



Wick
Building Systems, Inc.



Installation Manual

for Manufactured Homes
2nd Edition

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Section I

Introduction

This installation manual has been prepared to provide the necessary instructions for the proper set and hookup of Wick Manufactured Homes. It covers both single section units and sectional homes designed for over a crawl space, and those homes constructed with a Lindsay Unified Floor System designed for installation on a basement foundation. It contains instructions, including specifications and procedures, for set and hookup of those manufactured homes to be used as single-family dwellings. These instructions cover all manufactured homes assembled and constructed by Wick as of the date of its first printing. Any additional "supplemental instructions" provided with the home must also be followed. Failure to follow these instructions could result in problems which are not covered under the written warranties of Wick Building Systems, Inc. This manual should stay with the home at all times. If you sell or transfer the home to a new owner, you should provide this manual along with the home.

How to Use this Manual

This manual is divided into 13 sections, each one relating to a specific aspect of work that would be involved in setting a manufactured home, from preparing the site through the final inspection. It includes many tables and figures giving important data for a proper home set. The tables and figures referred to in each section are provided at the end of that section. You should be sure to read this manual carefully prior to beginning the installation process. Take particular note of "caution" statements which are of special significance. If there is anything that you do not understand, please contact the Engineering Department of Wick Building Systems, Inc., for assistance.

Safety Considerations

Only trained crews should install the home. Installers shall adhere to OSHA Safety Regulations during the installation process. Installers should also take care to follow the safety instructions provided in this manual.

Pre-Installation Considerations

Site Selection & Design Criteria

All Wick manufactured homes are designed for certain weather conditions including wind loads, roof loads, and outdoor winter design temperature criteria. The design criteria to which the home is manufactured is contained on the "Data Plate" attached to the door of the main electrical distribution panelboard. Maps providing the geographic location for the applicable design zones are provided at the end of this section. Do not locate the home in a zone requiring greater wind load, roof load or heating/cooling capabilities for which it was designed. For example, a home designed for a northern roof load of 40 psf may be sited in the southern roof load zone. However, a home designed for a southern load of 20 psf may not be sited in the northern roof load zone.

*See Figures
1.1, 1.2 and 1.3*

For private property installation, zoning or development covenants may apply and should also be taken into consideration.

Permits & Licensing

Some jurisdictions require all installers to be licensed or registered. Before you start the installation process, contact the proper local authority having jurisdiction to see if you

Section I – Introduction

must be licensed. Many jurisdictions require permits prior to the installation of items such as blocking, anchoring and utility connections. Inspections may be required in conjunction with such permits to help ensure the correct installation of the home with notification to the jurisdiction at different times during the installation process. Many states also require that utilities be connected by a licensed technicians.

Compliance with State & Local Codes

You must comply with state installation codes where they exist. If any state code specification is “greater” than the minimum specifications provided in this Manual, then you must follow the state code specification. However, if any state code specification is “less” than the minimum specifications provided in this Manual, then you must follow the Manual specifications. Finally, if the state code does not address or provide specifications for a particular part or portion of the home installation, then you must follow the specifications contained in this manual. You should also be sure to check with your local regulatory agencies and building officials for any local requirements that may supersede these instructions.

The following states have adopted manufactured home set up and installation codes as of the date of this printing.

- *Iowa.* Iowa Administrative Code, Chapter 16, Division VI, Part 2.
- *Michigan.* Michigan Administrative Code, Rule 125, Part 6.
- *Minnesota.* Minnesota Rules, Chapter 1350.
- *Missouri.* Missouri Revised Statutes, Chapter 700.
- *South Dakota.* South Dakota Rules, Article 20:01, Chapter 20:01:12.
- *Wisconsin.* COMM 27, Wisconsin Administrative Code.

Special Considerations

Flood-Prone Areas

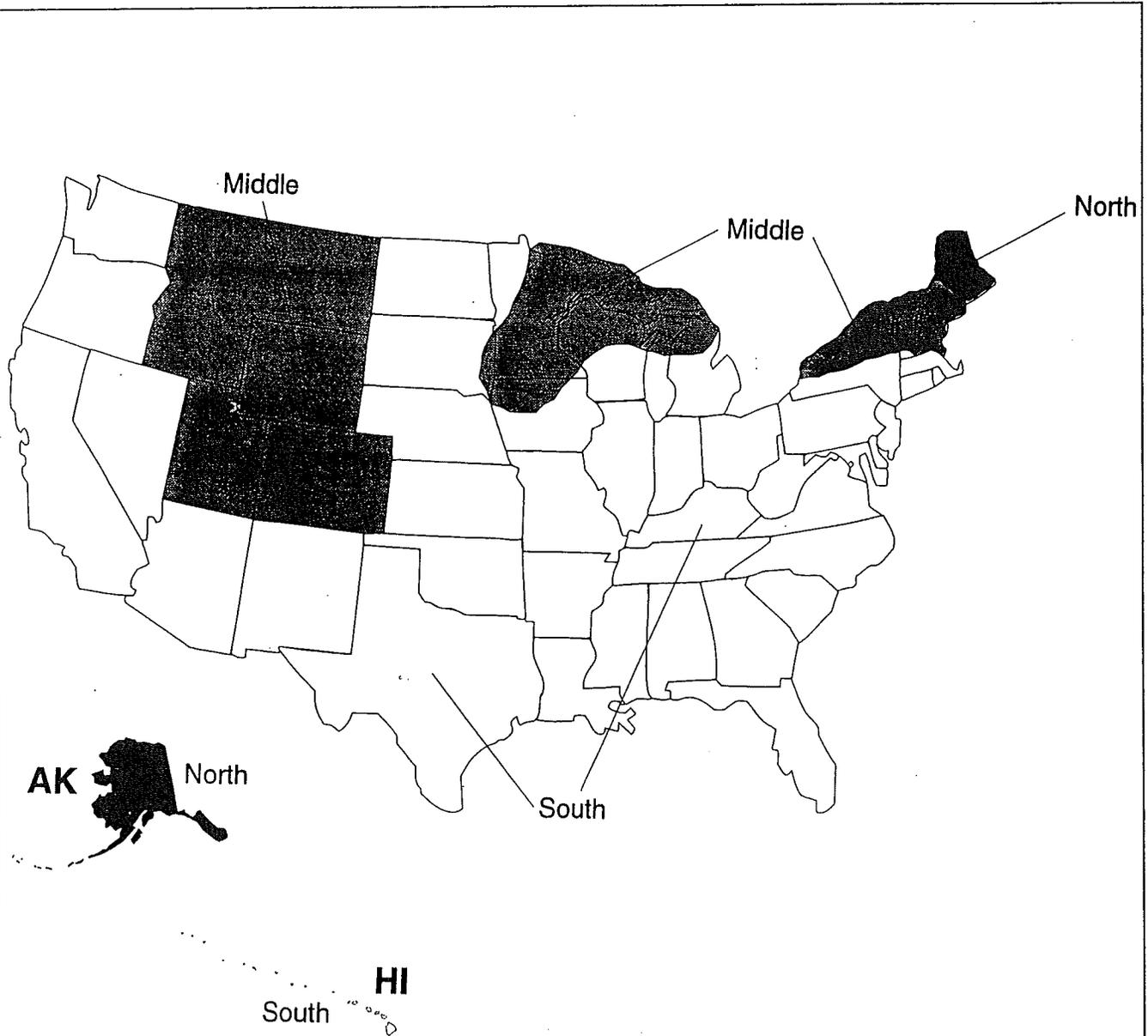
Wick Building Systems manufactured homes are not designed to be installed in river or coastal flood-prone areas.

Severe Wind Areas

Do not place your home in a wind zone more severe than the one indicated on the Data Plate in the home. Wick Building Systems manufactured homes are not designed for hurricane resistive wind zones.

Special Snow Load Conditions

Do not place the home in a roof zone more severe than the one indicated on the Data Plate in the home. Wick Building Systems manufactured homes are not designed to be placed in areas requiring a design roof load of greater than 30 psf.

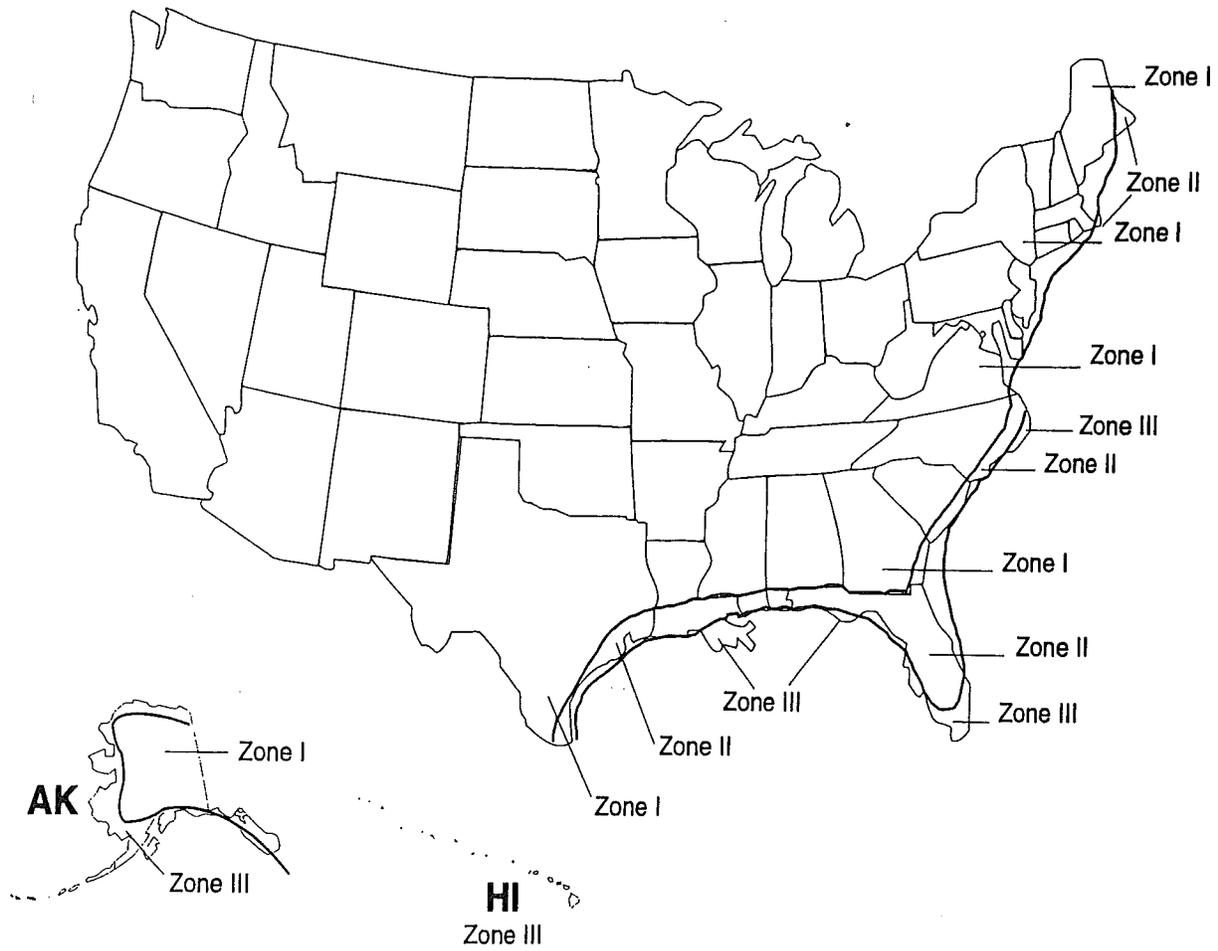


Design Roof-load Zones:

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

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

FIGURE 1.1
ROOF LOAD DESIGN ZONE MAP



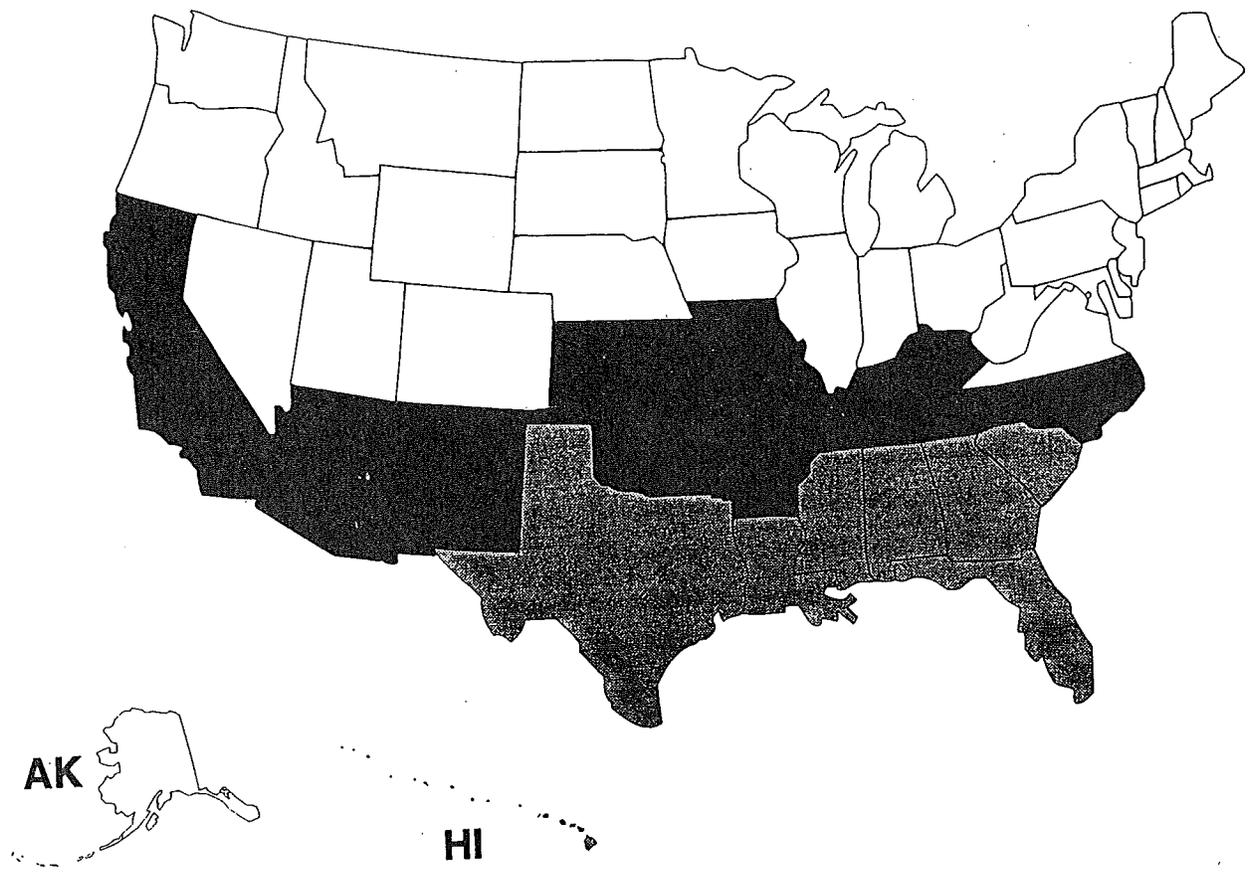
Design Wind-load Zones:

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

* net uplift

Note --
psf: pounds per square foot

FIGURE 1.2
WIND LOAD DESIGN ZONE MAP



Zone	1	2	3
U-value	0.116	0.096	0.079

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

FIGURE 1.3
HEATING AND COOLING DESIGN ZONE MAP

Section II

Definitions and References

Some of the words and terms that are used repeatedly throughout this manual are defined as follows:

Terms Defined

Accessory Building or Structure: A building or structure that is an addition to or supplements the manufactured home. For example, awnings, garages, storage structures, carports, fences, windbreaks and porches are accessory buildings or structures.

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

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

Approved: When used in connection with any material, appliance or construction, means complying with the requirements of the Department of Housing and Urban Development.

Bonding: The permanent joining of metallic parts to form an electrically conductive path which will assure electrical continuity and the capacity to conduct safely any current likely to be imposed.

Chassis: The entire transportation system comprising the following subsystems: drawbar and coupling mechanism, frame, running gear assembly and lights.

Circuit Breaker: A device designed to open and close a circuit by non-automatic means, and to open the circuit automatically on a predetermined overload of current without injury to itself when properly applied within its rating.

Crawl Space: The area between the bottom of the manufactured home and the ground surface usually enclosed with skirting, concrete blocks, poured concrete walls or other suitable means.

Cross Connection: Any physical connection or arrangement between two otherwise separate systems or sources whereby there may be a flow from one system or source to the other, the direction of flow depending on the pressure differential between the two systems.

Dead Load: See "Loads."

Diagonal Tie: A tie intended to primarily resist horizontal forces but which may also be used to resist vertical forces.

Drainage System: All piping within or attached to the structure that conveys sewage or other liquid waste to the drain outlet, not including the drain connector.

Drawbar and Coupling Mechanism: The rigid assembly (usually an "A" frame) upon which is mounted a coupling mechanism which connects the manufactured home's frame to the towing vehicle.

Section II – Definitions and References

Electrical Distribution Panelboard: A single panel or a group of panel units designed for assembly in the form of a single panel, including buses, and with or without switches or automatic overcurrent protective devices or both, for the control of light, heat or power circuits of small individual as well as aggregate capacity designed to be placed in a cabinet placed in or against a wall or partition and accessible only from the front.

Feeder Assembly: The overhead or under-chassis feeder, conductors, including the grounding conductor, together with the necessary fittings and equipment designed for the purpose of delivering energy from the source of electrical supply to the distribution panelboard within the manufactured home.

Flood Level: The level in the receptacle over which water would overflow to the outside of the receptacle.

Footing: That portion of the support system that transmits loads directly to the soil.

Foundation: Site-built or site-assembled system of stabilizing devices that is capable of transferring dead loads and lateral and vertical live loads as required by the Manufactured Home Procedural and Enforcement Regulations, and other design loads unique to local home sites that result from wind, seismic and water conditions, or that are imposed by or upon the structure, into the underlying soil without failure, placed at an adequate depth or otherwise adequately designed, to prevent frost damage in areas that are susceptible to frost and constructed of materials acceptable to the authority having jurisdiction.

Frame: The fabricated rigid substructure which provides considerable support to the affixed manufactured home structure both during transport and on-site; and also provides a platform for securement of the running gear assembly, the drawbar and coupling mechanism.

Ground Anchor: A device placed at the manufactured home stand designed to transfer manufactured home anchoring loads to the ground.

Hurricane Resistive: A manufactured home which meets the wind design load requirements for Zone II in §3280.305(c)(2) of the HUD Code.

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 and anchoring systems.

Labeled: Any label, symbol or other identifying mark of a nationally recognized testing laboratory, inspection agency, or other organization concerned with product evaluation that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling is indicated compliance with nationally recognized standards or tests to determine suitable usage in a specified manner.

Listed or Certified: Included in a list published by a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

Section II – Definitions and References

Live Loads: See “Loads.”

Loads: “Dead Load” means the weight of all permanent construction including walls, floors, roof, partition and fixed service equipment. “Live Load” means the weight superimposed by the use and occupancy of the manufactured home, including wind load and snow load, but not including dead load. “Wind Load” means the lateral or vertical pressure or uplift on the manufactured home due to wind blowing in any direction.

Main Frame: The structural component on which is mounted the body of the manufactured home.

