FOR LISTING INFORMATION

STATE APPROVAL

ENGINEERED TIE DOWN SYSTEM
 APPROVED

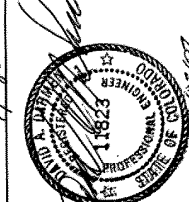
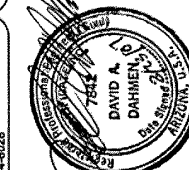
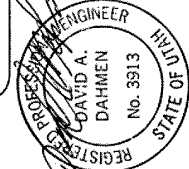
Approved does not constitute or approve any condition or requirement of applicable State laws and regulations.

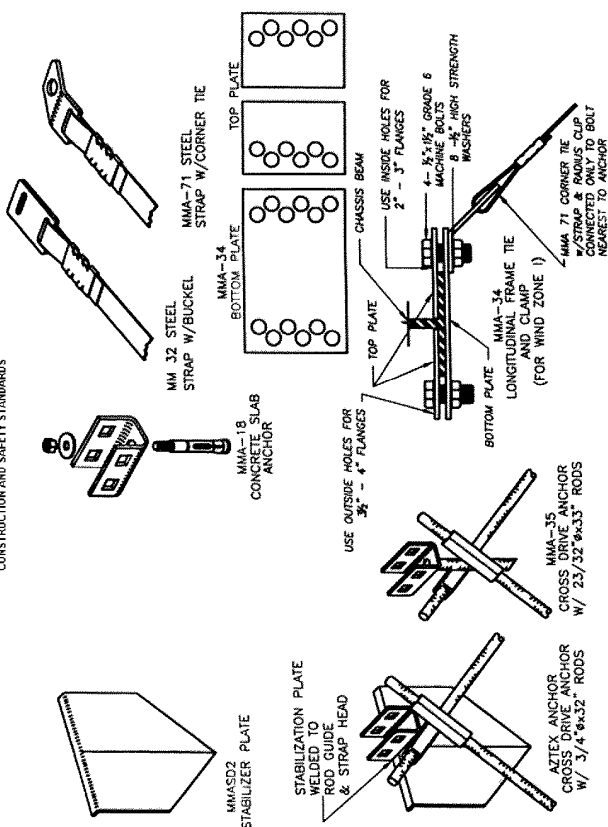
State of California
 Department of Housing and Community Development
 DIVISION OF CODES AND STANDARDS

By: *[Signature]* Date: 2/24/07
 FTS 119
 This Plan Expires: 2-23-09
 Renewal: 4 pages

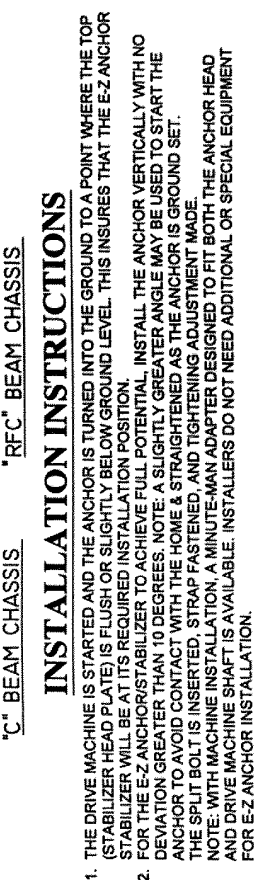


PACIFIC CONSULTING ENGINEERS
 2150 BELL AVE. SUITE 145
 SACRAMENTO, CALIFORNIA 95838
 TEL: (916) 564-6028



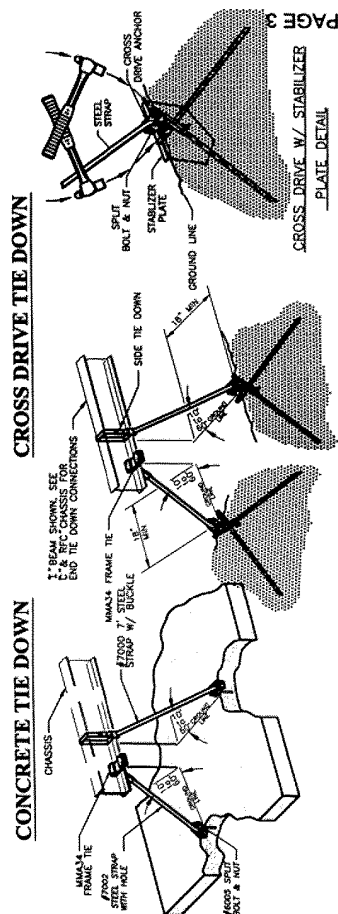


PAGE 4



INSTALLATION INSTRUCTIONS

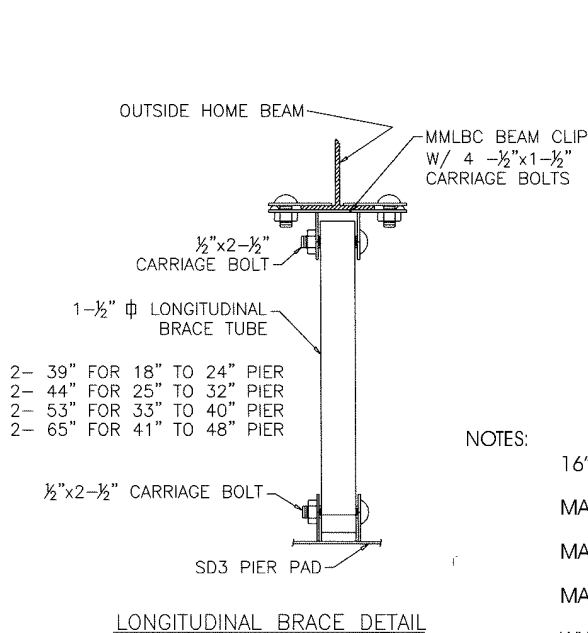
1. THE DRIVE MACHINE IS STARTED AND THE ANCHOR IS TURNED INTO THE GROUND TO A POINT WHERE THE TOP (STABILIZER HEAD PLATE) IS FLUSH OR SLIGHTLY BELOW GROUND LEVEL. THIS INSURES THAT THE E-Z ANCHOR STABILIZER WILL BE AT ITS REQUIRED INSTALLATION POSITION.
2. FOR THE E-Z ANCHOR TO ACHIEVE FULL POTENTIAL, 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 & SLIGHTENED 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.



PAGE 3

TLW 2-07

LONGITUDINAL AND LATERAL BRACING SYSTEM



NOTES:

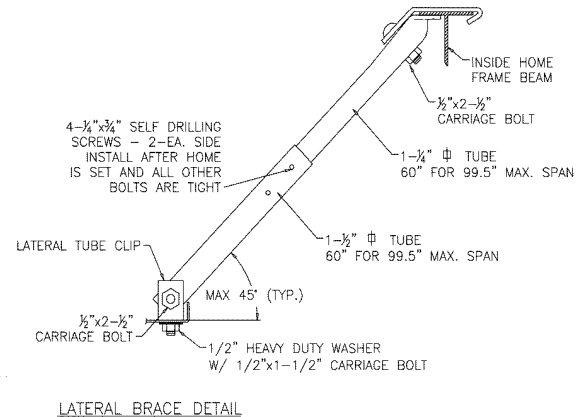
1/6" PINS MUST BE USED IN CLASS 4 SOILS.

MAXIMUM PIER HEIGHT- 48"

MAXIMUM SIDEWALL HEIGHT 96"

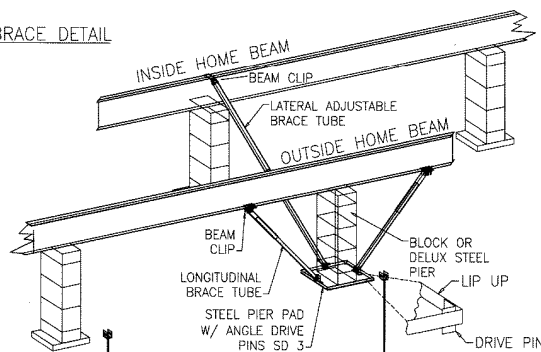
MAXIMUM BEAM SPACING 99.5"

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



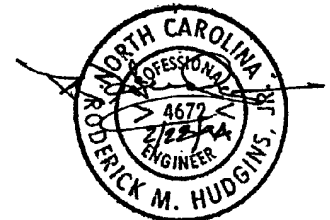
SPECIAL INSTRUCTIONS

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:

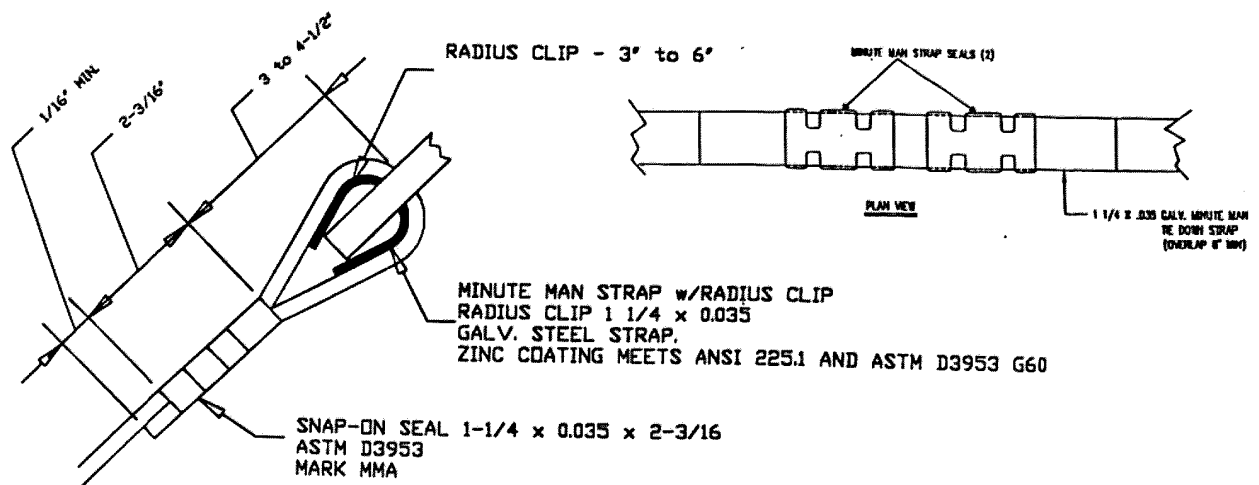
All LLBS Systems are shipped with complete installation instructions.
See these instructions for System Locations in Zones I, II, III, FL.