Manufactured Home: A structure, transportable in one or more sections, which in the traveling mode, is 8 body feet or more in width or 40 body feet or more in length, or when erected on site, is 320 or more square feet, and which is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities, and includes the plumbing, heating, air conditioning, and electrical systems contained therein.

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

Pier: That portion of the support system between the footing and the manufactured home exclusive of caps and shims.

Pile: A column of precast or cast-in-place concrete or wood driven or jugged into the ground to support superimposed loads.

Pile Footing: Concrete or wood piles driven into the ground and used to distribute the load and support of the pier.

Registered Professional Engineer or Architect: A person licensed to practice engineering or architecture in a state and subject to all laws and limitations imposed by the state’s Board of Engineering and Architecture Examiners and who is engaged in the professional practice of rendering service or creative work requiring education, training and experience in engineering sciences and the application of special knowledge of the mathematical, physical and engineering sciences in such professional or creative work as consultation, investigation, evaluation, planning or design and supervision of construction for the purpose of securing compliance with specifications and design for any such work.

Running Gear Assembly: The sub-system consisting of suspension springs, axles, bearings, wheels, hubs, tires and brakes, with their related hardware.

Sheathing: A material which is applied on the exterior side of a building frame under the exterior weather resistant covering.

Site: A designated parcel of land designed for the accommodation of one manufactured home, its accessory buildings or structures and accessory equipment, for the exclusive use of the occupants of the home.

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

Section II – Definitions and References

Stabilizing Devices: All components of the anchoring and support systems such as piers, footings, ties, anchoring equipment, ground anchors and any other equipment which supports the manufactured home and secures it to the ground.

Stand: See “Manufactured Home Stand.”

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

Tie: A strap, cable or securing device used to connect the manufactured home to ground anchors.

Utility Connection: The connection of the manufactured home to existing utilities that include but are not limited to electricity, water, sewer and gas or fuel oil.

Vertical Tie: A tie intended to primarily resist uplifting and overturning forces.

Wind Load: See “Loads.”

Note: “Manufactured home” and “home” may be used interchangeably throughout this manual. Whenever the term “shall” or “should” appears, they are synonymous with “must” and are indicating a requirement.

Reference Materials

In addition to the information contained in this manual, you may find valuable information in other reference documents. The following listing of references is being provided for informational purposes only and is not necessarily a part of the requirements of this manual.

- ANSI/NCSBCS A225.1-1994, “Manufactured Home Installations” NCSBCS, 505 Huntmar Park, Herndon, VA 22070 (703)437-0100.
- ASCE 7-1988, “Minimum Design Loads for Buildings and Other Structures,” American Society of Civil Engineering, 345 E. 47th Street, New York, NY 10017.
- HUD Handbook 4930.3 (1989), “Permanent Foundations Guide for Manufactured Housing,” HUD, 415 Seventh Street, S.W., Washington, D.C. 20036.
- “Frost-Free Shallow Foundation Design Guidelines,” Energy Design Update, March 1988.
- “All-Weather Wood Foundation System Manual,” National Forest Products Association, 1619 Massachusetts Avenue, N.W., Washington, D.C. 20036.
- “Building Foundation Design Guidebook,” Document No. DE88013350, National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

The location and layout of the home on the site is critical to the life-long performance and habitability of the home. The preparation of the site and the manufactured home stand is extremely important as well. If you are responsible for locating the home or for preparing the site, you should be sure to pay careful attention to the following.

Location & Layout of Home

When planning the location and layout of the home on the site, your plan should take into consideration the topographic conditions of the site including the slope and drainage conditions, the location of trees and other vegetation, access to the site, and whether special grading or other excavation work such as ditches or retaining walls will be required.

Access for Transporter

The home site should have easy access to prevent damage from moving the home on to the site and into position. Before attempting to move the home to the installation site, be sure the transportation equipment can get through. The home should not be toted across fields or through ditches. Remove any overhanging branches and raise any overhead wires.

Encroachment & Setback Distances

Be sure to obey local laws regarding encroachments in streets, yards and courts, and permissible set back distances from property lines and public roads.

Fire Separation Distance

The distance in which the home must be located from other structures depends on its fire resistance rating and conformance with local requirements. If in doubt, contact the design approval agency identified on the Data Plate located in the home, or contact the Engineering Department of Wick Building Systems, Inc., for fire resistance rating information.

Soil Conditions

Requirements

The home should be located on the site in an area of the least ground water hazard. To help prevent settling, the home should be sited on firm, undisturbed soil or fill compacted to 90% of its maximum relative density. Do not place the home on loose fill or soil such as gumbo, mud, muck or bentonite. Choose compact gravel or sand/gravel mixtures, loose gravel or compact coarse sand for the manufactured home stand.

Removal of Organic Material

All organic surface material, such as grass, roots, wood scraps and the like, should be removed from the area of the manufactured home stand.

Section III – Site Preparation

Grading Design

The site grading design shall allow drainage of surface water away from the home and off-site while avoiding a concentrated run-off onto neighboring properties where erosion or other damage would be caused. The site grading design shall also minimize erosion and potential earth movement and settlement problems which might adversely affect the home.

Drainage & Sloping

Proper drainage prevents water build-up under the home which can cause settling of the foundation and build-up of moisture and condensation in the crawl space and interior of the home. The manufactured home stand must be properly graded and sloped to allow for storm drainage run-off. The drainage grade slope is often specified by local building codes. In the absence of local requirements, a slope of 1-inch in 12-inches should be used. Grade and slope the site extending out a minimum of 10 feet around the perimeter of the manufactured home stand. The drainage slope away from the home should include the first 2 feet under the home.

Elimination of Depressions

The manufactured home stand should be graded evenly so there are no depressions where surface water can accumulate either underneath or along side the perimeter of the home.

Drainage Structures

Depending on the topographic conditions of the lot, culverts or retaining walls may be needed to drain surface water runoff away from the home. If so, consult a registered professional engineer or architect.

Ground Moisture Control

A vapor retarder that keeps ground moisture out of the home must be placed on the ground surface in the crawl space area under the home.

Acceptable Types & Proper Installation

You should use a minimum 6 mil polyethylene sheathing or its equivalent. Cover the entire area under the home with the sheathing and overlap it at least 6" at all seams. Where soil and frost conditions permit placement of footings at grade level, the sheathing should be placed directly beneath the footing.



Caution: A poly vapor barrier must be installed on the ground in the crawl space. Problems resulting from the failure to install a vapor retarder on the crawl space surface are not covered by the written warranties of Wick Building Systems, Inc.

All Wick single section manufactured homes and most multi section units are designed for installation on crawl space pier and footing foundation systems. Some sectional homes, such as those with the Lindsay Unified Floor System, are designed for installation on a basement foundation. In either case, every Wick manufactured home must be installed on a foundation system that is properly designed and constructed. The requirements for construction of the foundation system may be governed by state or local law. Be sure to consult with the local or state authorities to determine if a code exists and comply with that code when you design and install the foundation system. In the absence of local or state codes, if you are responsible for installing the home, you should comply with the following specifications in constructing and installing the foundation system for the home.



Caution: If the home is constructed with a Lindsay Unified Floor System, the home must be installed on a basement foundation. See Basement Foundations and then refer to Section VI of this Manual for instructions for setting Wick sectional homes with the Lindsay Unified Floor System.

Soil Bearing Capacity

One of the qualities of soil is its load bearing capacity. Soils that can support less pounds per square foot need larger footings to support the same weight as soils that can support more pounds per square foot. Before you can design your foundation, you must know the load bearing capacity of the soil. After completing any grading or filling, test the bearing capacity of the soil at the depth of the footing. A pocket penetrometer available from most engineering supply houses can be used to test the soil type. You can also contact a local geologist or licensed professional engineer for soil testing. If you cannot test the soil, but can identify its type, use Table 4.1, *Soil Bearing Capacities*, as a guide.

See Table 4.1

Pier Foundations

That portion of the foundation support system between the footing and the bottom of the manufactured home is the "pier." If you are setting the home on a pier foundation, it must be properly constructed and correctly spaced. Any one of the following pier types are acceptable for setting Wick manufactured homes.

Acceptable Types

Piers can be constructed out of either solid concrete block, hollow cell load bearing CMU's (open-cell concrete blocks), or steel or concrete prefabricated piers.

Pier Design and Installation

Piers up to 36" High

Piers less than 36" high can be constructed out of single stacked solid concrete blocks or hollow open-cell concrete blocks with nominal dimensions of at least 8"x16"x8". However, piers located at the ends of the I-beam must be double-stacked. (See Piers 36" to 80" below.) Install single-stacked blocks so that the long side is at right angles to the supported I-beam. Position open cells at right

See Figure 4.1

Section IV – Foundations

angles to the footers. Horizontal offsets should not exceed ½" top to bottom. Mortar is not normally required for open cell blocks. (See Figure 4.1, *Typical Pier Construction*.)

Piers 36" to 80" High

See Figure 4.1

Piers between 36" and 80" must be constructed out of double interlocked concrete blocks with nominal dimensions of at least 8"x16"x8". Each layer should be stacked at right angles to the previous layer. (See Figure 4.1, *Typical Pier Construction*.)

Piers Greater than 80"

See Figure 4.1

Piers greater than 80" high are allowed only where permitted by state or local code. Construct these piers to comply with the applicable code. Generally, they should be double concrete blocks with all cells filled with concrete and laid in mortar. Steel reinforcing bars should be placed in the each corner of the pier and the pier should be properly capped. (See Figure 4.1, *Typical Pier Construction*.)

All piers must be placed on footers centered so that the footer projection from the pier is equal from side-to-side and front-to-back. The piers must be level vertically on all sides and square with the footer and plumbed and centered under the I-beam or contact area at the point of support.

Open cell concrete blocks must be stacked with their hollow cells aligned vertically and capped to distribute the structural load evenly. Caps must be solid masonry or hardwood and should be at least 2" thick and no more than 2 pieces. Two-piece caps must be positioned with the joint perpendicular to the main frame. Do not use caps made of plywood or other material. The caps should be sized the same length and width as the piers they rest upon. If concrete caps are used, wood shims must be placed between the caps and main I-beam so there is no contact between the I-beam and the cap.

Gaps between the top of the pier cap and the bottom of the main frame I-beam can be filled with wood plates and/or shims. Use hardwood shims only at least 4" wide and 8" long and not more than 1" thick. The combination of caps and shims cannot exceed 3½". Shims should be fitted and driven tight between the wood plate (or pier cap) and the main frame I-beam perpendicular to the I-beam. Always use shims in pairs installed from both sides of the I-beam. (See also, Section V – Frame Set Procedures, *Final Leveling & Adjustments*.)

Clearances

A minimum clearance of 12 inches must be maintained beneath the lowest point of the main frame where utility connections exist, and a minimum clearance of 12 inches must be maintained for at least 75% of the entire home. The minimum clearance beneath the lowest point of the main frame may be less than 12 inches for no more than 25% of the home, and no portion of the main frame may ever "touch" or rest on the ground.

Location & Spacing of Piers

The Wick cross-beam frame is designed to allow for standard spacing of piers at intervals of 8' O.C. In certain circumstances, the Wick cross-beam frame also allows for a reduced number of pier rows when applied to the set of a sectional home. (See Multi Section Homes – Optional 3-Point Set, below.) Pier spacing for all Wick manufactured homes shall be as follows:

Note: Piers may be placed less than, but not greater than, the 8' O.C. standard.

Single Section Homes

A row of piers should be located under both main frame members (I-beams) at intervals of 8' O.C. (at each outrigger connection) measuring from the hitch end of the home. A pier must be located no more than 1'-6" from each end, measuring from the end of the home (not the I-beam) to the center of the pier. In addition, perimeter piers must be located at each side of all openings 6'-4" or greater in width. This includes doors, windows, recessed entries and porches. (See Figure 4.2, *Typical Blocking Layout for Single Section Homes.*)

See Figure 4.2

Multi Section Homes – Typical Set

A row of piers should be located under both main frame members (I-beams) of each section of the home at intervals of 8' O.C. (at each outrigger connection) measuring from the hitch end of the home. A pier must be located no more than 1'-6" from each end on each section of the home, measuring from the end of the home (not the I-beam) to the center of the pier. In addition, perimeter piers must be located at each side of all openings 6'-4" or greater in width. This includes doors, windows, recessed entries and porches. (See Figure 4.3, *Typical Blocking Layout for Multi Section Homes.*)

See Figure 4.3

Additional piers should be located under the marriage wall of the two sections at each ridge beam column location. (The location of ridge beam columns is designated by a paint mark or decal.) A pier must also be located no more than 12" from each end of the marriage wall. Piers should also be located along the marriage wall on both sides of any door opening that is 6'-4" or wider. (See Figure 4.4, *Typical Ridge Beam Column Pier Support.*)

See Figure 4.4

Multi Section Homes – Optional 3-Point Set

Under the Optional 3-Point Set, only three rows of piers will be required. Generally, they will be located under the outside main I-beam of each section and under the marriage wall of the two sections. The Optional 3-Point Set can be used only for those sectional homes that are placed on a foundation system consisting of pile/post frost footings, and can only be used for those models that are 28' wide or less. Pre-fabricated steel or concrete piers cannot be used for the Optional 3-Point Set.

See Figure 4.5

Note: The Optional 3-Point Set is not allowed on 31' wide sectional homes. The home must be placed on pile/post frost footings. Pre-fabricated steel or concrete piers cannot be used.

Section IV – Foundations

A row of piers should be located under the outside main frame member (I-beam) of each section of the home at intervals of 8' O.C. (at each outrigger connection) measuring from the hitch end of the home. A pier must be located no more than 1'-6" from each end of the outside I-beam of each section of the home. Additional piers must be located at each end of both inside I-beams no more than 1'-6" from the end. In addition, perimeter piers must be located at each side of all openings 6'-4" or greater in width. This includes doors, windows, recessed entries and porches. (See Figure 4.5, *Typical Blocking Layout for Multi Section Homes, Optional 3-Point Set.*)

See Figure 4.4

A third row of piers should also be located under the marriage wall of the two sections in line with the outrigger bearing block, and at each ridge beam column location. (The location of the ridge beam column is designated by a paint mark or decal.) (See Figure 4.4, *Typical Ridge Beam Column Pier Support.*)

Tag Units

See Figure 4.6

Piers should be located under both main frame members (I-beams) at intervals of 8' O.C. (at each outrigger connection) measuring from the hitch end of the unit. An I-beam pier must be located no more than 1'-6" from each end of the main I-beams.

In addition, a minimum of three (3) perimeter piers must be located at each end of the unit, one at each endwall corner and one at the center of the endwall. Additional perimeter piers must be located at each side of a sidewall opening if such opening is 6'-4" or greater in width. This includes doors, windows, recessed entries and porches. Piers must also be located under the marriage wall between the tag unit and the main unit on both sides of an opening that is 6'-4" wide or greater. Note that these are the perimeter piers of the main unit. (See Figure 4.6, *Typical Blocking Layout for Tag Units.*)

Note: Tag Units can be installed with Sectional Homes utilizing the Optional 3-Point Set. However, the location and spacing of piers on the Tag Unit must be as specified above.

Footings

Every pier must be supported with a properly designed footing system. The requirements for load bearing footing systems depends on a number of factors such as whether the home is a single section or multi section, the spacing of the piers, the load bearing capacity of the soil and weather conditions in the area such as the incidence of freezing.

Acceptable Types

Footings can consist of concrete or wood piles, solid concrete slabs or ribbons, precast or cast-in-place concrete pads, or pressure-treated lumber .

Footing Design & Installation

Footings must be placed in either undisturbed soil or properly compacted fill. All organic matter under the footing must be removed. Footings must be level in all directions. Except as otherwise provided, all footings must either extend below the frost line or be protected from the effects of frost heave. To determine the frost depth for the home site, consult the local authority having jurisdiction or refer to Figure 4.7, *Frost Penetration Map*.

See Figure 4.7



Caution: Unless otherwise specified, all foundation footing systems should be placed so they extend below the frost line or are otherwise protected from the harmful effects of ground frost heave. Problems resulting from the failure to follow these specifications are not covered by the written warranties of Wick Building Systems, Inc.

Pile/Post Frost Footings

These footing systems must be carefully constructed and placed sufficiently deep into the ground to resist all wind, snow and earthquake forces. Concrete or wood piles should be driven deep enough so they extend below the frost line. Concrete piles should have a 28-day compressive strength of a least 3,000 psi.

Floating Slab Systems

Poured concrete slabs should have a 28-day compressive strength of at least 3,000 psi. The size will depend on the size of the home (length and width) and the depth will depend on the soil bearing capacity of the site and the incidence of freezing in the area. A floating slab system may be used above the frost line only when it is properly designed by a registered professional engineer or architect and acceptable to the local authority having jurisdiction.

Precast or Cast-in-Place Concrete Pads

Use either square or rectangular shaped pads. Precast Pads should be a minimum of 4" in depth. Cast-in-Place Pads should be a minimum of 6" in depth. Concrete pads must have a compressive strength of at least 3,000 psi. The size of the pad will depend on the distance between piers and the soil bearing capacity of the home site. (See *Determining Footing Size*.)

Section IV – Foundations

Pressure Treated Lumber

Use either square or rectangular shaped pads. Use two (2) fastened layers, each 2" thick (nominal) of pressure treated wood planks. Place the long dimension of the second layer perpendicular to that of the first. Cut edges must be painted or retreated.

ABS Pier Pads

ABS pre-manufactured pier pads may be used as an alternative to concrete or treated lumber pads. Be sure to follow and adhere to the manufacturer's installation instructions for proper size and placement of pads. Generally, install the pad with the flat side down and ribbed side up. In frost areas, use a 6" deep minimum gravel base. A deflection of no more than 5/8" measuring from the highest point to the lowest point of the top in a single pad is allowed.

Note: Footings may be placed above the frost line if the home is provided with a perimeter foundation or skirting having insulation properties sufficient to prevent freezing of the soil under or adjacent to every load-bearing component of the foundation and acceptable for this purpose to the local authority having jurisdiction. Insulated perimeter foundations or skirting must be compatible with ventilation requirements provided in Section XI.

Note: If the home is being placed on precast or cast-in-place concrete pad footings, you must determine the required footing size before proceeding further. See *Determining Footing Size* for further information. Otherwise, you can begin installing the piers as outlined above.

Determining Footing Size

In those situations where the footing system consists of precast or cast-in-place concrete pads or pressure treated lumber, before you can proceed with constructing the piers, the required size of each footing must first be determined. The size of each such footing will depend on the size and weight of the home, the bearing capacity of the soil, the distance between piers, and whether the pier is a main frame pier, perimeter pier or ridge beam column pier. The following steps outline the procedure for determining the required footing sizes.

Note: Larger footings sizes may be used, but the footing size for each pier location must be at least the “minimum” calculated. Footings should be round or square. When planning your footing size, plan the tie down location for the anchor system.

Note: Before you can determine the footing size you must first determine the bearing capacity of the soil.

Note: Consult the manufacturer’s installation instructions to determine the size of ABS pier pads that are required.

Frame Piers

The size of footings for all main frame member (I-beam) piers shall be determined as follows:

Step 1.

Go to Table 4.2, *Minimum Pier Capacities (I-Beam Frame Piers)*. Find the width of the home or section in the Section Width column. Find the eave overhang (in inches) in the Maximum Eave Overhang column.

See Table 4.2

Step 2.

Follow the row for the Section Width and Maximum Eave Overhang to the Maximum Pier Spacing column (i.e., 8' O.C.). This is the minimum capacity (in pounds) required for the pier. Round up to the nearest 500 lbs.

Step 3.

Go to Table 4.7, *Minimum Footing Sizes*. Find the pier capacity poundage as determined in Step 2 in the Pier Capacity (pounds) column. Follow the row across to the column for the soil bearing capacity of the site and the column for the style of footer (square or round). This is the minimum footing size (in inches) required for the pier.

See Table 4.7

Step 4.

Go to Table 4.8, *Minimum Footing Thicknesses*. Find the size of the footing as determined in Step 3 in the Pier Footing Size column. Follow the row across to the column for the soil bearing capacity of the site and the column for the style of pier (single or double stacked). This is the minimum thickness (in inches) required for the footer.

See Table 4.8

Section IV – Foundations

Perimeter Piers

The pier capacity for perimeter piers is based on the width of the home, the roof load and the spacing between the perimeter piers.

Step 1.

See Table 4.3

Go to Table 4.3, *Minimum Pier Capacities (Perimeter Piers)*. Find the width of the home or section in the Section Width column. Find the eave overhang (in inches) in the Maximum Eave Overhang column.

Step 2.

Follow the row for the Section Width and Maximum Eave Overhang to the Maximum Pier Spacing column (8', 10' or 12' O.C.). This is the minimum capacity (in pounds) required for the pier. Round up to the nearest 500 lbs.

Step 3.

See Table 4.7

Go to Table 4.7, *Minimum Footing Sizes*. Find the pier capacity poundage as determined in Step 2 in the Pier Capacity (pounds) column. Follow the row across to the column for the soil bearing capacity of the site and the column for the style of footer (square or round). This is the minimum footing size (in inches) required for the pier.

Step 4.

See Table 4.8

Go to Table 4.8, *Minimum Footing Thicknesses*. Find the size of the footing as determined in Step 3 in the Pier Footing Size column. Follow the row across to the column for the soil bearing capacity of the site and the column for the style of pier (single or double stacked). This is the minimum thickness (in inches) required for the footer.

Ridge Beam Column Piers

Footings along the marriage wall of a sectional home are loaded differently than the main frame piers. The loadings are based upon the distance of the open spans along this area and whether there is an opening on one side of the pier, or both sides. To determine the footing size for piers at Ridge Beam Column locations, you will first need to determine the “influence span” for the pier.

Step 1(A).

In those situations where there is an opening on only one side of the pier (Pier A, B, C or E on Figure 4.8), determine the distance to the adjacent pier (left or right). This number is the “Influence Span” for the pier.

See Figure 4.8

Step 1(B).

In those situations where there is an opening on both sides of the pier (Pier D on Figure 4.8), determine the distance to each adjacent pier (left and right). Add these distances together. The sum of these is the “Influence Span” for the pier.

Step 2.

Go to Table 4.4, *Minimum Pier Capacities (Ridge Beam Column Piers)*. Find the total width of the home in the Total Width column. Follow the row across to the Influence Span (feet) as calculated in Step 1(A) or (B) rounded up to the next highest number in the Table (“Maximum Influence Span”). This is the minimum capacity (in pounds) required for the pier. Round up to the nearest 500 lbs.

See Table 4.4

Step 3.

Go to Table 4.7, *Minimum Footing Sizes*. Find the pier capacity poundage as determined in Step 2 in the Pier Capacity (pounds) column. Follow the row across to the column for the soil bearing capacity of the site and the column for the style of footer (square or round). This is the minimum footing size (in inches) required for the pier.

See Table 4.7

Step 4.

Go to Table 4.8, *Minimum Footing Thicknesses*. Find the size of the footing as determined in Step 3 in the Pier Footing Size Column. Follow the row across to the column for the Soil Bearing Capacity of the site and the column for the style of pier (single or double stacked). This is the minimum thickness (in inches) required for the footer.

See Table 4.8

Section IV – Foundations

Tag Unit Piers

Footing sizes for main frame member (I-beam) piers and endwall perimeter piers for Wick Tag Units shall be determined as follows:

Step 1.

See Table 4.5

Go to Table 4.5, *Minimum Pier Capacities (Tag Unit Piers)*. Find the width of the tag unit in the Section Width column. Find the eave overhang of the tag unit (in inches) in the Maximum Eave Overhang column.

Step 2.

See Figure 4.6

Follow the row for the Section Width and Maximum Eave Overhang to the column for the pier you are sizing (endwall perimeter piers or I-beam piers), Pier A or Pier B as shown on Figure 4.6. This is the minimum capacity (in pounds) required for the pier. Round up to the nearest 500 lbs.

Step 3.

See Table 4.7

Go to Table 4.7, *Minimum Footing Sizes*. Find the pier capacity poundage as determined in Step 2 in the Pier Capacity (pounds) column. Follow the row across to the column for the soil bearing capacity of the site and the column for the style of footer (square or round). This is the minimum footing size (in inches) required for the pier.

Step 4.

See Table 4.8

Go to Table 4.8, *Minimum Footing Thicknesses*. Find the size of the footing as determined in Step 3 in the Pier Footing Size column. Follow the row across to the column for the soil bearing capacity of the site and the column for the style of pier (single or double stacked). This is the minimum thickness (in inches) required for the footer.

Perimeter Wall Foundations

Perimeter load-bearing (crawl space) walls must be constructed in accordance with state and local codes and regulations. You should consult with a registered professional engineer or architect if you are setting the home on this type of foundation system. Only those models that are 28' wide or less can be set on a Perimeter Wall Foundation. Foundation plans for your specific model may be available from Wick. Contact the Sales Department of Wick Building Systems, Inc., to obtain a copy. (See Figure 4.9, *Typical Layout for Perimeter Wall Foundation.*)

See Figure 4.9

Note: The crawl space shall have a minimum height of 24", a minimum access of 18"x24", and a minimum 6 mil poly vapor barrier over the ground. Minimum ventilation must be provided at a rate of 1/300 of crawl space area. Post/pier footings must be sized for a minimum 3,000 psf soil value.

Section IV – Foundations

Basement Foundations

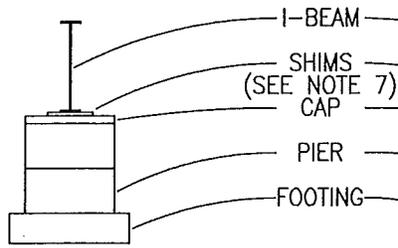
See Figure 4.10

Basement foundations must be constructed in accordance with state and local codes and regulations. You should consult with a registered professional engineer or architect if you are responsible for constructing this type of foundation system. The finished foundation must be inspected by a qualified inspector to assure conformance with the plan. Qualified inspectors may include state inspectors, local city or county building officials or other similarly qualified inspectors. Choose a reliable contractor who is familiar with both state and local requirements governing the construction of basement foundations. It is the foundation contractor's responsibility to ensure that the design, construction, waterproofing, insulating, lateral support and combustion air for heating equipment is in accordance with applicable state and local codes and the soil conditions. (See Figure 4.10, *Typical Basement Foundation Layout – Lindsay Unified Floor System.*)

Consideration must be given for attachment of insulation board to the foundation. In the absence of state requirements, use 1" (R-5) styrofoam sheet material available in 4'x8' sheets installed outside and flush with the top of the foundation wall. When sideways, the 4' height then extends downward and below the prevailing frost line. This additional 1" of thickness should also be considered when sizing the width and length of the finish foundation wall.

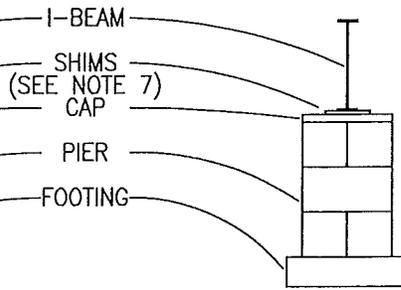
Foundation plans for your specific model may be available from Wick. Contact the Sales Department of Wick Building Systems, Inc., to obtain a copy. Request a basement print that is specific to the home. The foundation size for Wick multi section homes should not be determined by the size description stated on the product literature for the model. For example, a 28'x56' model as specified on product literature does not have floor size dimensions of 28'x56'.

PIER 1



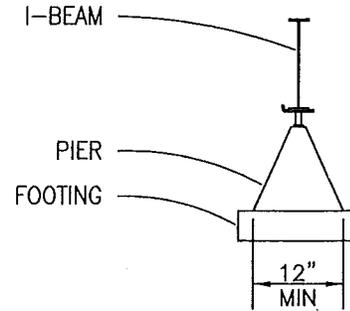
SINGLE BLOCKS
 MAXIMUM HEIGHT = 36"
 (SEE NOTE #2)

PIER 2



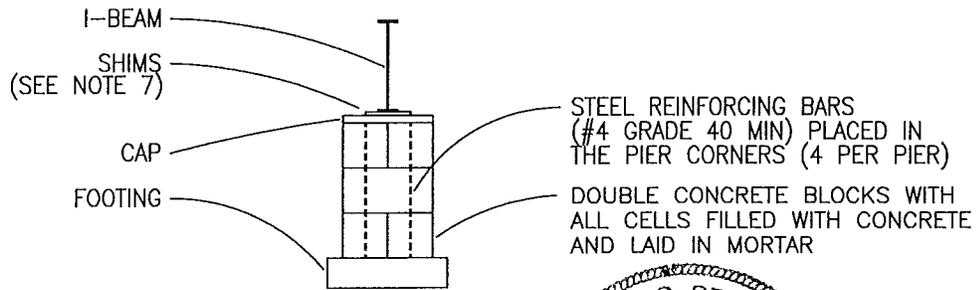
DOUBLE INTERLOCKED
 BLOCKS
 MAXIMUM HEIGHT = 80"
 (SEE NOTE #2)

PIER 3

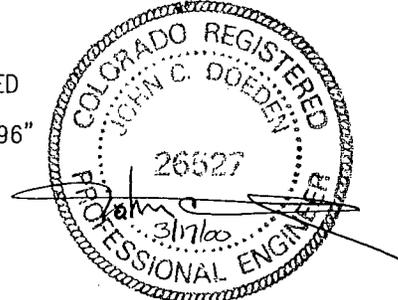


STEEL OR CONCRETE
 MANUFACTURED PIER
 (SEE NOTE #5)

PIER 4



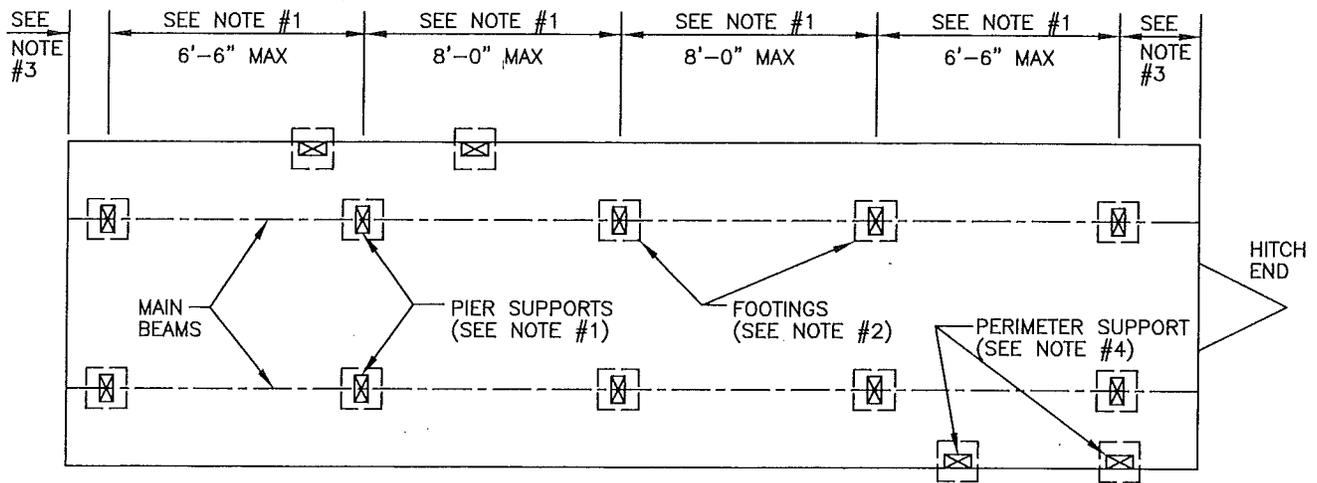
DOUBLE INTERLOCKED
 BLOCKS
 MAXIMUM HEIGHT = 96"
 (SEE NOTE #2)



NOTES:

1. CONCRETE BLOCKS FOR PIERS ARE 8x16x8 NOMINAL SIZE, HOLLOW CELL LOAD BEARING CMU'S MANUFACTURED IN CONFORMANCE WITH ASTM C90-70, GRADE 'N'. OPEN CELLS ARE VERTICAL AND MUST BE CAPPED WITH 4" THICK SOLID MASONRY OR HARDWOOD.
2. SINGLE STACKED CONCRETE BLOCKS ARE ORIENTED SO THAT LONG DIRECTION IS PERPENDICULAR TO THE LONG DIRECTION OF THE MAIN BEAM. MAXIMUM CAPACITY FOR SINGLE STACKED BLOCK PIERS IS 8000 POUNDS AND MAXIMUM CAPACITY FOR DOUBLE STACKED BLOCK PIERS IS 14,000 POUNDS.
3. FOOTERS MAY BE PRECAST OR POURED, BUT, IN EITHER CASE, MUST BE LEVEL IN ALL DIRECTIONS.
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 FOOTINGS TO HAVE A MINIMUM COMPRESSIVE STRENGTH (F_c') OF 3000 PSI AFTER 28 DAYS.
7. GAP BETWEEN TOP OF PIER (CAP) AND MAIN FRAME I-BEAM MAY BE FILLED WITH A WOOD PLATE (NOT EXCEEDING 2" IN THICKNESS) AND/OR SHIMS (NOT EXCEEDING 1" IN THICKNESS). SHIMS SHALL BE HARDWOOD AT LEAST 4" WIDE AND 8" LONG, FITTED AND DRIVEN TIGHT BETWEEN WOOD PLATE OR PIER CAP AND MAIN FRAME. (SHIMS TO BE PERPENDICULAR TO I-BEAM AND INSTALLED IN PAIRS FROM BOTH SIDES OF THE I-BEAM)

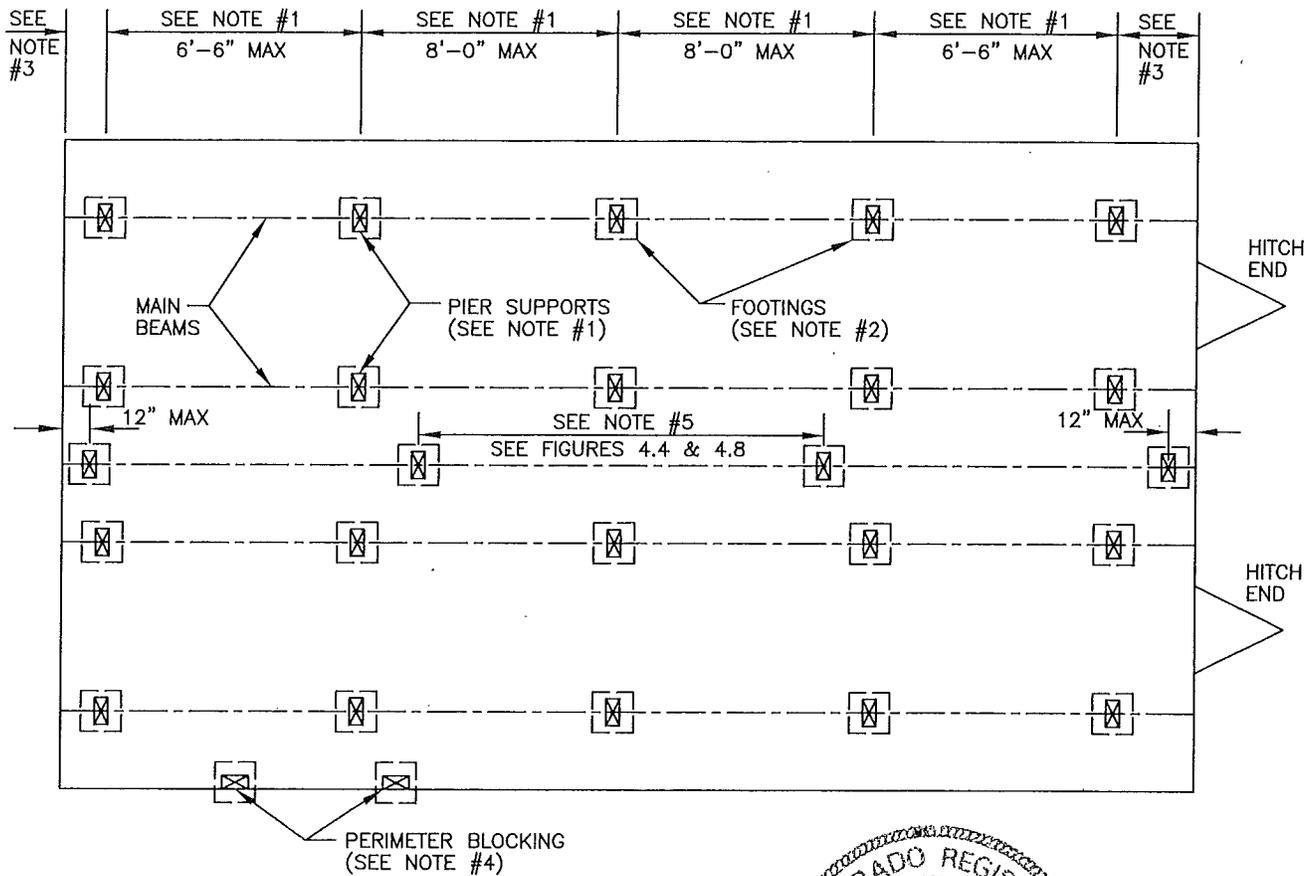
FIGURE 4.1
 TYPICAL PIER CONSTRUCTION



NOTES:

1. SEE TABLE 4.2 FOR REQUIRED PIER CAPACITY.
2. SEE TABLE 4.7 AND 4.8 FOR FOOTING REQUIREMENTS.
3. I-BEAM PIERS SHALL BE LOCATED NO MORE THAN 1'-6" FROM BOTH ENDS.
4. PERIMETER PIERS SHALL BE LOCATED AT EACH SIDE OF ALL OPENINGS 6'-4" OR GREATER IN WIDTH. THIS INCLUDES DOORS, WINDOWS, RECESSED ENTRIES, PORCHES, ETC. SEE TABLE 4.3 FOR PIER CAPACITY REQUIREMENTS.

FIGURE 4.2
TYPICAL BLOCKING LAYOUT FOR SINGLE SECTION HOMES



NOTES:

1. SEE TABLE 4.2 FOR REQUIRED PIER CAPACITY.
2. SEE TABLE 4.7 AND 4.8 FOR FOOTING REQUIREMENTS.
3. I-BEAM PIERS SHALL BE LOCATED NO MORE THAN 1'-6" FROM BOTH ENDS. MARRIAGE WALL END PIERS TO BE 12" MAXIMUM FROM EACH END.
4. PERIMETER PIERS SHALL BE LOCATED AT EACH SIDE OF ALL OPENINGS 6'-4" OR GREATER IN WIDTH. THIS INCLUDES DOORS, WINDOWS, RECESSED ENTRIES, PORCHES, ETC. SEE TABLE 4.3 FOR PIER CAPACITY REQUIREMENTS.
5. SEE TABLE 4.4 FOR PIER CAPACITIES AT RIDGEBEAM COLUMNS.