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

"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.

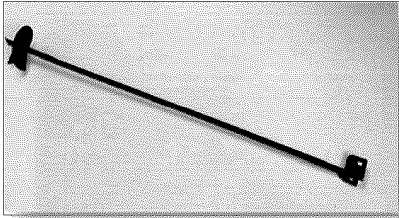


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FEDERAL MANUFACTURED HOME
CONSTRUCTION AND SAFETY STANDARDS

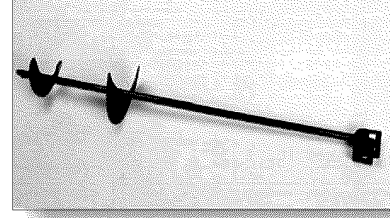
Apr 15, 2011

SINGLE DISK ANCHORS



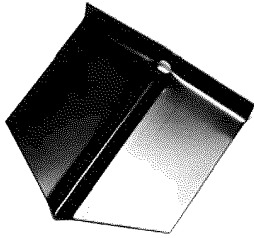
650, 636, 760, 1060 DH Anchor

DOUBLE DISK ANCHORS



4430, 4636 DH Anchor

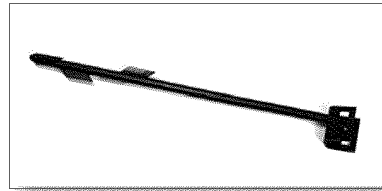
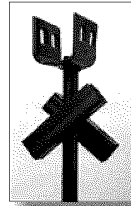
STABILIZERS



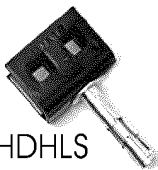
Available Painted
Black or
Galvanized
as required
in Florida

DRIVE ANCHORS

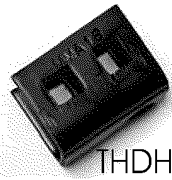
36X And 48X Cross Drive Anchors
24" Barbed Rock Anchor



CONCRETE ANCHORS



THDHL



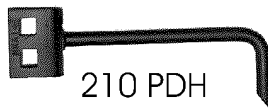
THDH



210 JDH
W/Swivel Head



210 DH

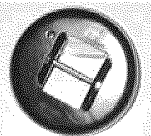


210 PDH
Painted or Galv.

NU-CONCEPT ANCHOR

Patented

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

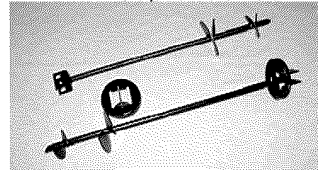


N C 1 Swivel
Stabilizer Cap

Full view of anchor
with cap and
with cap attached

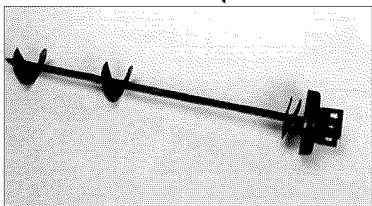


Anchor w/cap
attached



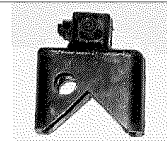
Item#	Description
1311	4636 7/8" DH
1312	4636 7/8" DH W/Cap
2211	NU Concept Cap

E-Z ANCHORS (Patented)



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

All Anchors
Available
Painted or
Galvanized



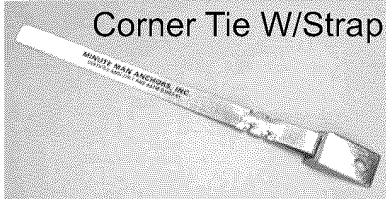
Nu-Concept
Drive Adapter

APPROVED BY
NIA INC.
August 15, 2011
FEDERAL MANUFACTURING INSTITUTE
CONSTRUCTION AND SAFETY STANDARDS

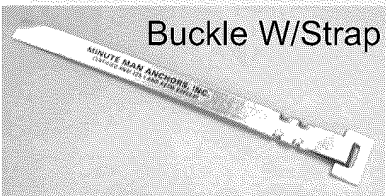
Galvanized Steel Strapping



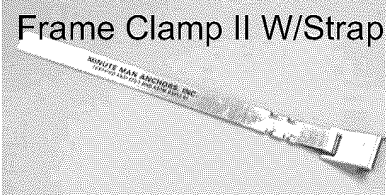
Corner Tie W/Strap



Buckle W/Strap

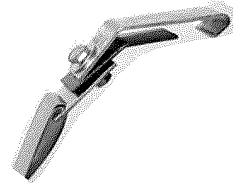


Frame Clamp II W/Strap

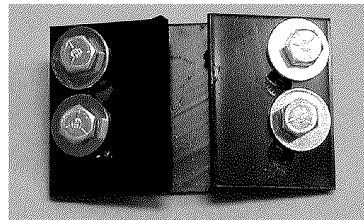


Locking Frame Clamp II

Several different strap lengths available



Longitudinal Frame Tie

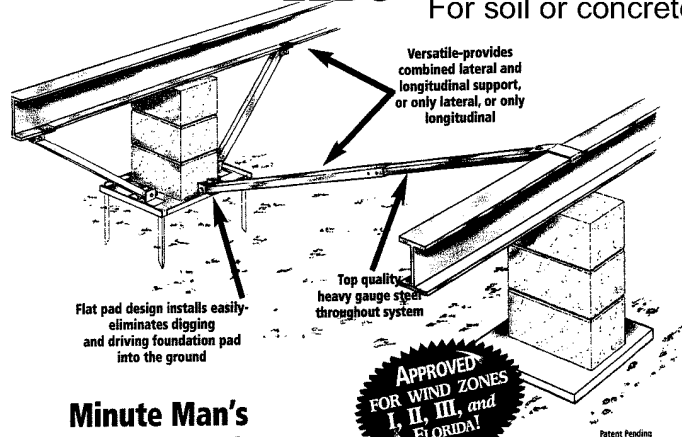


Available w/4 bolts for
Wind Zone I and w/8
bolts for Wind Zone III
Use with corner tie strap
for end ties.

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

LLBS

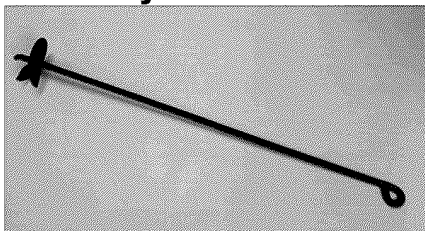
For soil or concrete



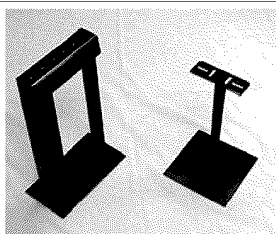
Minute Man's
superior design
outperforms other
brands in so many ways:

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Eye Anchors

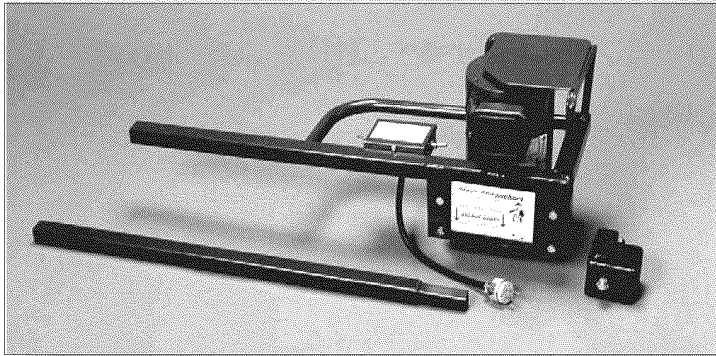


Available in various sizes



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- 1/4 rpms
- 115 Volt 60 cycle, 9 amp
- Motor on/off switch with forward/reverse
- 90 day limited warranty against manufacture defects.