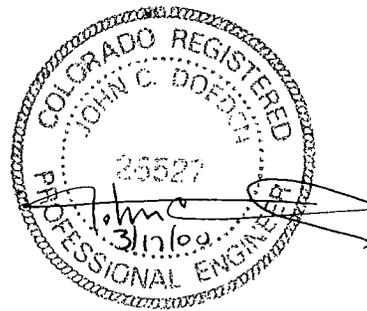


FIGURE 4.3
TYPICAL BLOCKING LAYOUT FOR MULTI SECTION HOMES

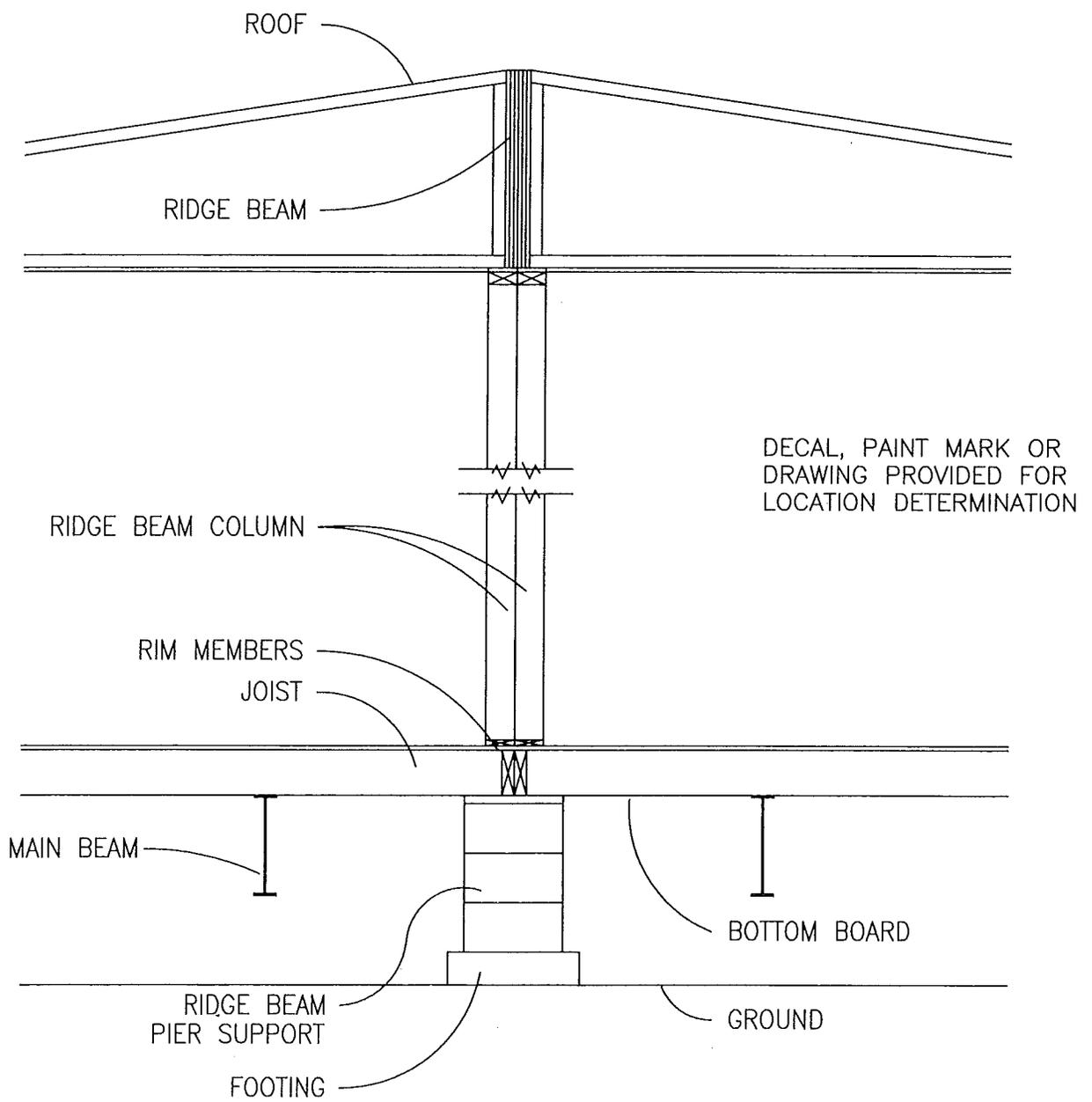


FIGURE 4.4
TYPICAL RIDGE BEAM COLUMN PIER SUPPORT

SEE NOTE #3

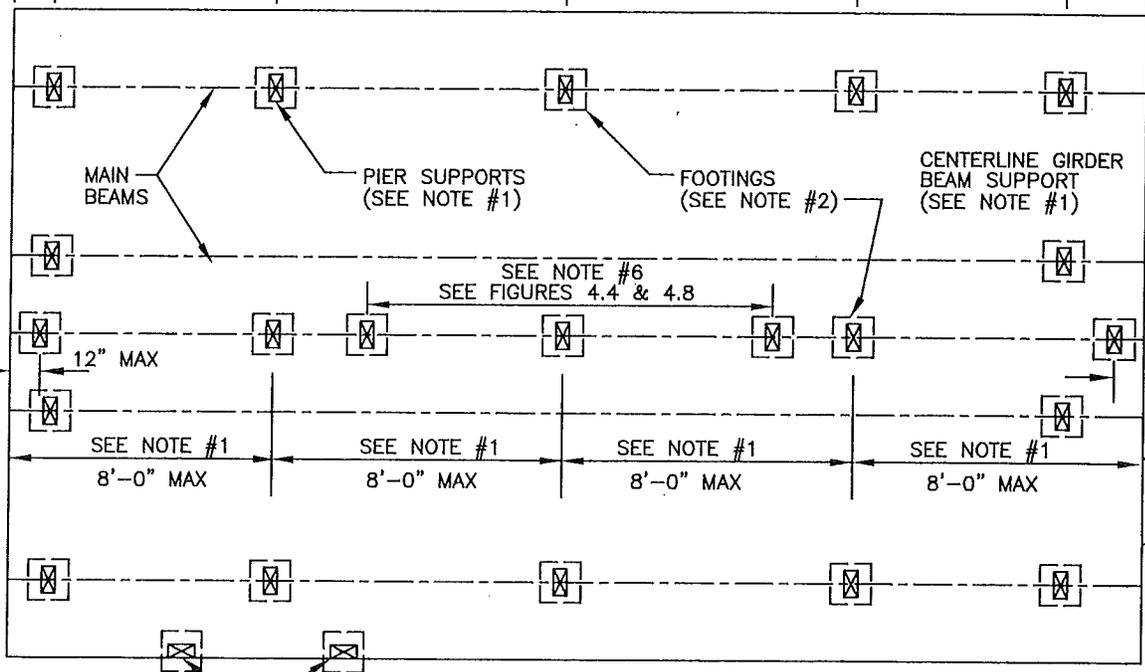
SEE NOTE #1
6'-6" MAX.

SEE NOTE #1
8'-0" MAX.

SEE NOTE #1
8'-0" MAX.

SEE NOTE #1
6'-6" MAX.

SEE NOTE #3



HITCH END

12" MAX

HITCH END

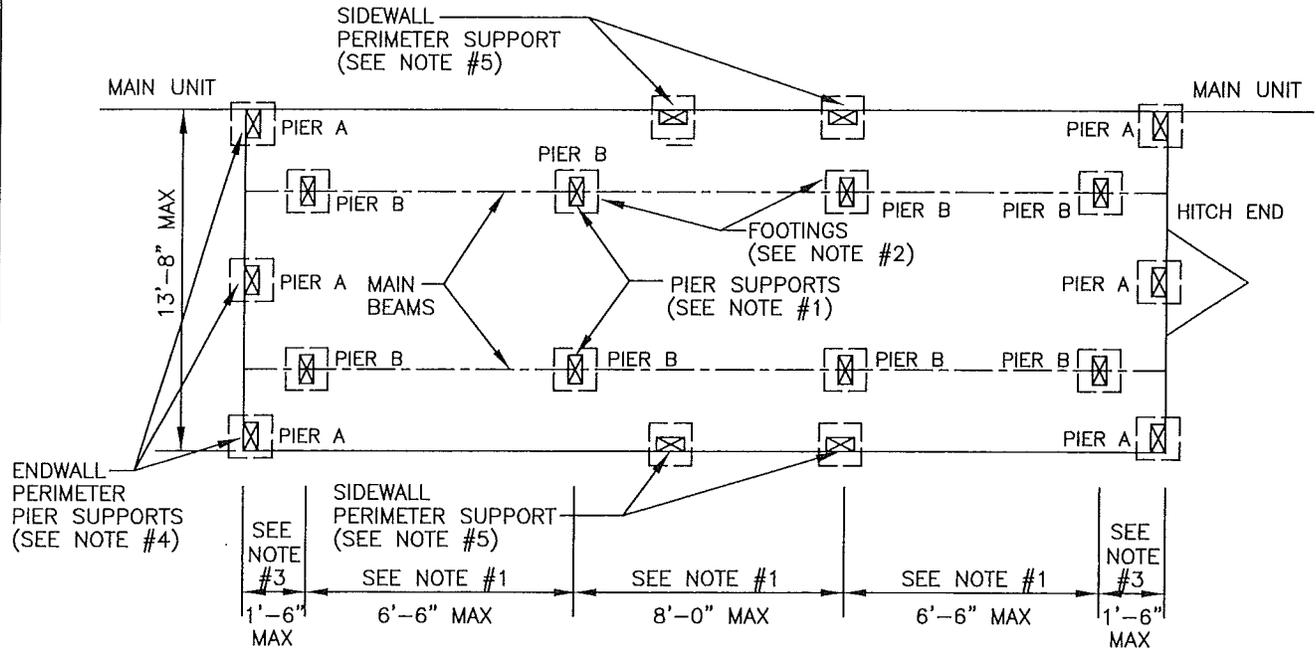
PERIMETER BLOCKING (SEE NOTE #5)

NOTES:

1. SEE TABLE 4.2 FOR REQUIRED PIER CAPACITY.
2. SEE TABLE 4.7 AND 4.8 FOR FOOTING REQUIREMENTS.
3. I-BEAM PIERS SHALL BE LOCATED NO MORE THAN 1'-6" FROM BOTH ENDS OF EACH OUTSIDE I-BEAM. MARRIAGE WALL END PIERS TO BE 12" MAXIMUM FROM EACH END.
4. AN I-BEAM PIER SHALL BE LOCATED AT THE END OF EACH INSIDE I-BEAM NO MORE THAN 1'-6" FROM BOTH ENDS.
5. PERIMETER PIERS SHALL BE LOCATED AT EACH SIDE OF ALL OPENINGS 6'-4" OR GREATER IN WIDTH. THIS INCLUDES DOORS, WINDOWS, RECESSED ENTRIES, PORCHES, ETC. SEE TABLE 4.3 FOR PIER CAPACITY REQUIREMENTS.
6. SEE TABLE 4.4 FOR PIER CAPACITIES AT RIDGEBEAM COLUMNS.



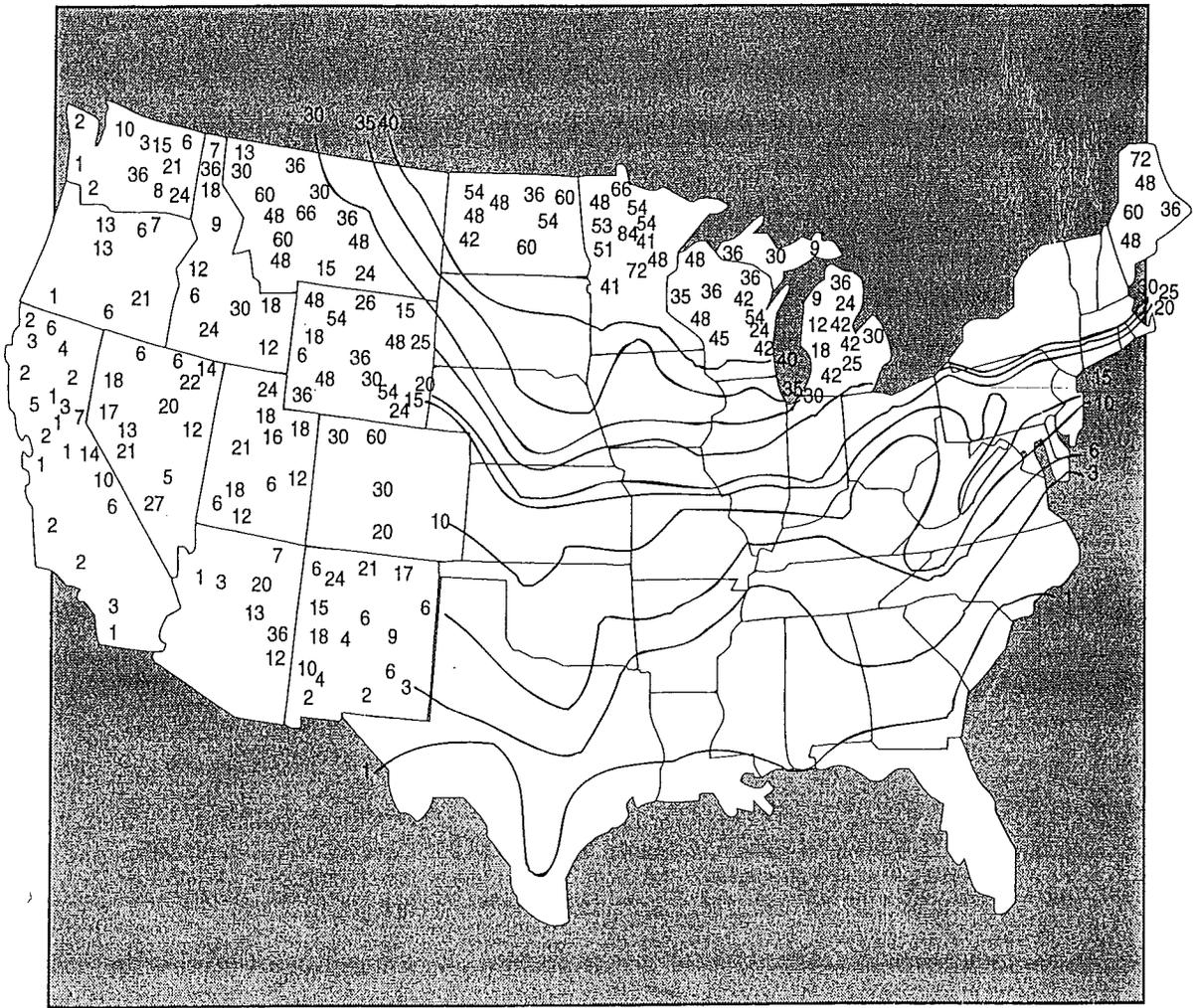
FIGURE 4.5
TYPICAL BLOCKING LAYOUT FOR MULTI SECTION HOMES
(OPTIONAL 3-POINT SET)



NOTES:

1. SEE TABLE 4.5 FOR REQUIRED PIER CAPACITY.
2. SEE TABLE 4.7 AND 4.8 FOR FOOTING REQUIREMENTS.
3. I-BEAM PIERS SHALL BE LOCATED NO MORE THAN 1'-6" FROM BOTH ENDS.
4. A MINIMUM OF THREE (3) PERIMETER PIERS MUST BE LOCATED AT EACH END OF THE UNIT.
5. ADDITIONAL PERIMETER PIERS SHALL BE LOCATED ON EACH SIDE OF SIDEWALL OPENINGS 6'-4" OR GREATER IN WIDTH. THIS INCLUDES DOORS, WINDOWS, RECESSED ENTRIES, PORCHES, ETC. SEE TABLE 4.3 FOR PIER CAPACITY REQUIREMENTS.

FIGURE 4.6
TYPICAL BLOCKING LAYOUT FOR TAG UNITS



Average Depth of Frost Penetration
in Inches

Source: U.S. Department of Commerce
Weather Bureau

FIGURE 4.7
FROST PENETRATION MAP

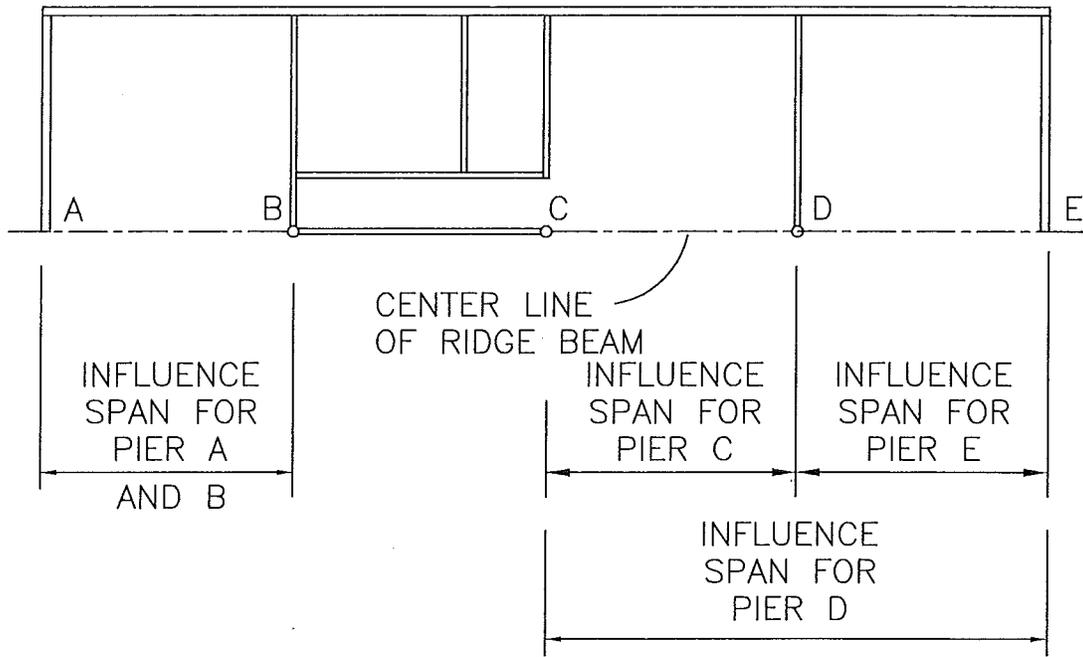
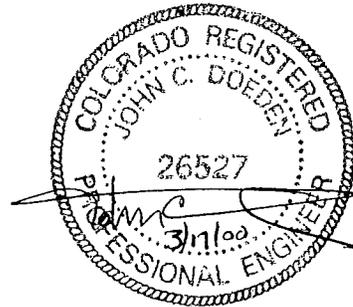
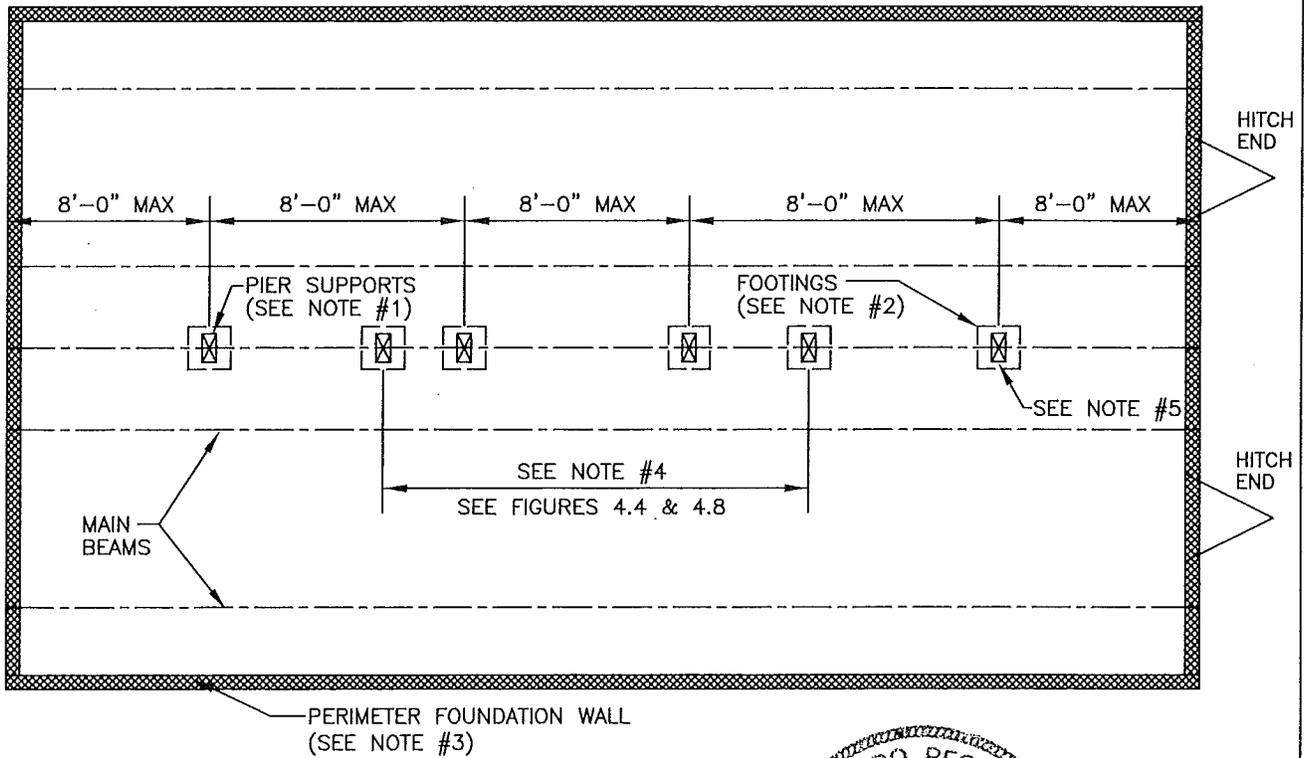


FIGURE 4.8
TYPICAL INFLUENCE SPANS



NOTES:

1. SEE TABLE 4.6 FOR REQUIRED PIER CAPACITY.
2. SEE TABLE 4.7 AND TABLE 4.8 FOR FOOTING REQUIREMENTS.
3. FOUNDATION WALL AND FOOTINGS TO BE DESIGNED FOR LOCAL SOIL CONDITIONS PER THE LOCAL CODES BY A REGISTERED PROFESSIONAL ENGINEER.
4. SEE TABLE 4.4 FOR PIER CAPACITIES AT RIDGEBEAM COLUMNS.
5. CENTER LINE PIERS AT 8'-0" O.C., MEASURING FROM THE HITCH END.
6. DESIGN IS BASED ON PERIMETER WALL FOUNDATION WITH FLOOR SYSTEM SPANNING FROM PERIMETER TO MATING LINES.

FIGURE 4.9
TYPICAL LAYOUT FOR PERIMETER WALL FOUNDATION

- DESIGN AND CONSTRUCTION MUST COMPLY WITH ALL APPLICABLE STATE AND/OR LOCAL CODES.
- SPECIFICATIONS FOR 2000 PSF SOIL CAPACITY, 30 PSF ROOF LIVE LOAD (8 PSF DEAD), 9 PSF UPLIFT LOAD, 15 PSF HORIZONTAL WIND LOAD AND 40 PSF FLOOR LIVE LOAD.
- ALL DIMENSIONS MUST BE CHECKED IN THE FIELD FOR ACCURACY.
- FOUNDATION DESIGN AND CONSTRUCTION SUBJECT TO APPROVAL AND INSPECTION BY STATE AND/OR LOCAL AUTHORITIES.
- INSTALL PILASTERS AS REQUIRED BY SOIL CONDITIONS AND STATE OR LOCAL CODES.
- DESIGN FOOTINGS BASED ON LOADS AT EACH COLUMN, CONCRETE CAPACITY AND SOIL BEARING CAPACITY OF THE SITE.
- THE SPECIFICATIONS PROVIDED HEREON ARE RECOMMENDATIONS ONLY AND ARE NOT MEANT TO SUPERSEDE STATE OR LOCAL REQUIREMENTS.

NOTICE TO CONTRACTOR:
INCREASE STOOP PROJECTION TO ACCOMMODATE EXTRA HEIGHT REQUIRED FOR LINDSAY FLOOR SYSTEM. THIS DIMENSION IS FROM THE TOP OF TREATED SILL PLATE TO THE BOTTOM OF THE EXTERIOR DOOR THRESHOLD.

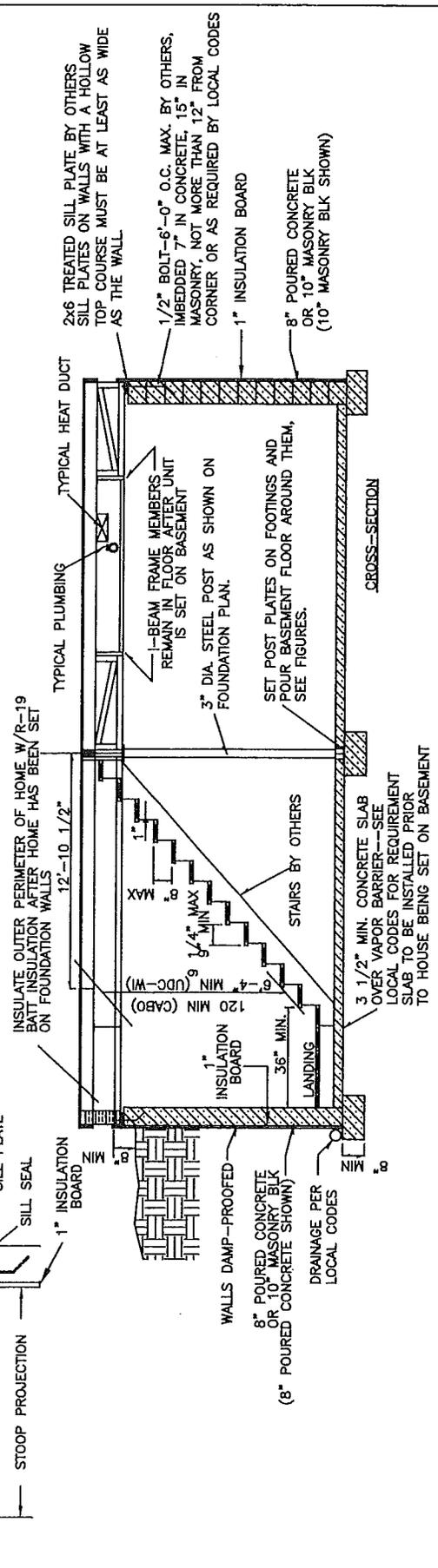
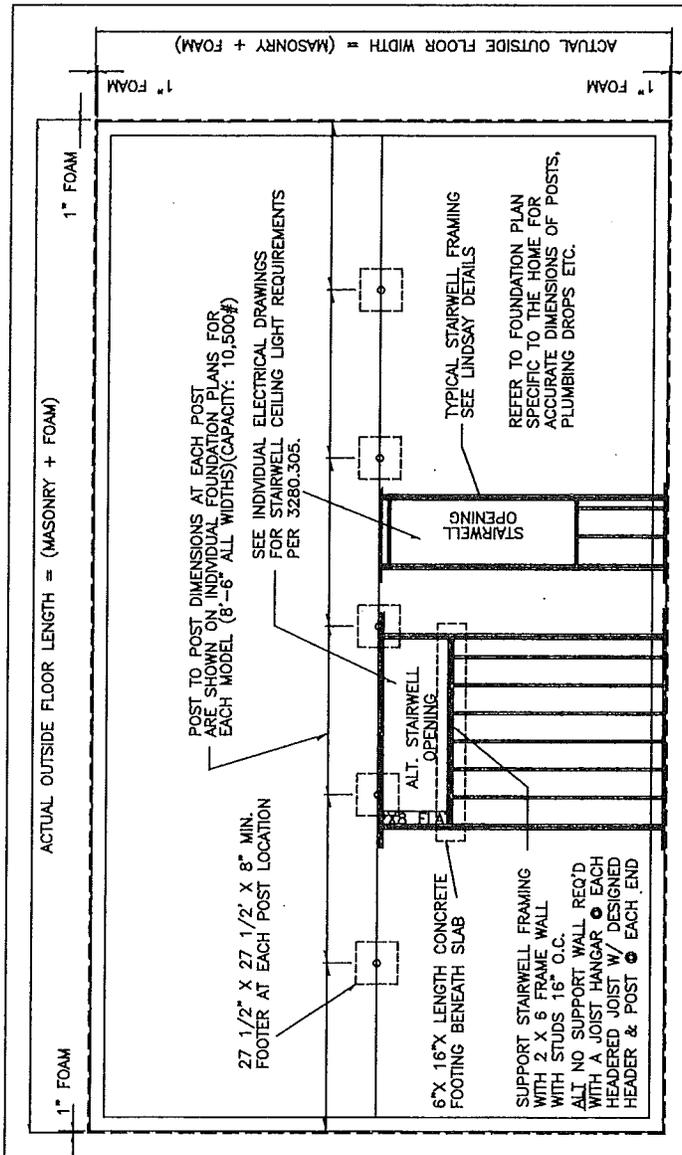
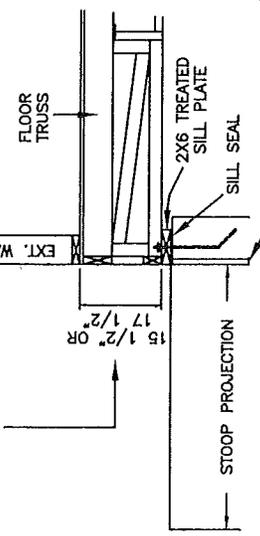


FIGURE 4.10
TYPICAL BASEMENT FOUNDATION LAYOUT - LINDSAY UNIFIED FLOOR SYSTEM

**TABLE 4.1
SOIL BEARING CAPACITIES**

[Soil Classifications for most areas are listed in the standard series of soil surveys published by the U.S. Department of Agriculture's Soil Conservation Service]

Soil Group	Unified Soil Classification Symbol	Soil Description	Allowable Bearing in Pounds Per Square Foot with Medium Compaction or Stiffness ¹	Drainage Characteristics ²	Frost Heave Potential	Volume Change Potential Expansion ³
Group I <i>Excellent</i>	GS	Well graded gravels; gravel-sand mixtures, little or no fines	8000	Good	Low	Low
	GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	8000	Good	Low	Low
	SW	Well graded sands, gravelly sands, little or no fines	6000	Good	Low	Low
	SP	Poorly graded sands or gravelly sands, little or no fines	5000	Good	Low	Low
	GM	Silty mixt			Medium	Low
	SM	Silty			Medium	Low
Group II <i>Fair to Good</i>	GC	Clay mixtures			Medium	Low
	SC	Clayey sands, sand-clay mixture	4000	Medium	Medium	Low
	ML	Inorganic silts and very fine sands, rock flour, silty or clayey, fine sands or clayey silts with slight plasticity	2000	Medium	High	Low
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	2000	Medium	Medium	Medium ⁴
Group III <i>Poor</i>	CH	Inorganic clays of high plasticity, fat clays	2000	Poor	Medium	High ⁴
	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	2000	Poor	High	High
Group IV <i>Unsatisfactory</i>	OL	Organic silts and organic silty clays of low plasticity	400	Poor	Medium	Medium
	OH	Organic clays of medium to high plasticity, organic silts	-0-	Unsatisfactory	Medium	High
	Pt	Peat and other highly organic soils	-0-	Unsatisfactory	Medium	High

This Table to be amended pursuant to e-mail from Rick Mendlen of HUD. Values shown in this table are not consistent with Table 3285.202. See e-mail on next page.

¹ Allowable bearing value may be increased 25% for very compact, coarse grained gravelly or sandy soils or very stiff fine-grained clayey or silty soils. Allowable bearing value shall be decreased 25% for loose, coarse-grained gravelly or sandy soils, or soft, fine-grained clayey or silty soils.

² The percolation rate for good drainage is over 4 inches per hour, medium drainage is 2-4 inches per hour, and poor is less than 2 inches per hour.

³ For expansive soils, contact local soils engineer for verification of design assumptions.

⁴ Dangerous expansion might occur if these soil types are dry but subject to future wetting.

Hauglid, Herman (DLI)

From: Mendlen, Rick A [Rick.A.Mendlen@hud.gov]
Sent: Wednesday, December 02, 2009 10:37 AM
To: Hauglid, Herman (DLI)
Cc: Matchneer, William W; Pethel, Hubert L; Vogt, Randy (DLI); 'Jim Rothman'; 'Gary Gilbertson'; 'Jason McJury'; 'George M. Neall'; 'James Turner'
Subject: RE: Current Wick Building Systems Installation Manual
Attachments: image001.jpg; image002.png

Herman: This will confirm that the soil bearing values in the Wick Building Systems Installation manual do not conform to HUD's Installation Standards requirements in 24 CFR 3285.202. By copy of this email I directing PFS to follow-up with Wick to have make the necessary changes made to the Wick manual and have supplements sent to all retailers that have Wick homes which have yet to be sold or installed.

Please be advised that as of November, 2009, Wick advised the Department that it is no longer engaged in the production of manufactured homes which is the reason that the supplements only need to be sent to retailers on any on-sold or not yet installed manufactured homes.

Regards,

Rick Mendlen
HUD
Office of Manufactured Housing Programs
451 7th Street S.W.
Room 9164
Washington DC 20410-8000
Phone: (202) 402-5608
FAX: (202) 708-4213

From: Hauglid, Herman (DLI) [mailto:Herman.Hauglid@state.mn.us]
Sent: Tuesday, December 01, 2009 4:11 PM
To: Mendlen, Rick A
Cc: Hauglid, Herman (DLI)
Subject: Current Wick Building Systems Installation Manual

Rick:

I would like to take a moment to introduce myself. My name is Herman Hauglid and I'm a new member of the Manufactured Structures Team here at the State of Minnesota.

While preparing an Installation Manual (Wick Building Systems) to placed in our electronic file, I noticed something which may have accidentally been placed in the manual. Can you look at the bearing capacities from the installation manual and forward your comments. The values identified in the installation manual seem to be nealy doubled, or more, than the values which are identified in table 3285.202.

I appreciate your input and comments and thank you in advance for your time.

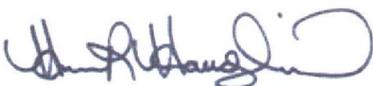


TABLE 4.2 MINIMUM PIER CAPACITIES (I-Beam Piers)			
Section Width	Maximum Eave Overhang (Inches)	Roof Live Load (PSF)	Minimum Pier Capacity (Pounds)
			Maximum Pier Spacing (Feet)
			8'-0" O.C.
14 Feet (164" Actual)	0"	30	5615#
	12"	30	5935#
	24"	30	6250#
15 Feet (182" Actual)	12"	30	6475#
16 Feet (186" Actual)	0"	30	6270#
	12"	30	6590#

NOTES:
 1. Reference Figures 4.2, 4.3 and 4.5 for Pier Locations.
 2. See Table 4.7 and 4.8 for required Footing Size and Thickness.



TABLE 4.3 MINIMUM PIER CAPACITIES (Perimeter Piers)						
Section Width	Maximum Eave Overhang (Inches)	Roof Live Load (PSF)	Minimum Pier Capacity (Pounds)			
			Maximum Pier Spacing (Feet)			
			6'-4"	8'-0"	10'-0"	12'-0"
14 Feet (164" Actual)	24"	30	3375#	4160#	5100#	6040#
15 Feet (182" Actual)	12"	30	3420#	4210#	5170#	6120#
16 Feet (186" Actual)	12"	30	3485#	4300#	5270#	6250#

NOTES:
 1. This Table is for use with Wall Openings 6'-4" Wide or Greater.
 2. Reference Figures 4.2, 4.3, 4.5 and 4.6 for Pier Locations.
 3. See Table 4.7 and 4.8 for required Footing Size and Thickness.