<u>Item#</u>	<u>Description</u>
2730	Drive Machine
2741	Adapter

RIDGID 700 DRIVE W/CASE

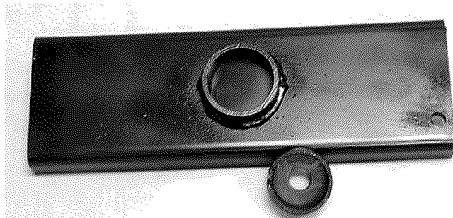
The Ridgid 700 Portable Power Drive features:

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

<u>Item#</u>	<u>Description</u>
2760	Ridgid Drive Machine



Accessories



2250 Main Beam Jacking Plate

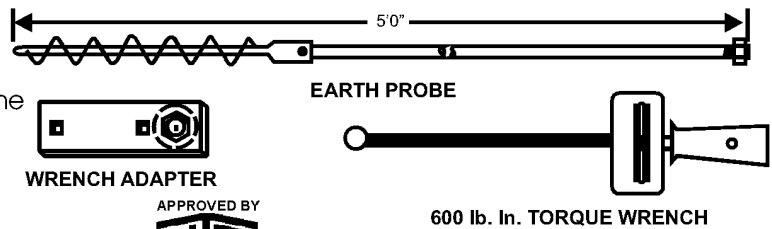


2010 Slotted Strap Bolt and Nut

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.

<u>Item#</u>	<u>Description</u>
2100	SOIL TEST PROBE KIT



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Installation Manual Addendum

December 17, 2015

Subject: Special Foundation Systems – Tie Down Engineering Xi2 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 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 164" to 210"
- Double Wide home widths from 328" to 420"
- Maximum roof pitch <20 degrees
- Maximum pier height = 36"
- All foundation systems are installed per manufacturers installation instructions

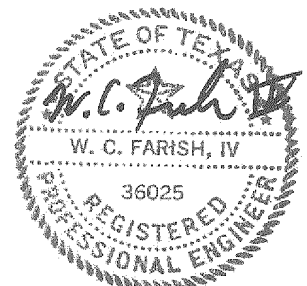
In addition to the Xi2 Foundation Systems, ground anchors and strapping (3150 lbs. allowable load) may need to be installed vertically to the sidewall, evenly spaced along the home (beginning no more than two feet from either end of the home) to restrain against uplift and over turning forces. No additional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

The minimum number of systems & anchoring required as follows:

Xi2 Foundation System						
	1810 min. lbs. Bracket			2350 min. lbs. Bracket		
	Max. Box Length	No. of Xi2 Systems	No. of Anchors at Each Side	Max. Box Length	No. of Xi2 Systems	No. of Anchors at Each Side
Singlewides						
WZ1	80'	2	2	80'	2	2
WZ2	52'	2	5	56'	2	4
	64'	2	6	68'	2	5
	72'	2	7	80'	2	6
	80'	2	8			
WZ3	48'	2	7	48'	2	5
	56'	2	8	60'	2	6
	64'	2	9	68'	2	7
	72'	2	10	80'	3	8
	80'	3	10			
Doublewides						
WZ1	80'	2	0	80'	2	0
WZ2	56'	2	3	48'	2	2
	72'	2	4	72'	2	3
	80'	2	5	80'	2	4
WZ3	52'	2	5	52'	2	4
	60'	2	6	64'	2	5
	72'	2	7	80'	3	6
	80'	3	8			

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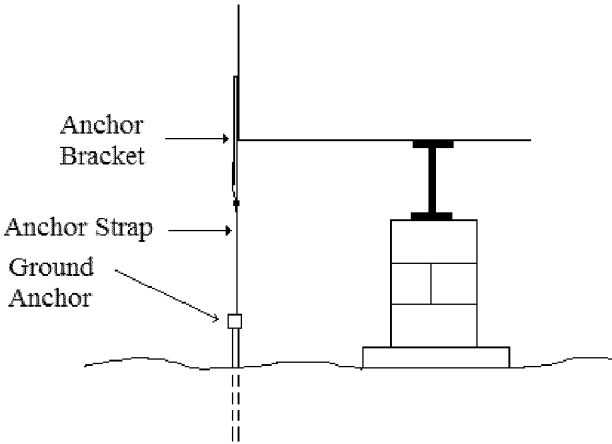
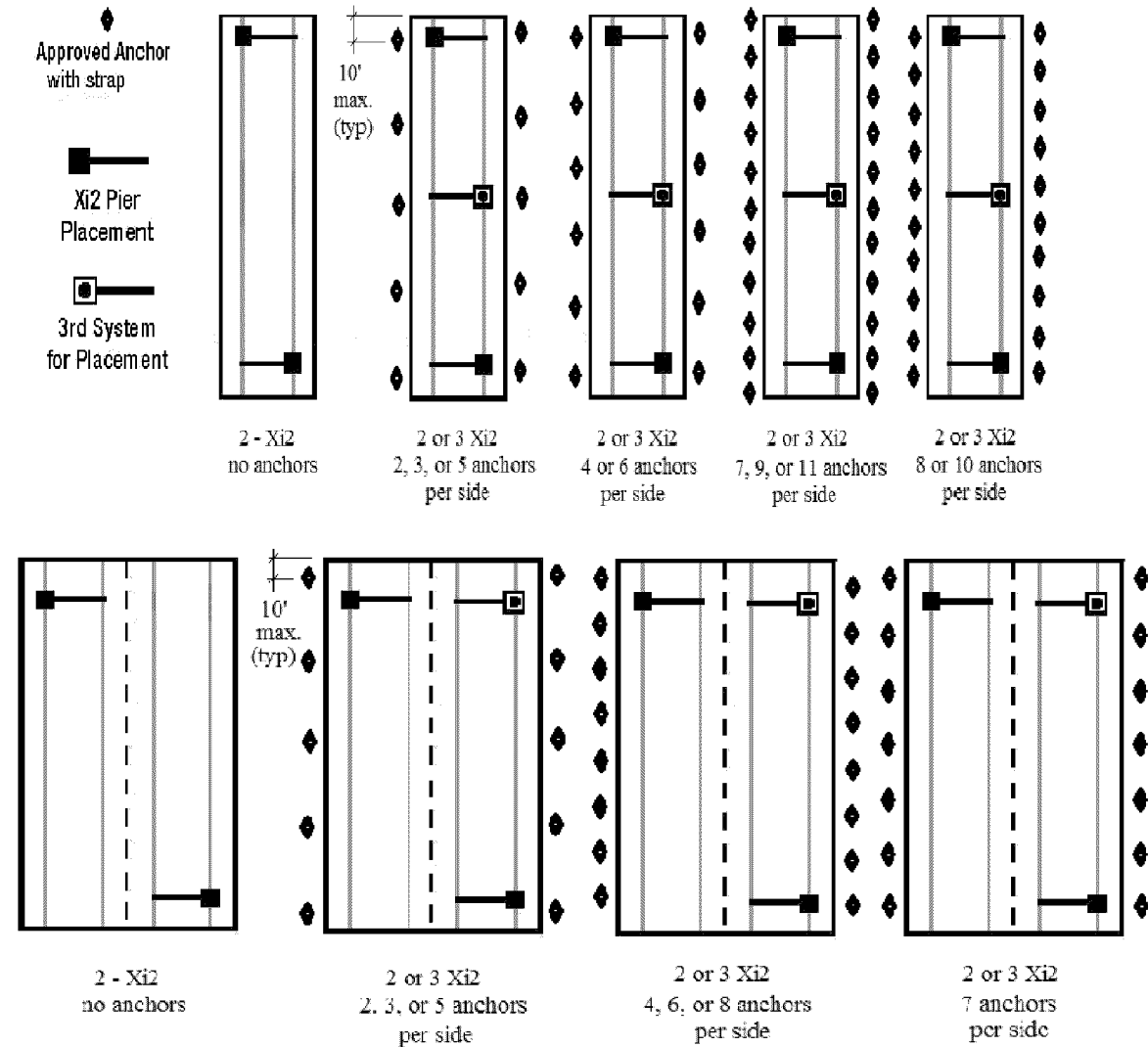


Dec 17, 2015

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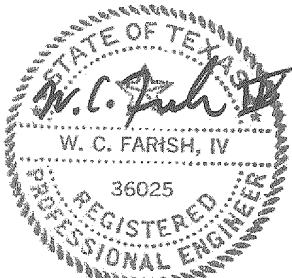
Bracket options: 1810 lbs – TDE part no. 59337A; 2350 lbs – TDE part no. 59339A

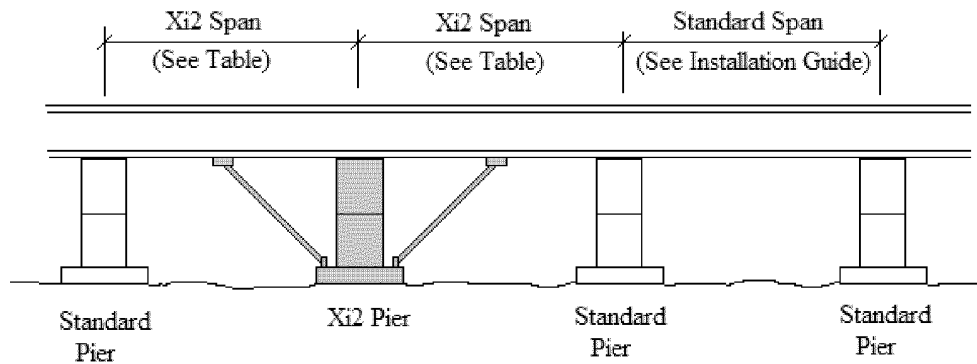
The Xi2 Foundation Systems and ground anchors shown in the table shall be located as shown below:



Typical Anchor at Sidewall Detail

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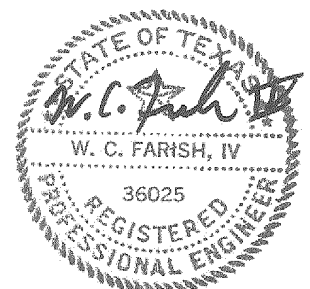
Xi2 Pier Span to Adjacent Piers