**TABLE 4.4
MINIMUM PIER CAPACITIES
(Ridge Beam Column Piers)**

Total Width	Roof Live Load (PSF)	Minimum Pier Capacity (Pounds)								
		Maximum Influence Span (Feet)								
		4'	8'	12'	16'	20'	24'	28'	32'	36'
27'- 4" (Actual)	30	1790#	3010#	4230#	5450#	6675#	7895#	9115#	10335#	11555#
30'- 4" (Actual)	30	1960#	3305#	4655#	6000#	7350#	8695#	10045#	11390#	12740#

NOTES:

1. Reference Figures 4.3 and 4.5 for Pier Locations.
2. See Table 4.7 and 4.8 for required Footing Size and Thickness.



**TABLE 4.5
MINIMUM PIER CAPACITIES
(Tag Unit Piers)**

Section Width	Maximum Eave Overhang (Inches)	Roof Live Load (PSF)	Minimum Pier Capacity (Pounds)	
			Maximum Pier Spacing (Feet)	
			Perimeter Endwall ("A" Piers)	Main I-Beams ("B" Piers)
14 Feet (164" Actual)	24"	30	3730#	2800#

NOTES:

1. Reference Figure 4.6 for Pier Locations.
2. See Table 4.7 and 4.8 for required Footing Size and Thickness.

**TABLE 4.6
MINIMUM PIER CAPACITIES
(Perimeter Load Bearing Walls – Centerline Piers)**

Section Width	Maximum Eave Overhang (Inches)	Roof Live Load (PSF)	Minimum Pier Capacity (Pounds)
			Maximum Pier Spacing (Feet)
			8'- 0" Maximum Pier Spacing
14 Feet (164" Actual)	22"	30	9850#

NOTES:

1. Reference Figure 4.9 for Pier Locations.
2. See Table 4.7 and 4.8 for required Footing Size and Thickness.

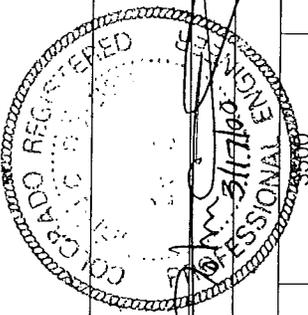


TABLE 4.7
MINIMUM FOOTING SIZES

PIER CAPACITY (POUNDS)	Soil Bearing Capacity (PSF)											
	Minimum Footing Size (Inches)											
	1000		1500		2000		2500		3000		4000	
	Square	Round	Square	Round	Square	Round	Square	Round	Square	Round	Square	Round
600	16x16	18	16x16	18	16x16	18	16x16	18	16x16	18	16x16	18
800	16x16	18	16x16	18	16x16	18	16x16	18	16x16	18	16x16	18
1000	16x16	18	16x16	18	16x16	18	16x16	18	16x16	18	16x16	18
1500	16x16	18	16x16	18	16x16	18	16x16	18	16x16	18	16x16	18
2000	17x17	20	16x16	18								
2500	19x19	22	16x16	18								
3000	21x21	24	17x17	20	16x16	18	16x16	18	16x16	18	16x16	18
3500	22x22	26	18x18	20	16x16	18	16x16	18	16x16	18	16x16	18
4000	24x24	28	20x20	24	17x17	20	16x16	18	16x16	18	16x16	18
4500	25x25	28	21x21	24	18x18	20	17x17	20	16x16	18	16x16	18
5000	27x27	20	22x22	26	19x19	22	17x17	20	16x16	18	16x16	18
5500	28x28	N/A	23x23	26	20x20	24	18x18	20	17x17	20	16x16	18
6000	29x29	N/A	24x24	28	21x21	24	19x19	22	17x17	20	16x16	18
6500	31x31	N/A	25x25	28	22x22	26	20x20	24	18x18	20	16x16	18
7000	32x32	N/A	26x26	30	22x22	26	21x21	24	19x19	22	17x17	20
7500	33x33	N/A	27x27	30	23x23	26	21x21	24	19x19	22	17x17	20
8000	34x34	N/A	28x28	N/A	24x24	28	22x22	26	20x20	24	18x18	20
8500	35x35	N/A	29x29	N/A	25x25	28	23x23	26	21x21	24	19x19	22
9000	36x36	N/A	29x29	N/A	25x25	28	23x23	26	21x21	24	19x19	22
9500	37x37	N/A	30x30	N/A	26x26	30	24x24	28	22x22	26	20x20	24
10000	38x38	N/A	31x31	N/A	27x27	30	24x24	28	22x22	26	20x20	24
11000	40x40	N/A	32x32	N/A	28x28	N/A	26x26	30	23x23	26	21x21	24
12000	42x42	N/A	34x34	N/A	29x29	N/A	27x27	30	24x24	28	21x21	24
13000	43x43	N/A	35x35	N/A	31x31	N/A	28x28	N/A	25x25	28	22x22	26
14000	45x45	N/A	37x37	N/A	32x32	N/A	29x29	N/A	26x26	30	24x24	28
15000	46x46	N/A	38x38	N/A	33x33	N/A	30x30	N/A	27x27	30	25x25	28
16000	48x48	N/A	39x39	N/A	34x34	N/A	31x31	N/A	28x28	N/A	26x26	30
17000	49x49	N/A	40x40	N/A	35x35	N/A	32x32	N/A	29x29	N/A	27x27	30
18000	51x51	N/A	42x42	N/A	36x36	N/A	33x33	N/A	30x30	N/A	28x28	30
19000	52x52	N/A	43x43	N/A	37x37	N/A	34x34	N/A	31x31	N/A	28x28	30
20000	54x54	N/A	44x44	N/A	38x38	N/A	34x34	N/A	31x31	N/A	29x29	30
21000	55x55	N/A	45x45	N/A	39x39	N/A	35x35	N/A	32x32	N/A	30x30	30
22000	57x57	N/A	46x46	N/A	40x40	N/A	36x36	N/A	33x33	N/A	31x31	30
23000	58x58	N/A	47x47	N/A	41x41	N/A	37x37	N/A	34x34	N/A	31x31	30
24000	59x59	N/A	48x48	N/A	42x42	N/A	38x38	N/A	34x34	N/A	32x32	30
25000	60x60	N/A	49x49	N/A	43x43	N/A	38x38	N/A	35x35	N/A	33x33	30

Notes:
 1. Footing sizes are for either square or round pads and are based on the area (square inches) required for the load.
 2. See also Tables 4.2, 4.3, 4.4, 4.5 and 4.6 for pier capacities.
 3. For minimum thickness of footers, see Table 4.8.

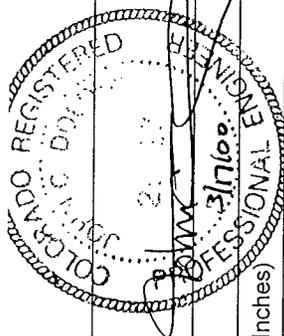


TABLE 4.8
MINIMUM FOOTING THICKNESSES

Soil Bearing Capacity (PSF)

Minimum Footing Thickness for Single and Double Stacked Piers (Inches)

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

Notes:
 1. The thickness is designed for both single and double stacked concrete blocks (CMU's) centered on the footer.
 2. Poured footers must have a 3000 PSI compressive strength at 28 days.
 3. This table assumes footings that are not reinforced. Reinforced footings may allow for a smaller thickness than listed but must be designed by a registered professional engineer.



The following steps and referenced figures outline the general procedure for the typical frame set of Wick manufactured homes on a pier foundation system. If you are setting a Wick sectional home with a Lindsay Unified Floor System, you must set the home on a basement foundation. Instructions for setting these homes are provided in Section VI. If you are setting the home on a perimeter foundation wall, the instructions for setting the home are the same as basement sets in Section VI. Be sure you refer to Figure 4.9 in Section IV for the centerline pier specifications. Before you begin the set-up procedure, you should inspect both the interior and exterior for possible damage in transit and report any such damage to Wick or the dealer immediately.

General Requirements

Before you move the home into its final position, you should be sure the following items have been completed.

- The site is properly prepared as outlined in Section III.
- All concrete work necessary for the foundation system as outlined in Section IV has been completed.
- Utilities to the home site have been installed or are available.
- Trenching for crossover drain lines or wheels that will be left in place has been completed.
- Items that would be difficult to install after the home has been placed into position, such as ground anchors and vapor barrier, are in place.

Be sure to work safely whenever you are working around a home that is being set. During the set procedure, make sure you adhere to the following safety precautions.

- Use only equipment in good working condition and stable enough to handle the loads.
- You should use two (2) jacks to set a single section home, and four (4) jacks for a multi section home. Each jack should have a rating of at least 12 tons. Use jacks with jacking plates to prevent slipping.
- Use the jacks only for raising the home, not to support the home.
- Jack only on the main chassis I-beam. Locate the jack directly under the vertical web of the I-beam.
- Use a firm support under the jack base, a 12"x12" pad minimum. Use a large 3/8" thick steel plate, C-channel or other equivalent plate between jack head and the I-beam to distribute the load.
- Do not go under the home while it is supported on the jacks. Do not operate the jacks while you are under the main I-beams of the home. Place safety piers such as 4"x 6"x 48" (minimum) hardwood timbers between the I-beams and the ground in case of jack failure. Stack safety cribbing in a diamond pattern under the I-beams.
- Raise the home in small increments and provide additional blocking between the home and the piers and safety piers as the home is raised.

Section V – Frame Set Procedures

Single Section Homes

If the home is being placed on a pre-constructed footing system such as a poured concrete slab, cast-in-place concrete pads or pile/post footings, move the home into position and lay out the pier blocks close to where they will be used.

If the home is being placed on pre-cast pad footers, mark the location of the corners of the home before moving it into the final position. Plan the pier spacing layout and calculate the required footing sizes. Install the footings where they will be used, and then move the home into position.

Note: During the set up procedure you will be leveling the home at the same time. This will only be a “rough” level. The final leveling of the home will come later after the home is in final position and all piers are constructed in place.

Note: See Section IV to determine the required spacing of piers, pier construction and footing size requirements.

Note: Additional pier supports may also need to be located under the main I-beams when extra heavy furniture or appliances such as water beds or freezers will be located in the home.

Step 1.

Place two jacks under the main I-beam closest to the front door side of the home, $\frac{1}{4}$ of the way in from each end of the I-beam. Using both jacks simultaneously, carefully lift that side of the home. Install piers under the main I-beam at the required locations. Install pier caps and rough level.

Step 2.

Slowly lower both jacks simultaneously onto the completed piers.

Step 3.

Place two jacks under the opposite side main I-beam as outlined above in Step 2. Using both jacks simultaneously, carefully lift the opposite side of the home. Install piers under the main I-beam at the required locations. Install pier caps and rough level.

Step 4.

Slowly lower both jacks simultaneously onto the completed piers.

After all piers have been installed, the home should be roughly level. You are now ready to do the “final” leveling and adjustments as outlined below.

Final Leveling & Adjustments

Make the final level adjustment of the home using a standard water level. Work from front to rear to obtain final level conditions throughout the home. Please remember that each individual pier support should be snug and in contact with the main I-beam.

The final height adjustment may be obtained by slightly jacking the main I-beam and placing shims between the piers and I-beam or other approved methods such as adjustable pre-manufactured piers. Use only hardwood shims. They must be at least 4" wide and 8" long and fitted and driven tight between the pier cap and the main frame I-beam perpendicular to the I-beam. Always use shims in pairs installed from both sides of the I-beam. If pre-manufactured piers are used, the adjustable riser should not exceed more than 3" when finally positioned (or beyond the limits specified by the manufacturer).



Caution: During the leveling procedure, be sure to loosen the frame or over-the-roof ties (if already installed) prior to jacking the home.

After the final level procedure is completed, check and make all necessary adjustments for items that might have gone out of proper alignment during transit or during the set-up procedure as outlined below.

- Check and adjust all interior passage doors for proper operation and alignment.
- Check and adjust all exterior doors for proper operation and alignment. Make sure they lock and unlock easily and properly and that the door is installed square with the frame.
- Check and adjust all windows to open and close easily.
- Check and adjust all closet doors for proper alignment and operation.
- Realign cabinet doors as necessary.
- Check and adjust drawers to open and close easily.
- Reattach loose moldings, panel connections and trim.
- Retighten p-trap fittings.
- Recaulk over the top of all windows and doors and other seams as necessary.

After all piers are installed, the home is properly leveled and all adjustments have been made, you will need to proceed with the remaining installation items outlined in this manual. This includes installing the anchoring system, preparing the appliances and mechanical equipment, hook-up and testing of the utility systems, final finish interior and exterior work and the clean-up and final inspection of the home.

Section V – Frame Set Procedures

Multi Section Homes – Typical Set

You will need a roller system, come-a-longs and a minimum of four (4) jacks to set a sectional home. In some situations, such as the set on a perimeter wall foundation, you may need the use of a crane to position the home. If so, see Section VI for proper crane lifting procedures.

Prepare the home for set by removing the plastic material used to protect the open sides of each section during shipping. Do not remove the wood supports holding up the ceilings on the open sides. Do not remove the marriage wall banding straps until both halves are set.

If the home is being placed on a pre-constructed footing system such as a poured concrete slab, cast-in-place concrete pads or pile/post footings, move the home into position and lay out the pier blocks close to where they will be used.

If the home is being placed on pre-cast pad footers, mark the location of the corners of the home before moving it into the final position. Plan the pier spacing layout and calculate the required footing sizes. Install the footings where they will be used and move the home into position.

Note: During the set up procedure you will be leveling the home at the same time. This will only be a “rough” level. The final leveling of the home will come later after the home is in final position and all piers are constructed in place.

Note: See Section IV to determine the required spacing of piers, pier construction and footing size requirements.

Note: Additional pier supports may also need to be located under the main I-beams when extra heavy furniture or appliances such as water beds or freezers will be located in the home.

Note: Insulation seal has been installed at the factory along the marriage beam, endwalls and floor line. If this insulation seal is missing or damaged, it must be replaced before connecting the two sections of the home.

Step 1.

Position one section of the home (either the A-Half or B-Half) in its proper final location. Install piers and level this half of the home as described for Single Section Homes, including the final leveling adjustments outlined earlier in this section. (See *Final Leveling and Adjustments*.)

Note: Do not proceed with the set-up of the 2nd-Half until the 1st-Half is properly blocked and completely level.

Step 2.

Position the other half of the home (the B-Half assuming you started with the A-Half) on the roller system as close as possible to the 1st-Half. Slide the 2nd-Half on the roller system sideways to the 1st-Half, using at least two come-a-longs, one at the front and one at the rear. Use additional come-a-longs at interim locations, if necessary.

Step 3.

Place two jacks under the “inside” main I-beam, $\frac{1}{4}$ of the way in from each end of the I-beam. Place two jacks under the “outside” main I-beam, $\frac{1}{4}$ of the way in from each end of the I-beam.

See Figure 5.1

Section V – Frame Set Procedures

Step 4.

Using the jacks simultaneously, carefully lift the inside I-beam until the floor edge is even and level with the floor edge of the 1st-Half. Install piers under the inside I-beam at the required locations. Install pier caps and rough level. Slowly lower both jacks simultaneously onto the completed piers.

Step 5.

Using the jacks simultaneously, carefully lift the outside I-beam to a roughly level position. Close any gap between the two halves at the center of the ridge beam by raising the outside I-beam as necessary. Install piers under the outside I-beam at the required locations. Install pier caps and rough level. Slowly lower both jacks simultaneously onto the completed piers.

Step 6.

Install support piers at the marriage wall as required.

Step 7.

Make the final leveling adjustments as outlined earlier in this section. (See *Final Leveling and Adjustments*.)

Step 8.

Attach the floors of both sections as shown in either Figure 5.2 or 5.3. Pre-drill ¼" pilot holes in the floor rim joist to prevent splitting the joist before inserting lag screws or other approved fasteners. Tighten the lag screws at the floor rim joist, securely fastening the floors together. (See Figure 5.2, *Floor Marriage Connection* and Figure 5.3, *Floor Marriage Connection – Alternate*.)

See Figures
5.2 and 5.3

Step 9.

Secure the two sections at the ridge support using #10x5" screws installed at a maximum 30° angle, 24" O.C. (See Figure 5.4, *Roof Marriage Connection*.)

See Figure 5.4

Step 10.

Connect each endwall by using #10x5" wood screws staggered 12" O.C. at a maximum 30° angle. Add fiberglass batt insulation as necessary to seal gaps where the endwalls butt. (See Figure 5.5, *Endwall Marriage Connection*.)

See Figure 5.5

You are now ready to proceed with the exterior close-up procedures, cross connections for the utility systems, the interior marriage wall close-up and other finish work described later in this section.

Section V – Frame Set Procedures

Multi Section Homes – Optional 3 Point Set

In certain circumstances the Wick cross-beam frame allows for a reduced number of pier rows when applied to the set of a sectional home. This optional “3 Point Set” can only be utilized in situations where the home is being installed on a foundation system consisting of pile/post footings that are properly constructed and installed below the frost depth, and the optional 3-Point Set is not allowed on homes that are greater than 28 feet wide. (See Section IV – Foundations, *Location and Spacing of Piers*.)

You will need a roller system, come-a-longs and a minimum of four (4) jacks to set a sectional home in a 3-Point Set. In some situations, you may need the use of a crane to position the home. If so, refer to Section VI – Basement Set Procedures, for proper crane lifting procedures.

Prepare the home for set by removing the plastic material used to protect the open sides of each section during shipping. Do not remove the wood supports holding up the ceilings on the open sides. Do not remove the marriage wall banding straps until both halves are set.

Note: During the set up procedure you will be leveling the home at the same time. This will only be a “rough” level. The final leveling of the home will come later after the home is in final position and all piers are constructed in place.

Note: See Section IV to determine the required spacing of piers, pier construction and footing size requirements.

Note: Additional pier supports may also need to be located under the main I-beams when extra heavy furniture or appliances such as water beds or freezers will be located in the home.

Note: Insulation seal has been installed at the factory along the marriage beam, endwalls and floor line. If this insulation seal is missing or damaged, it must be replaced before connecting the two sections of the home.

Step 1.

Position one-half of the home (either the A-Half or the B-Half) on its intended location.

Step 2.

Place two jacks under the “outside” main I-beam $\frac{1}{4}$ of the way in from each end of the I-beam. Using both jacks simultaneously, carefully lift the outside I-beam. Install piers under the outside I-beam at the required locations. Install pier caps and rough level. Slowly lower both jacks simultaneously onto the completed piers.

Step 3.

Place two jacks under the “inside” main I-beam $\frac{1}{4}$ of the way in from each end of the I-beam. Using both jacks simultaneously, carefully lift the inside I-beam. Install two (2) safety blocks under the inside I-beam, one at each jack location.



Caution: The safety blocks must remain under the home until both sections are fully set. Do not remove the safety blocks until all piers are installed under both sections of the home.

Step 4.

Install marriage wall piers at the required locations. The marriage wall piers must be set to the outside edge of the bearing block. Install caps and rough level. Slowly lower both jacks simultaneously until the bearing blocks rest on the completed piers.

Section V – Frame Set Procedures

Step 5.

Position the other half of the home (the B-Half assuming you started with the A-Half) on the roller system as close as possible to the 1st-Half. Slide the 2nd-Half on the roller system sideways to the 1st-Half, using at least two come-a-longs, one at the front and one at the rear. Use additional come-a-longs at interim locations if necessary.

See Figure 5.1

Step 6.

Place two jacks under the “inside” main I-beam, $\frac{1}{4}$ of the way in from each end of the I-beam. Place two jacks under the “outside” main I-beam $\frac{1}{4}$ of the way in from each end of the I-beam. Using both jacks simultaneously, carefully lift the inside I-beam until it is slightly higher than the 1st-Half. Be sure to raise the inside I-beam higher than the 1st-Half to clear the centerline piers.

Step 7.

Using the jacks simultaneously, carefully lift the outside I-beam to a roughly level position. Close any gap between the two halves at the center of the ridge beam by raising the outside I-beam as necessary. Install piers under the “outside” main I-beam at the required locations. Install pier caps and rough level. Carefully lower the outside jacks simultaneously onto the completed piers.

Step 8.

Remove the safety blocks installed under the 1st-Half.

Step 9.

Make the final leveling and adjustments as outlined earlier in this section. (See *Final Leveling and Adjustments*.)

Step 10.

Attach the floors of both sections as shown in either Figure 5.2 or 5.3. Pre-drill $\frac{1}{4}$ " pilot holes in the floor rim joist to prevent splitting the joist before inserting lag screws or other approved fasteners. Tighten the lags at the floor rim joist securely fastening the floors together. (See Figure 5.2, *Floor Marriage Connection* and Figure 5.3, *Floor Marriage Connection – Alternate*.)

See Figures
5.2 & 5.3

Step 11.

Secure the two sections at the ridge support using #10x5" screws installed at a maximum 30° angle, 24" O.C. (See Figure 5.4, *Roof Marriage Connection*.)

See Figure 5.4

Step 12.

Connect each endwall by using #10x5" wood screws staggered 12" O.C. at a maximum 30° angle. Add fiberglass batt insulation as necessary to seal gaps where the endwalls butt. (See Figure 5.5, *Endwall Marriage Connection*.)

See Figure 5.5

You are now ready to proceed with the exterior close-up procedures, cross connections for the utility systems, the interior marriage wall close-up and other finish work described later in this section.

Section V – Frame Set Procedures

Exterior Close-Up

Complete the close-up of the roof line, exterior endwalls and underbelly as follows:

Roof Line.

See Figure 5.4

Install the ridge vent shipped loose with the home. The ridge vent must be installed and fastened according to the manufacturer's installation instructions. Shingles for the ridge have also been shipped loose with the home. These shingles are 3-tab type. Follow the instructions provided on the shingle packaging for proper installation. Wick has provided enough shingles for a 5" shingle exposure.

Hinged Roofs

Some homes may have optional Hinged Roofs. If the home you are installing has an optional Hinged Roof, refer to the Supplemental Instructions provided with the home for proper installation. If you did not receive these supplemental instructions, contact the Engineering Department of Wick Building Systems to obtain them.

Endwall

See Figure 5.5

Either prefinished vertical siding or underlayment sheathing is fully installed at the factory on the endwall surfaces of Wick sectional homes. Siding has been shipped loose for installation on site at the endwall locations. Be sure to follow the nailing instructions provided with the siding. Pieces of fascia, soffit and roof edging may also have been shipped loose for installation on site. Follow common building practices for installation of these items. Be sure to install shutters as well if they have been shipped with the home.

Underside

Place additional fiberglass sill-type insulation between the floor line sections of the home if there are gaps. Tape the floor line joining area with a vinyl tape (not provided) to prevent air infiltration. Do not use duct tape. It will not permanently adhere to the bottom board material. Inspect the bottom board for damage or holes that may have occurred during shipping, and repair as necessary.

Utility Cross Connections

Complete the cross connections between each section for the utility systems as follows:

Electrical Crossover

The crossover locations can be distinguished by access cover panels at the marriage wall. Remove these panels and connect the enclosed wires. Certain electrical crossovers simply plug together and do not require junction boxes. These circuits are prewired to special snap-loc devices that snap together for quick hook up of each circuit. Those homes with #10 wire or larger crossovers will require connections through an approved junction box. (See Figure 5.6, *Electrical Crossover*.)

See Figures
5.6 & 5.7

Complete the bonding between the units. (See Figure 5.7, *Bonding of Multi Section Chassis*.)

Heat Duct Crossover

Connect the heat duct crossover. The flexible crossover must be supported so that it does not rest on the ground. If necessary, place styrofoam sheathing between the duct and the ground. (See Figure 5.9, *Heat Duct Crossover Connection*.)

See Figure 5.9

Water Line Crossover

Water lines are capped off and will require hookup on the site. Remove the shipping caps from the water lines and install the crossover connectors as required. Be sure the hot and cold water lines are not cross-connected. (See Figure 5.10, *Water Line Crossover Connection*.)

See Figure 5.10

Drainage & Waste Line Crossover

The crossover drainage pipe and fittings are provided with the home. Connect this piping using black ABS pipe cement. ABS cement is not provided by Wick. (See Figure 5.11, *Drain Line Crossover Connection*.)

See Figure 5.11

Note: Some drain line crossovers may occur through the rim joist and may not be readily visible.

Gas Line Crossover

Connect the gas line flex connector where applicable. Do not use tools to connect or remove the flexible connector quick disconnect. (See Figure 5.12, *Gas Line Crossover Connection*.)

See Figure 5.12

Section V – Frame Set Procedures

Interior Finish & Trim

Complete the interior marriage wall close-up and other interior finish and trim work as follows:

Vinyl-to-Vinyl Floor Connections

For those floor plans featuring areas where vinyl flooring meets vinyl flooring at a marriage wall archway, install the wide gold metal trim bar shipped loose with the home. The screws must be anchored to the floor. Therefore, it may be necessary to install wood shims to assure the proper attachment of the trim bar.

Carpet-to-Carpet Floor Connections

In those homes that feature carpet-to-carpet floor connections at the marriage wall, you must prepare the floor line area before connecting the carpet, as follows. Install 4" flat steel, 30 gauge minimum, over the floor line area. Nail the steel to the decking at each "outside" edge using roofing nails secured at approximate 8" intervals. You have now prepared the subfloor for the carpet connections.

Some models may have carpeting installed on either half, with the balance of the carpet ready to be rolled across the mating area and installed in the adjacent half. Most homes will have carpets fully installed at each half with "seaming" necessary only at the marriage floor area. Remove the temporary wood furring strips installed on the carpet splice using care not to damage the carpet. Make sure the carpet pad covers the area below the splice completely, and do not splice the pad directly over the floor line joint area.

Carpet-to-Vinyl Floor Connections

For those floor plans featuring carpet-to-vinyl at the marriage wall, you will need to prepare the floor mating area as described above under Carpet-to-Carpet Floor Connections before you proceed. Mark a line where the desired carpet edge will lie. Plan the final position of the carpet line. Fold an approximate $\frac{3}{4}$ " edge of carpet and staple to the vinyl flooring using carpet staples. Be sure the pad under the carpet is lined up near but not directly under the folded area.

Marriage Wall Close-Up (Archway w/o Swinging Doors)

Some minor shimming may be necessary to level up one marriage wall with the other prior to trimming. Panel strips were shipped loose for this purpose. Draw together or shim apart the walls at the doorway opening as necessary. Tie the marriage walls together using short lengths (approximately 5"–6" long) of the banding material used for shipping purposes cut from the doorway openings. Fasten the bands with roofing nails, two on each side for each band.

From: [Mendlen, Rick A](#)
To: [Hauglid, Herman \(DLI\)](#);
cc: [Matchneer, William W](#); [Pethel, Hubert L](#); [Vogt, Randy \(DLI\)](#); ["Jim Rothman"](#); ["Gary Gilbertson"](#); ["Jason McJury"](#); ["George M. Neall"](#);
["James Turner"](#);
Subject: RE: Current Wick Building Systems Installation Manual
Date: Wednesday, December 02, 2009 10:42:25 AM
Attachments: [image002.png](#)

Herman: This will confirm that the soil bearing values in the Wick Building Systems Installation manual do not conform to HUD's Installation Standards requirements in 24 CFR 3285.202. By copy of this email I directing PFS to follow-up with Wick to have make the necessary changes made to the Wick manual and have supplements sent to all retailers that have Wick homes which have yet to be sold or installed.

Please be advised that as of November, 2009, Wick advised the Department that it is no longer engaged in the production of manufactured homes which is the reason that the supplements only need to be sent to retailers on any on-sold or not yet installed manufactured homes.

Regards,

Rick Mendlen
HUD
Office of Manufactured Housing Programs
451 7th Street S.W.
Room 9164
Washington DC 20410-8000
Phone: (202) 402-5608
FAX: (202) 708-4213

From: Hauglid, Herman (DLI) [mailto:Herman.Hauglid@state.mn.us]
Sent: Tuesday, December 01, 2009 4:11 PM
To: Mendlen, Rick A
Cc: Hauglid, Herman (DLI)
Subject: Current Wick Building Systems Installation Manual

Ri ck:

I would like to take a moment to introduce myself. My name is Herman Hauglid and I'm a new member of the Manufactured Structures Team here at the State of Minnesota.

While preparing an Installation Manual (Wick Building Systems) to placed in our electronic file, I noticed something which may have accidentally been placed in the manual. Can you look at the bearing capacities from the installation manual and forward your comments. The values identified in the installation manual seem to be nearly doubled, or more, than the values which are identified in table 3285.202.

I appreciate your input and comments and thank you in advance for your time.

HR Hauglid 001

HERMAN R. HAUGLID
Minnesota Department of Labor and Industry
Construction Code and Licensing Division
Manufactured Structures Unit

Phone: 651-284-5840

cid:image002.png@01CA7342.046DA210

All marriage wall archways are capped with a 3-piece stacked jamb assembly except for those homes ordered for drywall closeup. (Drywall closeup has raw sheetrock strips and metal mesh corners for onsite drywalling.) Once the shimming and banding is completed, the stacked jamb assembly can be installed. The assembly consists of two jamb sections. Nail each section flush to the edge of each marriage wall corner. The outer jambs are then capped with a center jamb. Trim the outside edges of the assembly with 2¼" case moldings.

Marriage Wall Close-Up (w/Swinging Doors)

Doorway openings for interior passage doors at marriage walls will have factory installed swinging doors and trim on one half of the home. The other half will arrive without any completed trim work. Draw together or shim apart the walls as described above for marriage wall archways and tie the walls together using the metal banding material cut from the doorway openings. Jamb has been installed around each door. You may have to “rip” the jamb sections down. Close the door and install the stop molding provided at both sides and along the top. Finish the doorway by installing case moldings provided to match those installed on the finished half.

Ceiling Paddle Fans

Optional ceiling paddle fans are shipped loose for installation at the site. Follow the installation instructions provided with the unit for proper mounting and wiring connections. If a fan unit will be located at a marriage archway (for sectional homes), an exposed length of NM electrical wire will be visible at the area of the archway. A hardwood block with a pre-drilled hole for the fan junction box will be included with the ship loose material. (Discard this block if the close-up is drywall.) Install the hardwood block at the fan location site and butt the archway close-up material to the block. Be sure to attach the hardwood block and the metal junction box to the framing of the archway so the unit is well secured.

See Figure 5.13

General Trim Work

Baseboard moldings along the floor area of the marriage wall as well as chair rail accent moldings may require finishing. These additional moldings will either be “tacked” to the adjacent wall or shipped loose with the home. Whenever possible, replace an existing molding as opposed to splicing short lengths of moldings.

Section V – Frame Set Procedures

Tag Units

The manufactured home you are setting may include an optional third section. This additional section is referred to as a “tag unit.” You will need a roller system and come-alongs to properly set a tag unit. Before you begin setting the tag unit, both sections of the main unit must be completely blocked and leveled.

Prepare the tag unit for set by removing the plastic shipping material used to protect it during shipping. Cut out and remove the sheathing installed at the outside wall of the main unit.

Note: During the set up procedure you will be leveling the unit at the same time. This will only be a “rough” level. The final leveling of the unit will come later after the unit is in final position and all piers are constructed in place.

Note: See Section IV to determine the required spacing of piers, pier construction and footing size requirements.

Note: Additional pier supports may also need to be located under the main I-beams when extra heavy furniture or appliances such as water beds or freezers will be located in the home.

Note: Insulation seal has been installed at the factory along the marriage beam, endwalls and floor line. If this insulation seal is missing or damaged, it must be replaced before connecting the two sections of the home.

Step 1.

See Figure 5.1

Position the tag unit on the roller system as close as possible to the main unit. Slide the tag unit on the roller system sideways to the main unit using at least two come-alongs, one at the front and one at the rear.

Step 2.

Place two jacks under the “inside” main I-beam of the tag unit, $\frac{1}{4}$ of the way in from each end of the I-beam. Place two jacks under the “outside” main I-beam of the tag unit, $\frac{1}{4}$ of the way in from each end of the I-beam.

Step 3.

See Figures 5.14 & 5.15

Using the jacks simultaneously, carefully lift the inside I-beam of the tag unit until it is aligned with the main unit at the roof. Install piers under the inside I-beam at the required locations. Install pier caps and rough level. Slowly lower both jacks simultaneously unto the completed piers. (See Figure 5.14, *Tag Unit Roof Line Connection – Flush*, and Figure 5.15, *Tag Unit Roof Line Connection – Off Set*.)

Step 4.

Using the jacks simultaneously, carefully lift the outside main I-beam of the tag unit to a roughly level position. Close any gap at the roof line by raising the outside I-beam as necessary. Install piers under the outside I-beam at the required locations. Install pier caps and rough level. Slowly lower both jacks simultaneously unto the completed piers.

Step 5.

Install the endwall perimeter piers as required.

Step 6.

Make the final leveling adjustments as outlined earlier in this section. (See *Final Leveling & Adjustments*.)

Section V – Frame Set Procedures

Step 7.

Attach the floor of the tag unit to the main unit as shown in either Figure 5.2 or 5.3. Pre-drill ¼" pilot holes in the floor rim joist to prevent splitting the joist before inserting the lag screws. Tighten the lags at the floor rim joist securely fastening the floors together. (See Figure 5.2, *Floor Marriage Connection*, and Figure 5.3, *Floor Marriage Connection - Alternate*.)

See Figures
5.2 & 5.3

Step 8.

Secure the roof of the tag unit to the roof of the main unit using #10x5" lag screws toe-screwed at 24" O.C. (See Figure 5.14, *Tag Unit Roof Line Connection – Flush*, or Figure 5.15, *Tag Unit Roof Line Connection – Off Set*.)

See Figures
5.14 & 5.15

Step 9.

Connect the tag unit endwall to the main unit sidewall as shown in Figure 5.16. Toenail through the sheathing from the tag unit to the main unit using #10"x5" wood screws toe-screwed at 12" O.C.

See Figure 5.16

You are now ready to proceed with the exterior close-up procedures, crossover connections for the applicable utility systems, the interior marriage wall closeup and other finish work as outlined below.

Tag Unit Close-Up

Complete the close-up of the roof line, exterior endwalls and underbelly as follows:

Roof Line.

Install the roofing close-up materials (underlayment and flashing). Install shingles as specified on the shingle packaging. (See Figure 5.14, *Tag Unit Roof Line Connection – Flush*, or Figure 5.15, *Tag Unit Roof Line Connection – Off Set*.)

See Figures
5.14 & 5.15

Endwall.

Sheathing is fully installed at the factory on the endwall surfaces of Wick tag units. Siding of the main unit sidewall is stepped. Siding and trim accessories have been shipped loose for installation on site at the endwalls of the tag unit and sidewalls of the main unit. Be sure to follow the nailing instructions provided with the siding. Pieces of fascia, soffit and roof edging may also have been shipped loose for installation on site. Follow common building practices for installation of these items. Be sure to install shutters as well if they have been shipped with the home. (See Figure 5.16, *Tag Unit Corner Wall Connection*.)

See Figure 5.16

Underside.

Place additional fiberglass sill-type insulation between the floor line sections of the main unit and the tag if there are gaps. Tape the floor line joining area with a vinyl tape (not provided) to prevent air infiltration. Do not use duct tape. It will not permanently adhere to the bottom board material. Inspect the bottom board for damage or holes that may have occurred during shipping, and repair as necessary.

Section V – Frame Set Procedures

Tag Unit Cross Connections

Complete the cross connections for the utility systems between the main unit and the tag unit as follows:

Electrical Crossover.

See Figures
5.6 & 5.7

The crossover locations can be distinguished by access cover panels at the marriage wall. Remove these panels and connect the enclosed wires. Certain electrical crossovers simply plug together and do not require junction boxes. These circuits are prewired to special snap-loc devices that snap together for quick hook up of each circuit. Those homes with #10 wire or larger crossovers will require connections through an approved junction box. (See Figure 5.6, *Electrical Crossover*.)

Complete the bonding between the main unit and the tag unit. (See Figure 5.7, *Bonding of Multi Section Chassis*.)

Heat Duct Crossover.

See Figure 5.8

Connect the heat duct crossover. The flexible crossover must be supported so that it does not rest on the ground. If necessary, place styrofoam sheathing between the duct and the ground. (See Figure 5.8, *Heat Duct Crossover Connection*.)

Gas Line Crossover.

See Figure 5.12

Connect the gas line flex connector where applicable. Do not use tools to connect or remove the flexible connector quick disconnect. (See Figure 5.12, *Gas Line Crossover Connection*.)

Tag Unit Finish & Trim

Complete the interior marriage wall close-up and other interior finish and trim work as follows:

Vinyl-to-Vinyl Floor Connections.

For those floor plans featuring areas where vinyl flooring meets vinyl flooring at the tag-unit marriage wall, install the wide gold metal trim bar shipped loose with the home. The screws must be anchored to the floor. Therefore, it may be necessary to install wood shims to assure the proper attachment of the trim bar.

Carpet-to-Carpet Floor Connections.

In those homes that feature carpet-to-carpet floor connections at the tag unit marriage wall, you must prepare the floor line area before connecting the carpet, as follows. Install 4" flat steel, 30 gauge minimum, over the floor line area. Nail the steel to the decking at each "outside" edge using roofing nails secured at approximate 8" intervals. You have now prepared the subfloor for the carpet connections.

Some models may have carpeting installed on either half, with the balance of the carpet ready to be rolled across the mating area and installed in the adjacent half. Most homes will have carpets fully installed at each half with only "seaming" necessary at the marriage floor area. Remove the temporary wood furring strips installed on the carpet splice using care and attention not to damage the carpet. Make sure the carpet pad covers the area below the splice completely and do not splice the pad directly over the floor line joint area.

Carpet-to-Vinyl Floor Connections.

For those floor plans featuring carpet-to-vinyl at the tag unit marriage wall, you will need to prepare the floor mating area as described above under Carpet-to-Carpet Floor Connections before you proceed. Mark a line where the desired carpet edge will lie. Plan the final position of the carpet line. Fold an approximate ¾" edge of carpet and staple to the vinyl flooring using carpet staples. Be sure the pad under the carpet is lined up near but not directly under the folded area.

Section V – Frame Set Procedures

Marriage Wall Archway Close-Up.

Some minor shimming may be necessary to level up one marriage wall with the other prior to trimming. Panel strips were shipped loose for this purpose. Draw together or shim apart the walls at the doorway opening as necessary. Tie the marriage walls together using short lengths (approximately 5"-6" long) of the banding material used for shipping purposes cut from the doorway opening. Fasten the bands with roofing nails, two on each side for each band.

All marriage wall archway openings are capped with a 3-piece stacked jamb assembly except for those homes ordered for drywall closeup. (Drywall closeup has raw sheetrock strips and metal mesh corners for onsite drywalling.) Once the shimming and banding is completed, the stacked jamb assembly can be installed. The assembly consists of two jamb sections. Nail each section flush to the edge of each marriage wall corner. The outer jambs are then capped with a center jamb. Trim the outside edges of the assembly with 2¼" case moldings.

General Trim Work

Baseboard moldings along the floor area of the tag unit marriage wall as well as chair rail accent moldings may require finishing. These additional moldings will either be "tacked" to the adjacent wall or shipped loose with the tag unit. Whenever possible, replace an existing molding as opposed to splicing short lengths of moldings.