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

36" Max. Pier Height

Xi2 Pier Span to Adjacent Piers			
Min. Soil Bearing	Min. Footing Size	Max. Section Width	
		186 in.	210 in.
1000 psf	21" x 21" x 8"	n/a	n/a
	24" x 24" x 8"	n/a	n/a
	30" x 30" x 10"	n/a	n/a
	36" x 36" x 10"	3'-6"	3'-0"
1500 psf	21" x 21" x 8"	n/a	n/a
	24" x 24" x 8"	n/a	n/a
	30" x 30" x 10"	4'-3"	3'-9"
	36" x 36" x 10"	10'-0"	10'-0"
2000 psf	21" x 21" x 8"	n/a	n/a
	24" x 24" x 8"	n/a	n/a
	30" x 30" x 10"	10'-0"	9'-3"
	36" x 36" x 10"	10'-0"	10'-0"
2500 psf	21" x 21" x 8"	n/a	n/a
	24" x 24" x 8"	5'-6"	4'-10"
	30" x 30" x 10"	10'-0"	10'-0"
	36" x 36" x 10"	10'-0"	10'-0"
3000 psf	21" x 21" x 8"	3'-5"	3'-0"
	24" x 24" x 8"	9'-5"	8'-4"
	30" x 30" x 10"	10'-0"	10'-0"
	36" x 36" x 10"	10'-0"	10'-0"
4000 psf	21" x 21" x 8"	9'-6"	8'-5"
	24" x 24" x 8"	10'-0"	10'-0"
	30" x 30" x 10"	10'-0"	10'-0"
	36" x 36" x 10"	10'-0"	10'-0"

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Special Foundation Systems – Tie Down Engineering Xi2 Foundation Systems

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

The conclusions in this letter are based on test reports provided by Tie Down Engineering as well as DAPIA approved comparison calculations performed by 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

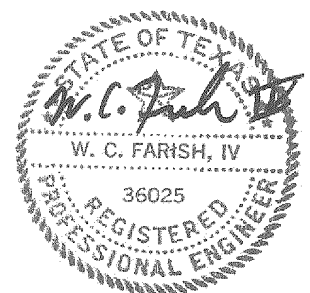
See the *Legacy Housing Installation Guide* for all other applicable set up requirements not covered by this letter. Please contact us for any questions or additional information.

Sincerely,

Dan Price
Director of Engineering
Legacy Housing, LTD

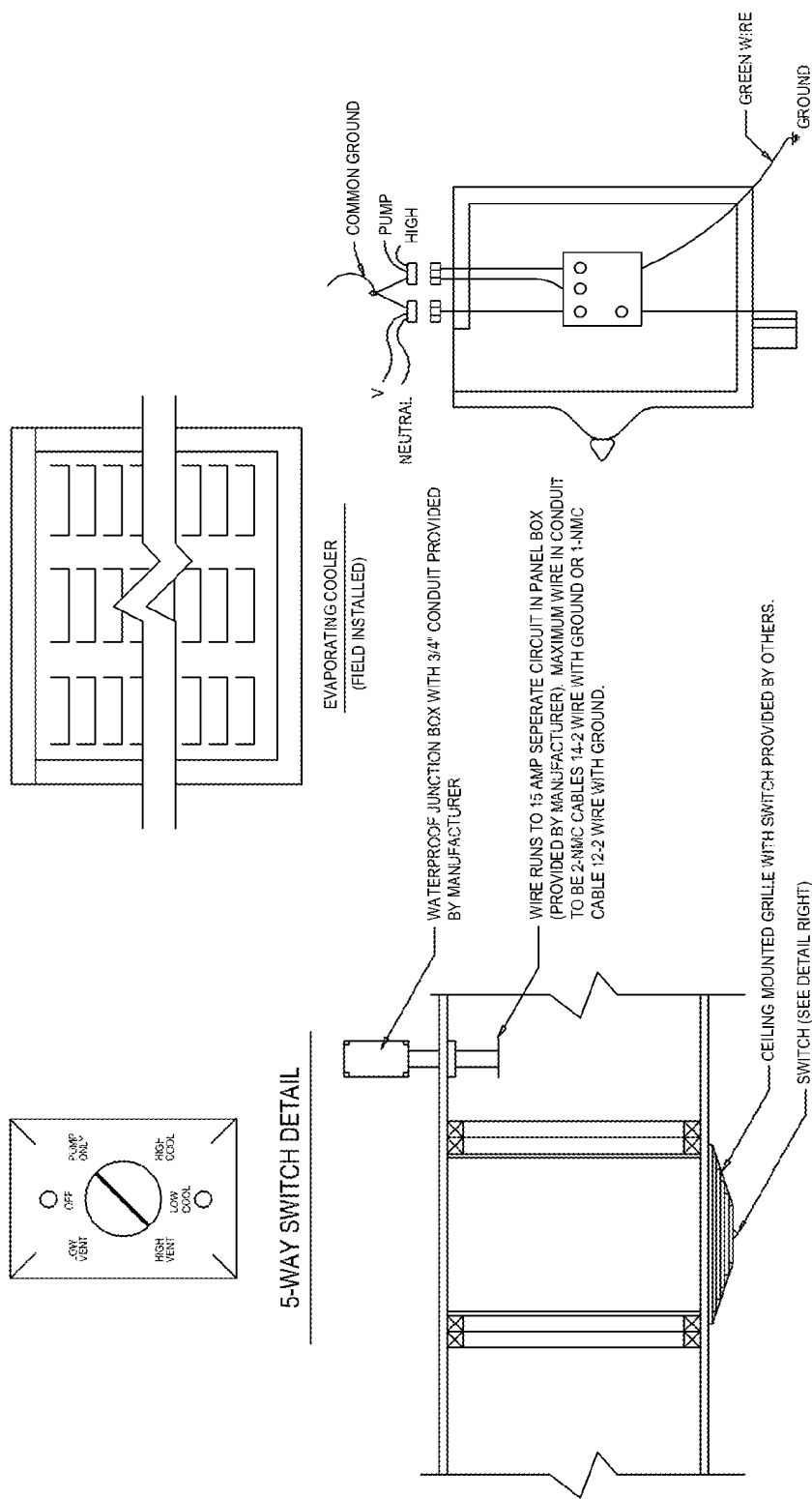


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Dec 17, 2015

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.

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Oct 29, 2009
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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.



I-E-1

[RETURN TO INDEX]

FIGURE A1

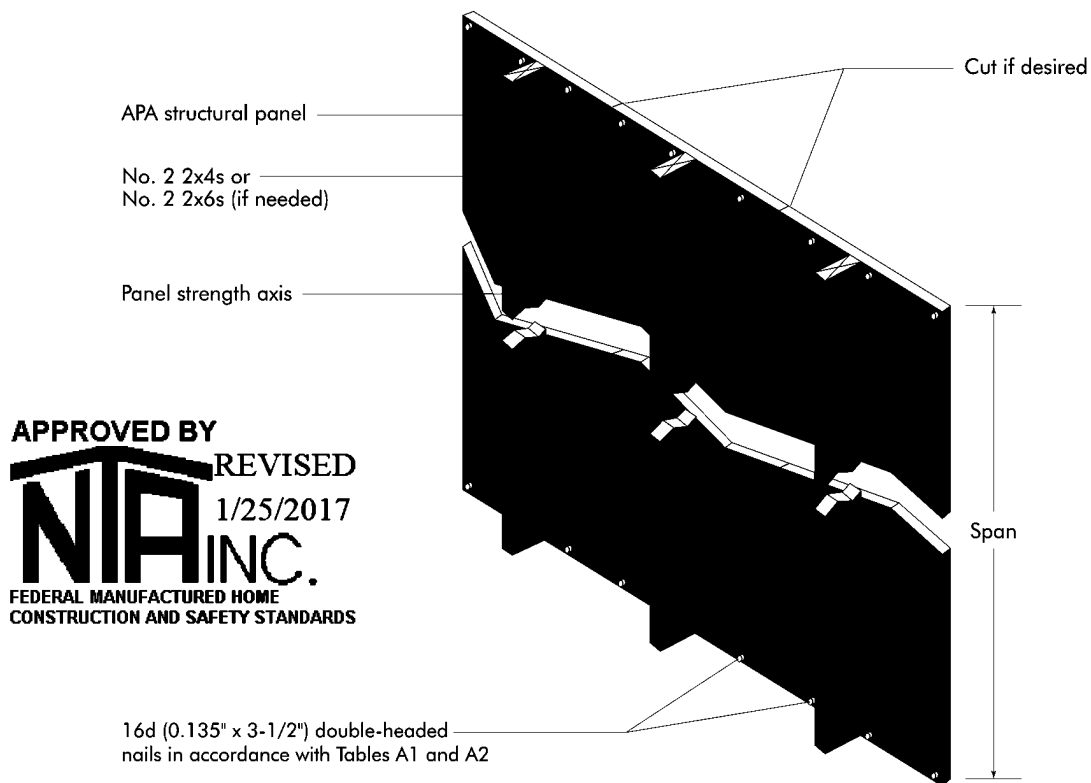
SHUTTER ATTACHMENT – VIEW FROM OUTSIDE

FIGURE A2

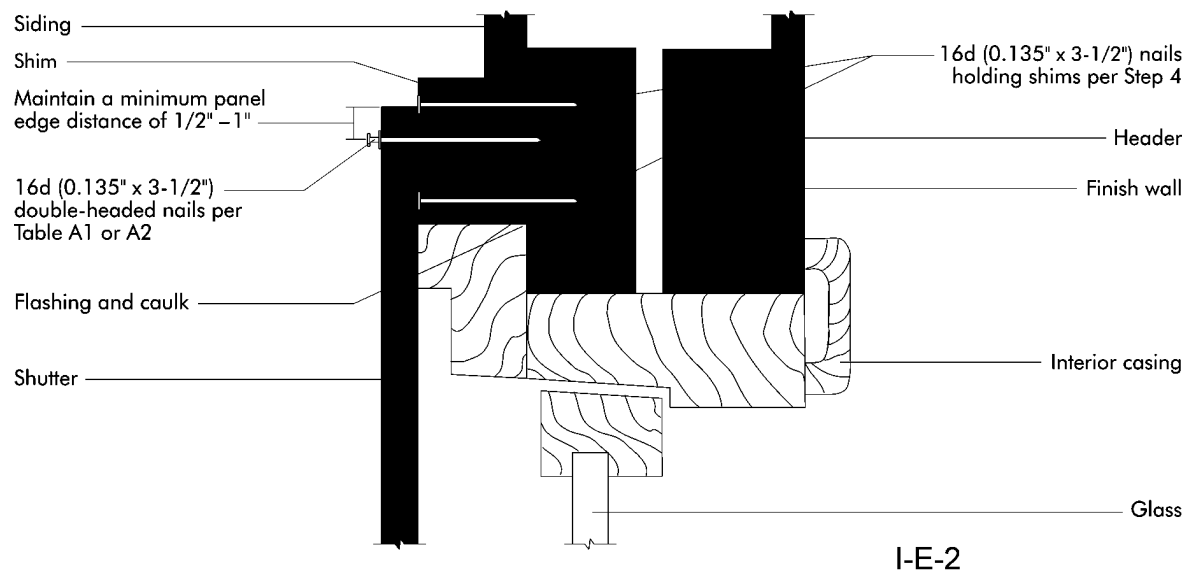
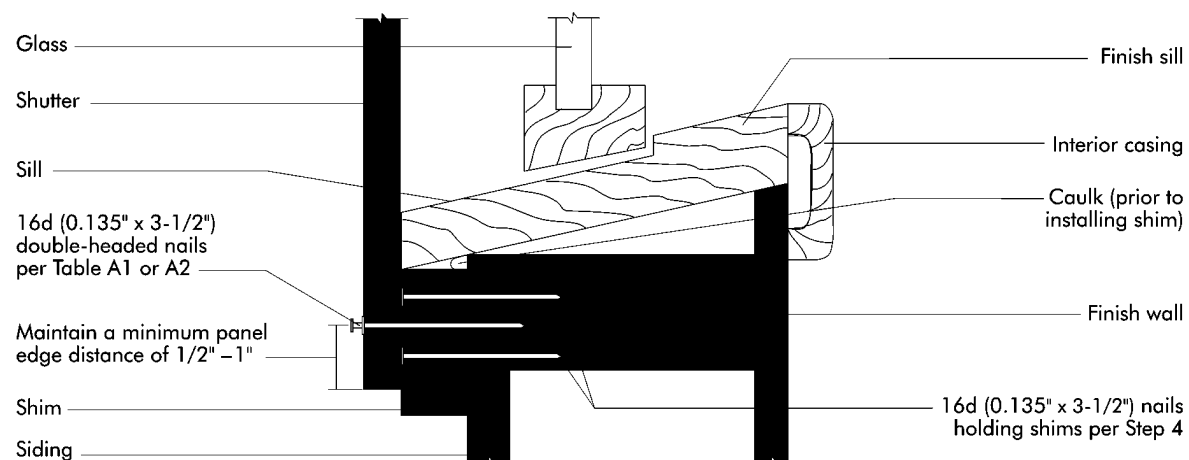
SHUTTER ATTACHMENT – TOP**[RETURN TO INDEX]**

FIGURE A3

SHUTTER ATTACHMENT – BOTTOM

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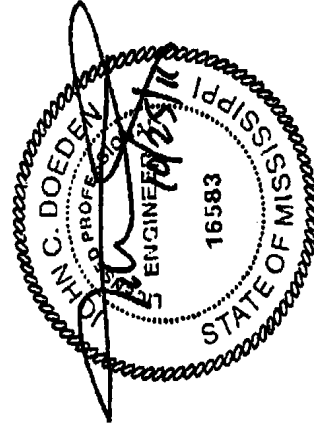
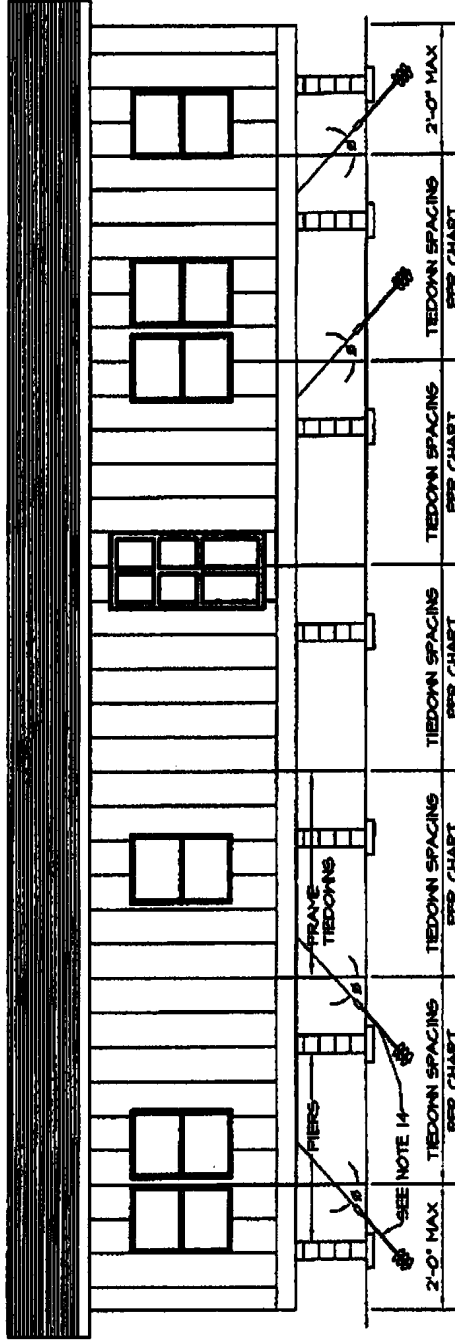
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 1/25/2017

I-E-3

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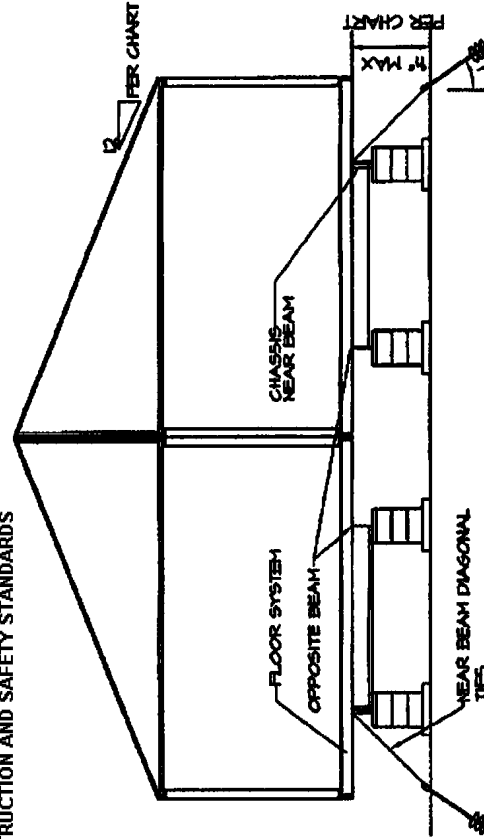
TIEDOWN SYSTEM
TYPICAL DETAILS
WIND ZONE I
FIGURE A7.1.1

TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS

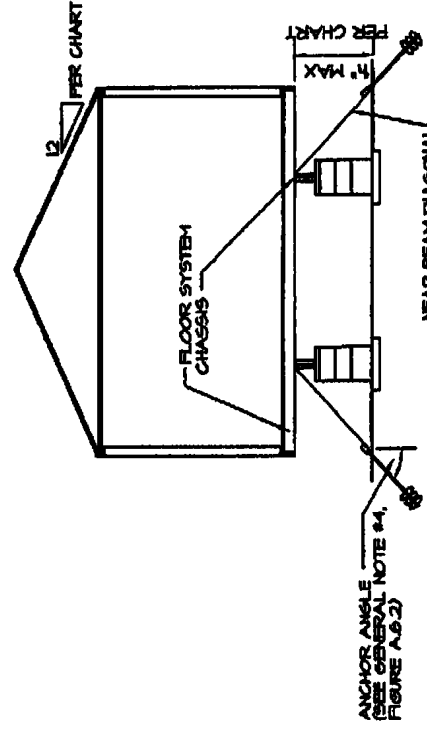


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TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



DOUBLE WIDES

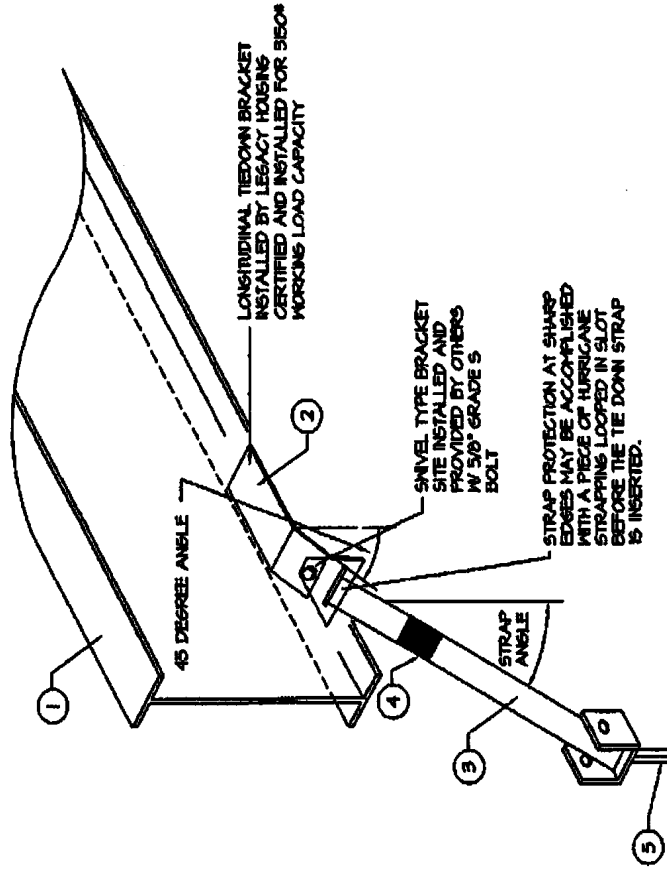


SINGLE WIDES

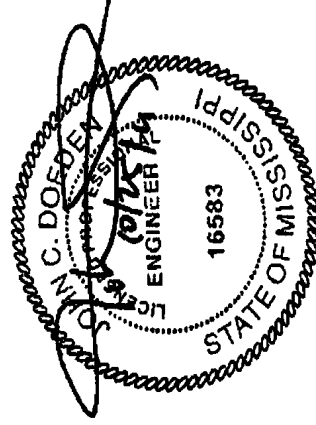
Optional 96" Sidewall Height

I-R.1

LONGITUDINAL TIEDOWN ATTACHMENT DETAIL
WIND ZONE 1, 2 AND 3
FIGURE A7.4



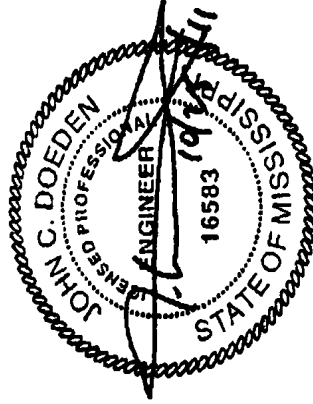
- 1: TYPICAL LONGITUDINAL I-BEAM
- ALTERNATE FACTORY INSTALLED TIEDOWN BRACKET
- 3: TIEDOWN STRAP
- 4: BANDING SEAL
- 5: GROUND ANCHOR - INSTALLED TO FULL
DEPTH OF ANCHOR HEAD



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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 I, Finish B, Grade 1 steel strapping, $1\frac{1}{2}$ " 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 $\frac{3}{8}$ " 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 74 $\frac{1}{2}$ " or 94 $\frac{1}{2}$ " (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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LEGACY HOUSING
ON-SITE CONNECTION DETAILS
WIND ZONE 1 (15 PSF LATERAL)
FIGURE A7.6.2

MAX 164" FLOOR 20 WIDE — 91 1/2" I-BEAM SPACING
96" 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 #6x4" SCREWS
OR 3/8"x4"
LAGS SPACED PER CHART

1" PENETRATION SPACED PER
CHART

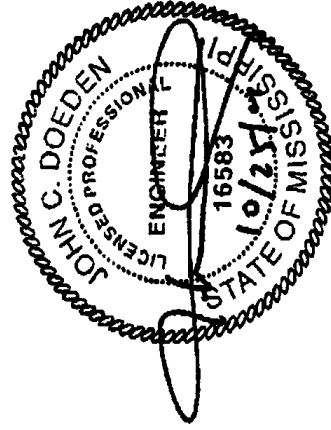
ATTACH ROOF SHEATHING TO
TOP RAIL OR RIDGEBEAM WITH
1/16"x16 GA STAPLES WITH
1" PENETRATION SPACED PER
CHART

RIDGE INTERCONNECTION PER CHART

DOUBLE HEAD
ANCHOR

6" MAX
INSET

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.



NOTES:
1. ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 9150# (4125# ULTIMATE).

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Optional 96" Sidewall Height

LEGACY HOUSING

ON-SITE CONNECTION DETAILS

WIND ZONE 2 (100 MPH) & WIND ZONE 3 (110 MPH)

FIGURE AT.6.1

MAX 16'4" FLOOR 20 WIDE — 91 1/2" I-BEAM SPACING
 96" MAX WALL HEIGHT
 20 DEGREE MAX. ROOF SLOPE
 (2.5 ON 12 MINIMUM SLOPE)

ENDWALL AT CENTERLINE
 #8x3" SCREWS AT 5 1/2" OC
 (MAX)(MAYBE "TOED")

VERTICAL TIES FACTORY
 INSTALLED AT REQUIRED
 SPACING
 (SEE TIEDOWN SPACING CHART)

16d (135x3 1/2") NAILS
 OR #8x4" SCREWS
 OR 3/8"x4" LAGS
 SPACED PER CHART

RIDGE INTERCONNECTION PER CHART

1 1/2"x26 GA STRAPS
 FASTENED TO
 TRANSVERSE JOISTS WITH 7/16"
 X15 GA STAPLES EACH END
 (1" PENETRATION MIN)
 9 FOR WIND ZONE 2, 11 FOR WIND ZONE 3
 SEE CHART FOR SPACING

DOUBLE HEAD
 ANCHOR

ANCHORS AT CENTERLINE
 REQUIRED AT COLUMNS
 GREATER THAN 48"

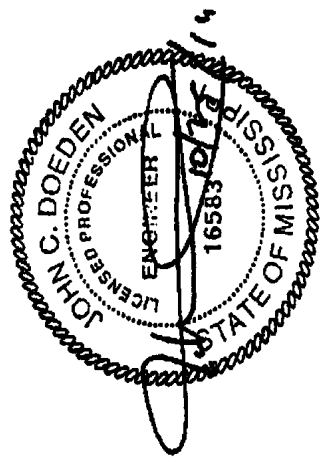
LOOP TIEDOWN STRAP
 THRU BRACKETS INSTALLED
 PER CHART AND
 ATTACH TO ANCHOR
 (SEE NOTE 5)

6" MAX
 INSET

NOTES:

1. ANCHOR EQUIPMENT AND DEVICES, INCLUDING STRAPS, TO BE RATED AT 9150# (4725# ULTIMATE).
2. DOUBLE HEAD ANCHORS TO BE RATED FOR THE COMBINED LOAD AND SHOULD BE INSTALLED WITH STABILIZER PLATES.
3. DIAGONAL TIES TO BE INSTALLED FROM I-BEAM AT SAME LOCATIONS AS VERTICAL TIES. REFER TO TABLES (FIGURES 5.6.1) STARTING AT 24" FROM EACH END (MAX OPEN END SPACING).
4. MARRIAGE WALL ANCHORS MAYBE SINGLE HEAD WITH A 3/8" MIN CAPACITY (4725# ULTIMATE).
5. BRACKETS ARE 1 1/2"x1 1/2"x11 GA (MIN) STEEL ANGLE WITH TWO (2) 7/16" DIAMETER HOLES 3/4" MINIMUM FROM EACH END AND 2" TO 3" IN BETWEEN HOLE CENTERS (BRACKET MUST BE SHIPPED WITH HOME). BRACKET IS LAGGED TO THE CENTERLINE JOIST W/ (2) 5/16"x3" MIN LAGS.
6. 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.

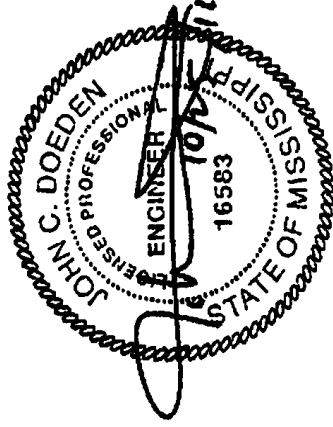
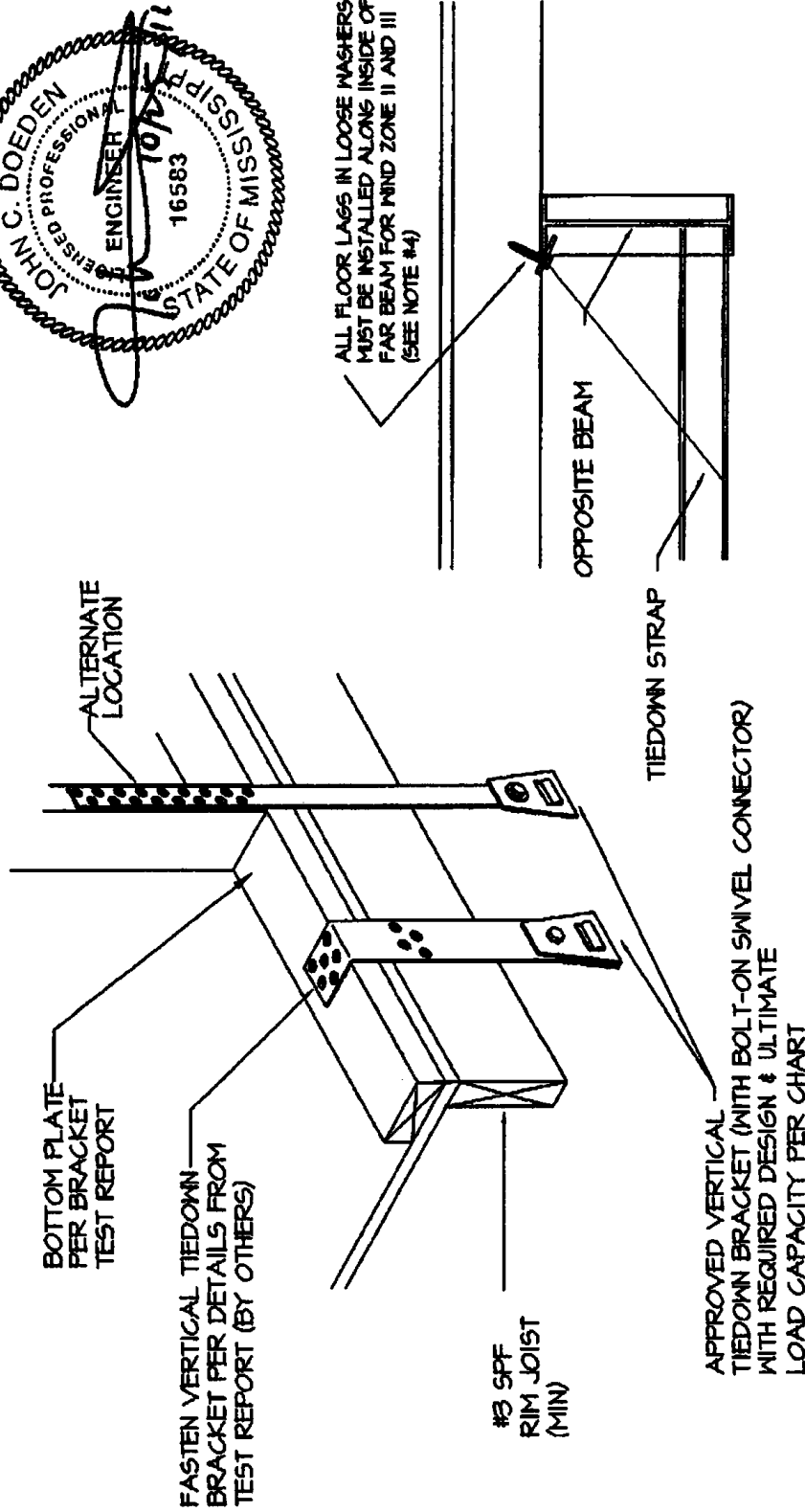
MAXIMUM FASTENER SPACING CHART 96" SIDEWALL HEIGHT		
CONNECTION	WIND ZONE 2	WIND ZONE 3
SHEATHING TO TOP RAILS OR RIDGEBEAM	4' o.c.	3' o.c.
RIDGE INTERCONNECTION #10x4" SCREWS OR 3/8"x5" LAG SCREWS	4' o.c.	6 3/4" o.c.
CENTERLINE STRAPS AT FLOOR	96" o.c.	96" o.c.
CENTERLINE FASTENING AT FLOOR	15" o.c.	12" o.c.
NAILS SCREWS LAGS	15" o.c.	11" o.c.
	18" o.c.	15" o.c.



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Optional 96" Sidewall Height

VERTICAL TIEDOWNS
WIND ZONE 2 AND 3
FIGURE A7.5



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UNIT WIDTH	I-BEAM SPACING	SIDEWALL HEIGHT	ROOF SLOPE	WIND ZONE	SPACING	REQUIRED DESIGN LOAD CAPACITY	REQUIRED ULTIMATE LOAD CAPACITY
164" SINGLE	19 1/2"	96"	20 DEG MAX	II	8'-0"	1365#	2040#
164" SINGLE	19 1/2"	96"	20 DEG MAX	II	8'-0"	1240#	1435#
164" SINGLE	19 1/2"	96"	20 DEG MAX	III	6'-8"	500#	2250#
164" SINGLE	19 1/2"	96"	20 DEG MAX	III	6'-8"	450#	2175#
164" DOUBLE	19 1/2"	96"	20 DEG MAX	II	8'-0"	1240#	1860#
164" DOUBLE	19 1/2"	96"	20 DEG MAX	III	6'-8"	575#	2365#

Optional 96" Sidelwall Height

LEGACY HOUSING FORT WORTH, TEXAS

- FOR USE IN WIND ZONES II AND III.
- 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 MF6.5 INSTRUCTIONS.
- USE TIE DOWN ENGINEERING 'SIDENALL SNIVEL STRAP ASSEMBLY', PART NO. 54337A FOR UP TO 1810# DESIGN LOAD CAPACITY OR 'SNIVEL L TIE PLATE ASSEMBLY', PART NO. 54339A 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 DOCUMENT HAS BEEN PREPARED BY
HOUSING DESIGN GROUP
2040 Northwood Drive
Bartlett, IL 60010

REVISED BY DATE DESCRIPTION

NO	REVISED BY	DATE	DESCRIPTION

EXTERIOR WALLS
VERTICAL TIEDOWNS

DRAWN BY: R. ILLMAN 02/14/11
CHECKED BY:

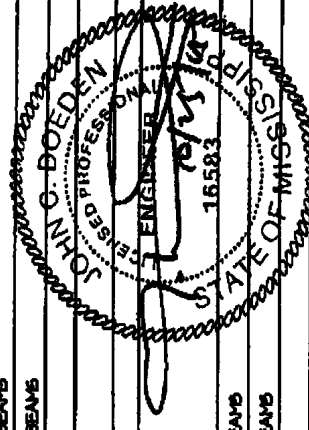
DRAWING NO. I-R.6

**TIEDOWN SYSTEM
CHARTS
FIGURE A7.3**

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MRD ZONE 1 TIE DOWN REQUIREMENTS CHART

FLOOR MIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME TIEDOWNS			VERTICAL TIE LOAD (LBS)	LONGITUDINAL TIEDOWNS MINIMUM QUANTITY EACH END EACH SECTION	MINIMUM STRAP ANGLE	NOTES
						ANCHOR ANGLE	NEAR OR OPPOSITE BEAM					
164" SINGLE SECTION (19 1/2" I-BEAM SPACING)	5" MAX	20 Deg Max	46"	10'-0"	46"	40	NEAR		N/A	2	24	CHASSIS LAGS OUTSIDE I-BEAMS
			46"	8'-0"	63"	50	NEAR		N/A	2	24	CHASSIS LAGS OUTSIDE I-BEAMS
164" SINGLE SECTION (19 1/2" I-BEAM SPACING)	5" MAX	20 Deg Max	46"	10'-0"	40"	40	NEAR		N/A	2	24	CHASSIS LAGS OUTSIDE I-BEAMS
			46"	8'-0"	50"	50	NEAR		N/A	2	24	CHASSIS LAGS OUTSIDE I-BEAMS
164" DOUBLE SECTION (19 1/2" I-BEAM SPACING)	8" MAX	20 Deg Max	46"	10'-0"	34"	34	NEAR		N/A	2	30	CHASSIS LAGS OUTSIDE I-BEAMS
			46"	8'-0"	50"	50	NEAR		N/A	2	30	CHASSIS LAGS OUTSIDE I-BEAMS



MRD ZONE 2 TIE DOWN REQUIREMENTS CHART

FLOOR MIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME TIEDOWNS			VERTICAL TIE LOAD (LBS)	LONGITUDINAL TIEDOWNS MINIMUM QUANTITY EACH END EACH SECTION	MINIMUM STRAP ANGLE	NOTES
						ANCHOR ANGLE	NEAR OR OPPOSITE BEAM					
164" SINGLE SECTION (19 1/2" I-BEAM SPACING)	5" MAX	20 Deg Max	46"	8'-0"	28"	50-55	OPPOSITE		1965#	2	51	CHASSIS LAGS INSIDE I-BEAMS
			46"	6'-0"	60"	40-45	OPPOSITE		1120#	2	51	CHASSIS LAGS INSIDE I-BEAMS
164" SINGLE SECTION (19 1/2" I-BEAM SPACING)	3" MAX	20 Deg Max	46"	8'-0"	32"	50-55	OPPOSITE		1290#	2	51	CHASSIS LAGS INSIDE I-BEAMS
			46"	6'-0"	64"	40-45	OPPOSITE		1075#	2	51	CHASSIS LAGS INSIDE I-BEAMS
164" DOUBLE SECTION (19 1/2" I-BEAM SPACING)	8" MAX	20 Deg Max	46"	8'-0"	46"	45-50	OPPOSITE		1240#	3	34	CHASSIS LAGS INSIDE I-BEAMS
			46"	6'-0"	60"	40-45	OPPOSITE		1040#	3	34	CHASSIS LAGS INSIDE I-BEAMS

MRD ZONE 3 TIE DOWN REQUIREMENTS CHART

FLOOR MIDTH	EAVE WIDTH	ROOF SLOPE	SIDEWALL HEIGHT	TIEDOWN SPACING	MAXIMUM VERTICAL DISTANCE	FRAME TIEDOWNS			VERTICAL TIE LOAD (LBS)	LONGITUDINAL TIEDOWNS MINIMUM QUANTITY EACH END EACH SECTION	MINIMUM STRAP ANGLE	NOTES
						ANCHOR ANGLE	NEAR OR OPPOSITE BEAM					
164" SINGLE SECTION (19 1/2" I-BEAM SPACING)	5" MAX	20 Deg Max	46"	6'-0"	28"	45-50	OPPOSITE		1500#	3	43	CHASSIS LAGS INSIDE I-BEAMS
			46"	5'-4"	64"	40-45	OPPOSITE		1175#	3	43	CHASSIS LAGS INSIDE I-BEAMS
164" SINGLE SECTION (19 1/2" I-BEAM SPACING)	5" MAX	20 Deg Max	46"	6'-0"	28"	45-50	OPPOSITE		1450#	3	43	CHASSIS LAGS INSIDE I-BEAMS
			46"	5'-4"	64"	40-45	OPPOSITE		1160#	3	43	CHASSIS LAGS INSIDE I-BEAMS
164" DOUBLE SECTION (19 1/2" I-BEAM SPACING)	8" MAX	20 Deg Max	46"	6'-0"	26"	45-50	OPPOSITE		1575#	3	50	CHASSIS LAGS INSIDE I-BEAMS
			46"	4'-0"	52"	50-55	OPPOSITE		925#	3	50	CHASSIS LAGS INSIDE I-BEAMS

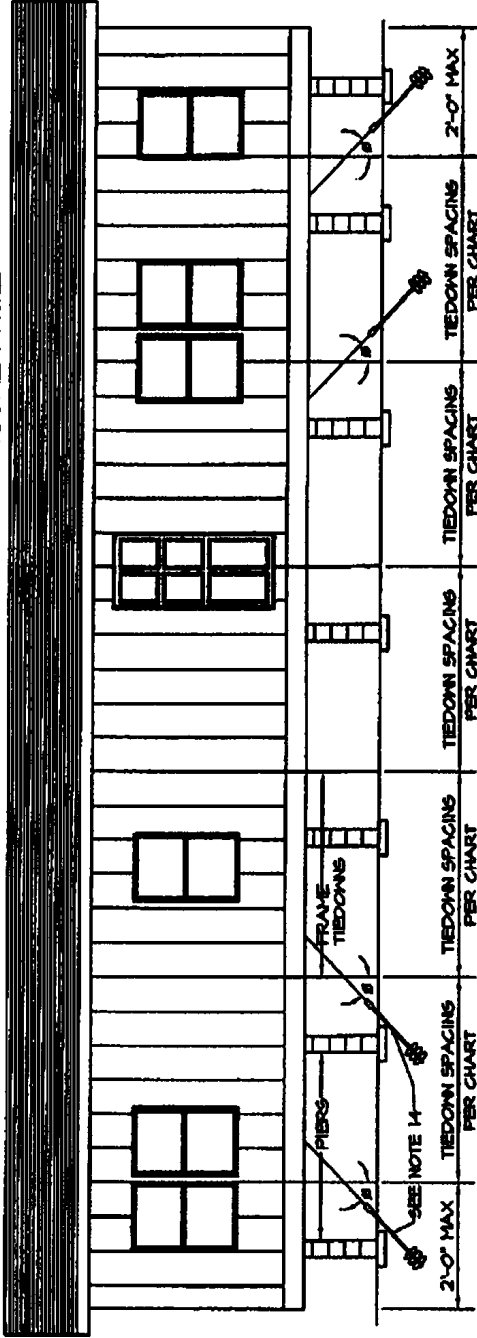
NOTES:

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

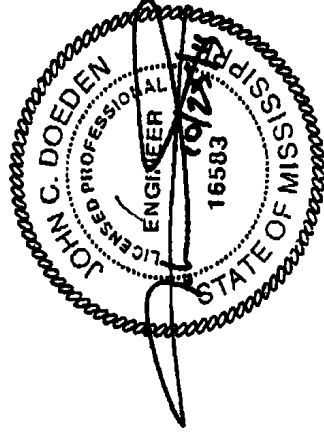
Optional 96" Sidewall Height

TIEDOWN SYSTEM
TYPICAL DETAILS
WIND ZONE 2 AND 3
FIGURE A7.1.2

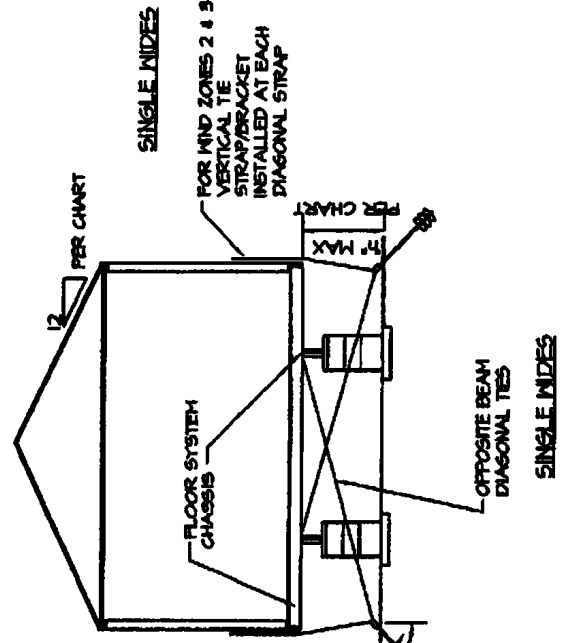
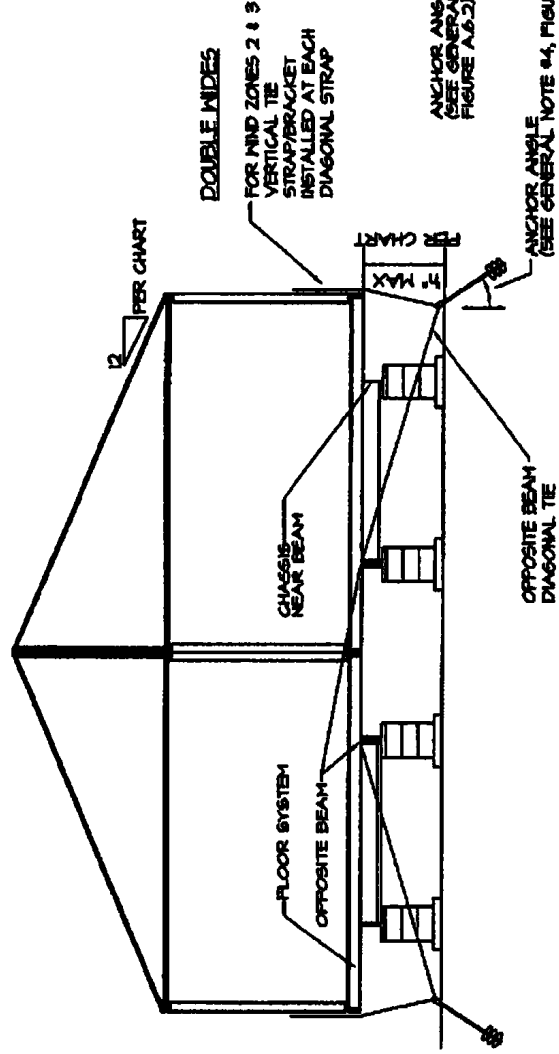
TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



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TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



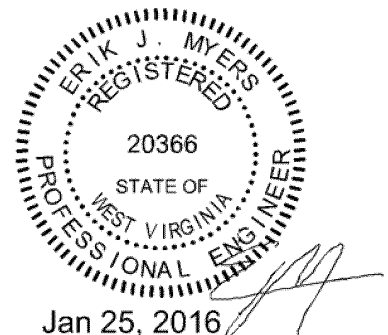


187.5" Unit Width Max.

Requirements Apply to Single Wide Units Only

Specifications for all Wind Zones

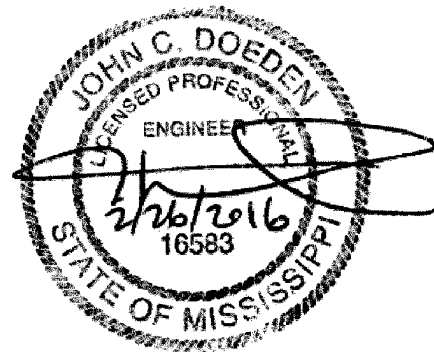
1. Roof live load 20# all wind zones, 30# wind zone 1 only.
2. 4" max. eave overhang on the roof.
3. Floor design per page FL-1.5.3.
4. Outrigger design per FR-5.1.1.
5. Shearwall roof diaphragms: use 184" designs.
6. Headers: use 184" with 8" eave designs.
7. Sidewall strapping: use 184" with 8" eave 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.



Legacy Housing

General Notes:

- 1. 12 Wide Homes:** For 12' wide single section homes with section floor width of 138" or 139 ½" 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.

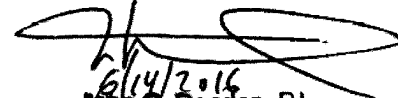
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186.5" Unit Width Max. with 4 1/2" Max. Eave Requirements Apply to Double Wide Units Only

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
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