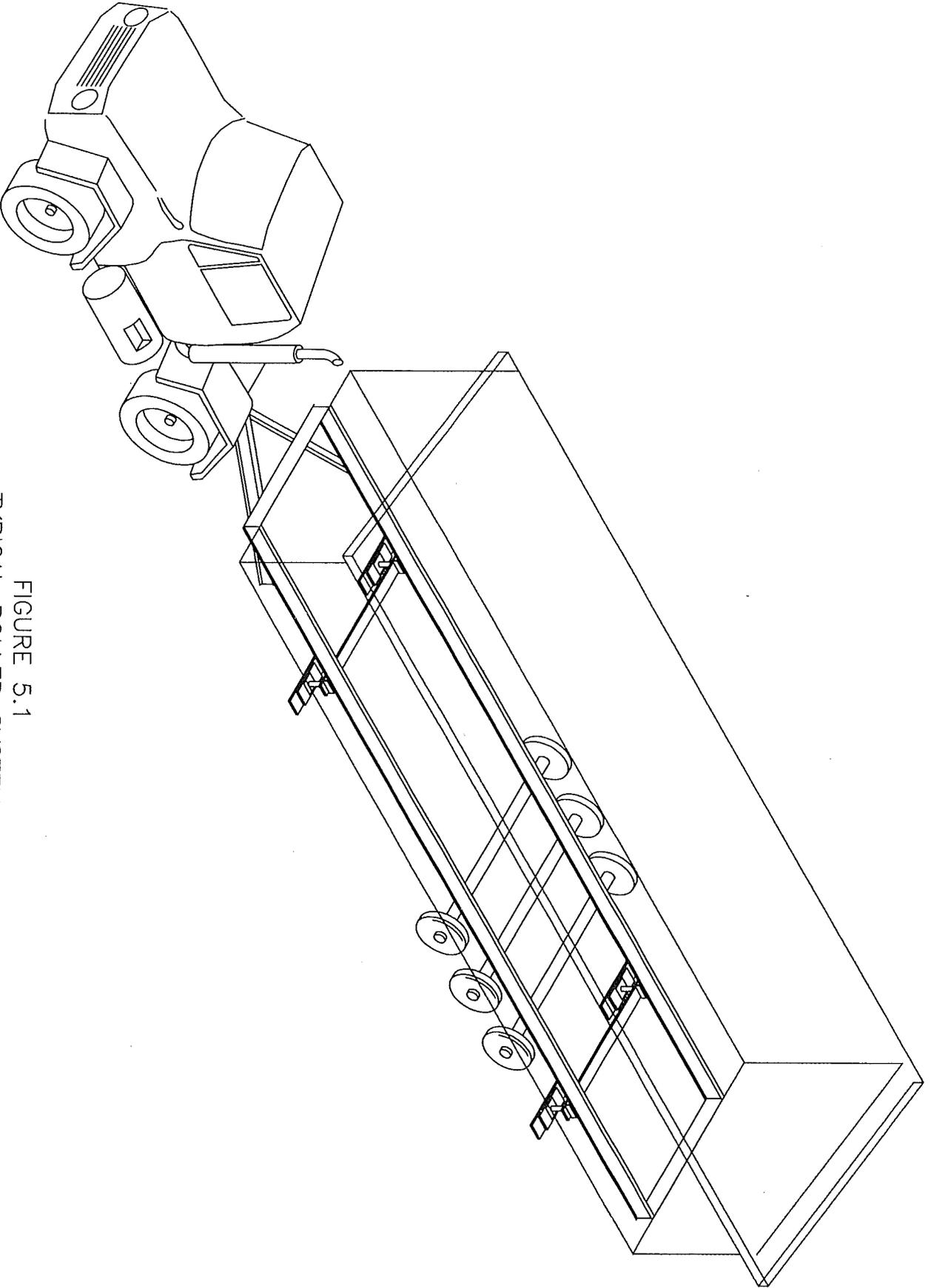


FIGURE 5.1
TYPICAL ROLLER SYSTEM

FIGURE 5.3
FLOOR MARRIAGE CONNECTION - ALTERNATE

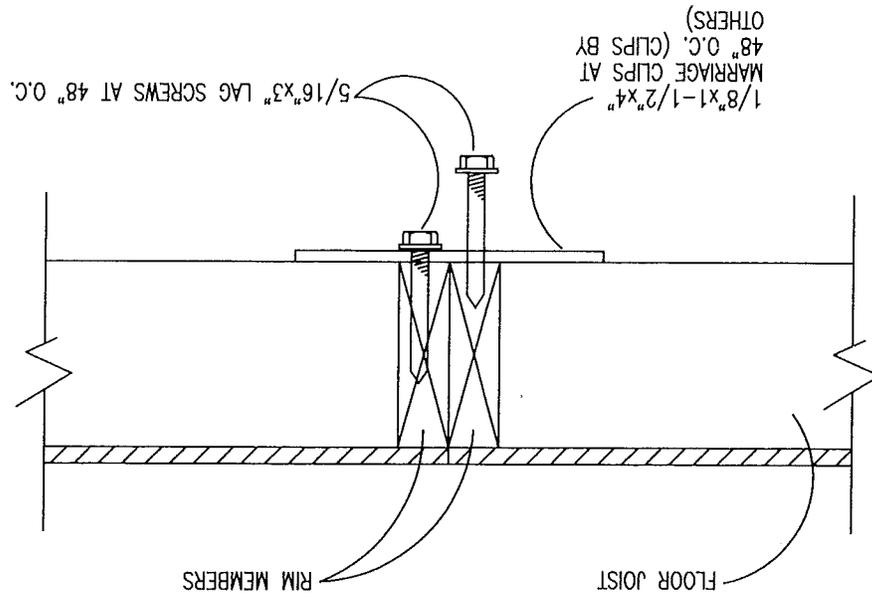
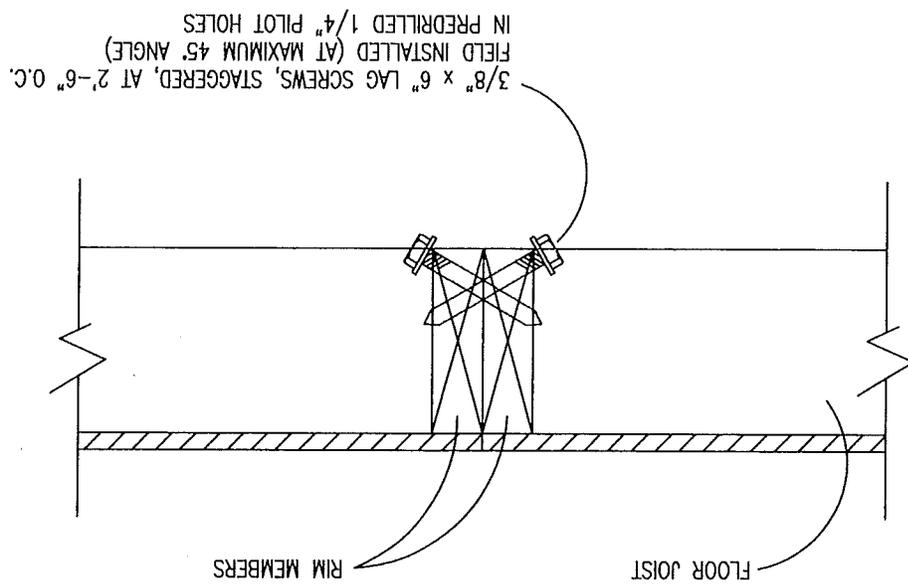


FIGURE 5.2
FLOOR MARRIAGE CONNECTION



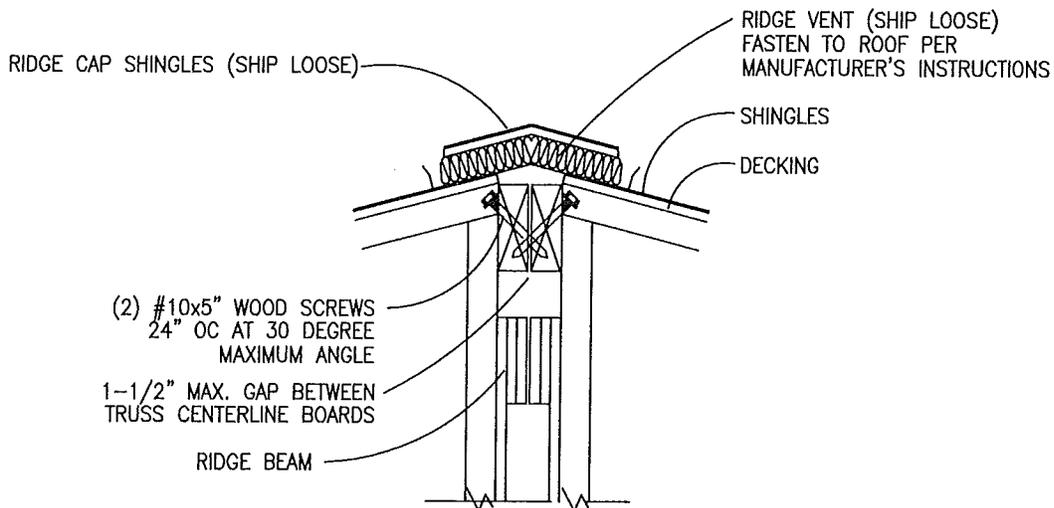


FIGURE 5.4
ROOF MARRIAGE CONNECTION

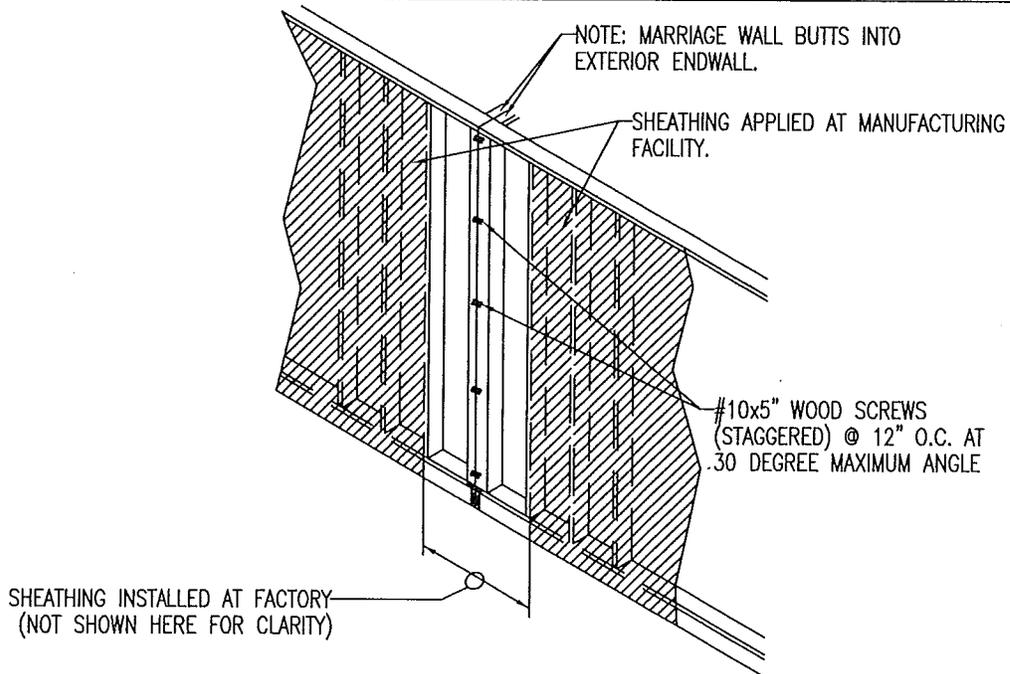
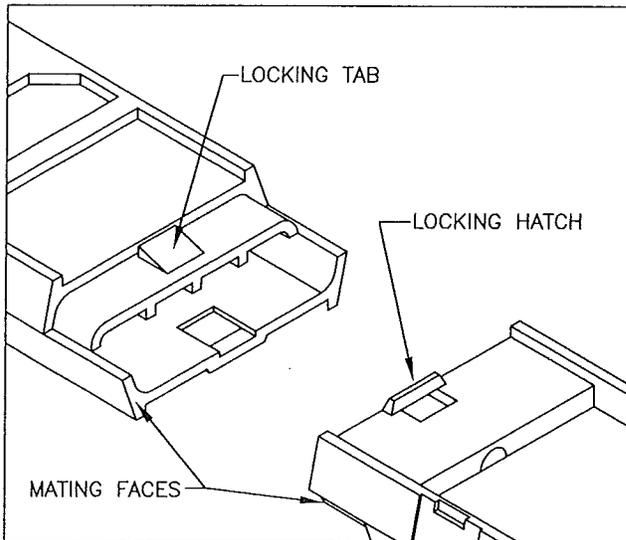
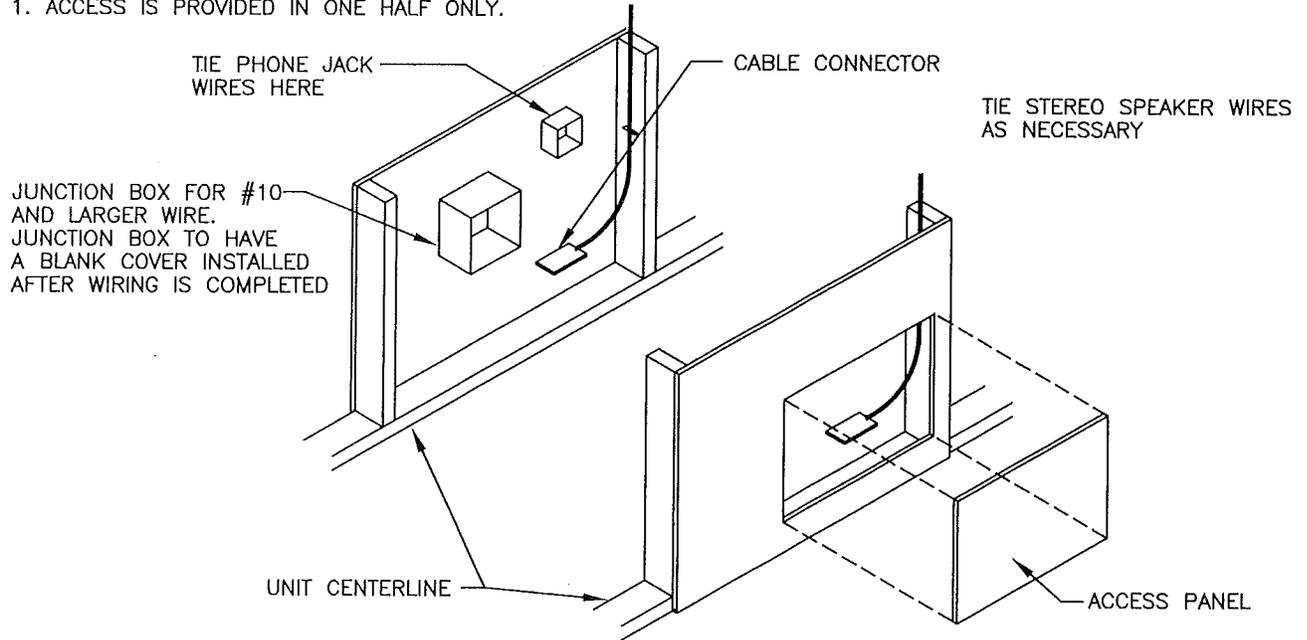


FIGURE 5.5
ENDWALL MARRIAGE CONNECTION

NOTE:

1. ACCESS IS PROVIDED IN ONE HALF ONLY.



DETAIL OF SNAP-LOCK DEVICE

COUPLING SPLICES:

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

THIS COMPLETES THE ASSEMBLY OF THE CABLE SPLICING DEVICE.

MOUNTING SPLICES:

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



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



DO NOT UNCOUPLE SPLICES ONCE THEY HAVE BEEN MATED.



DO NOT RE-USE SPLICES.

FIGURE 5.6
ELECTRICAL CROSSOVER

NOTES:

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

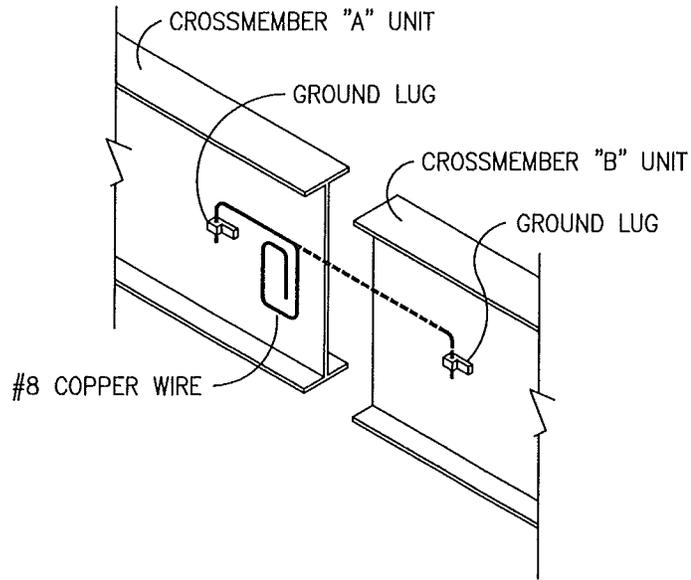


FIGURE 5.7
BONDING OF MULTI SECTION CHASSIS

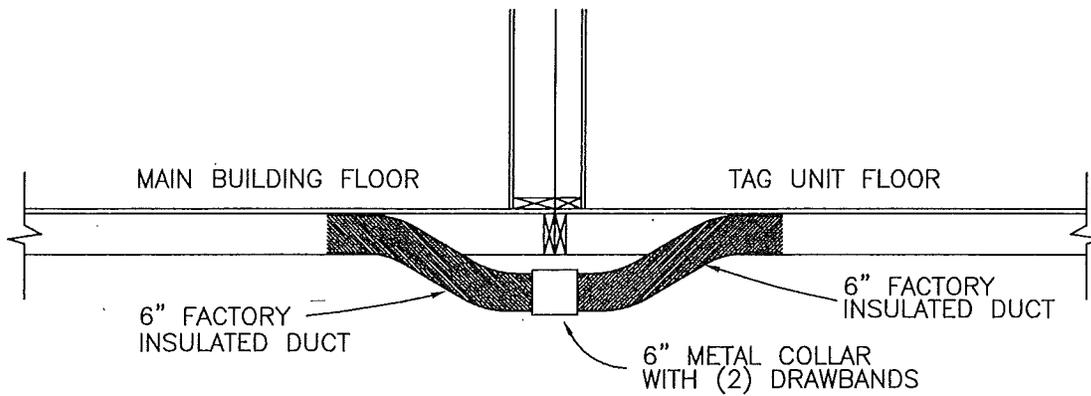


FIGURE 5.8
HEAT DUCT CROSSOVER CONNECTION - TAG UNITS

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

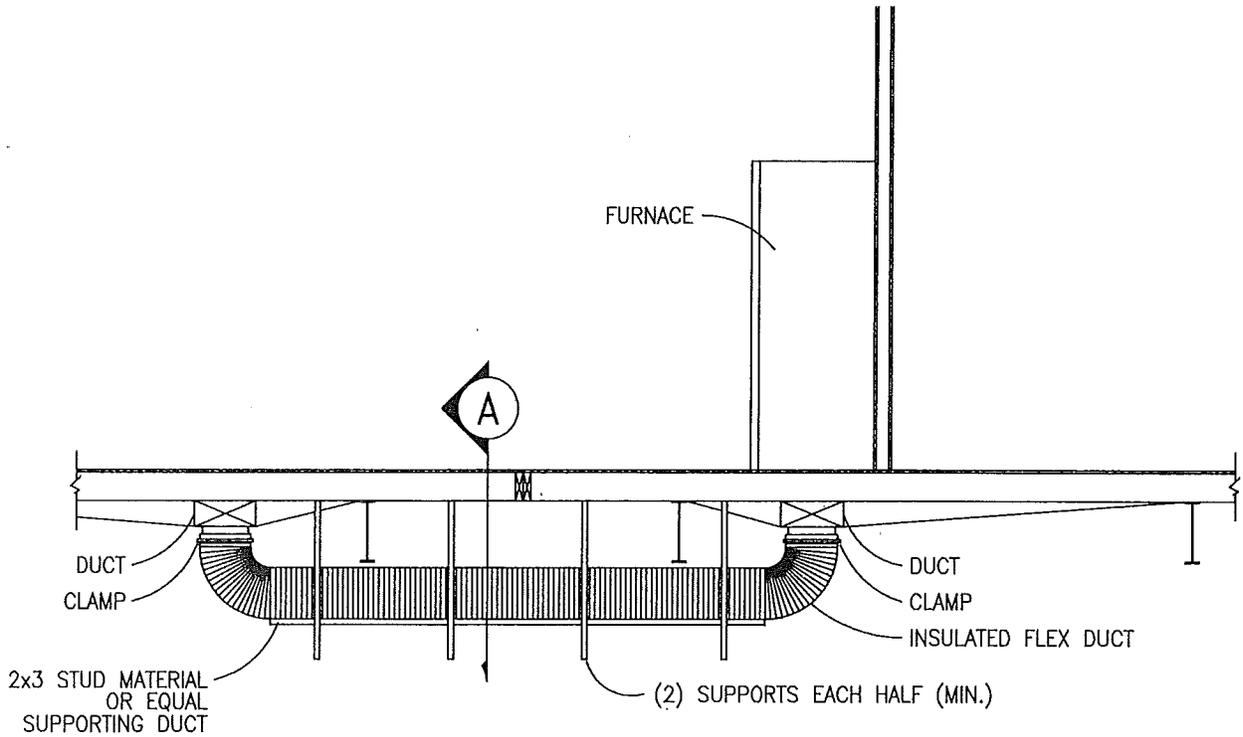
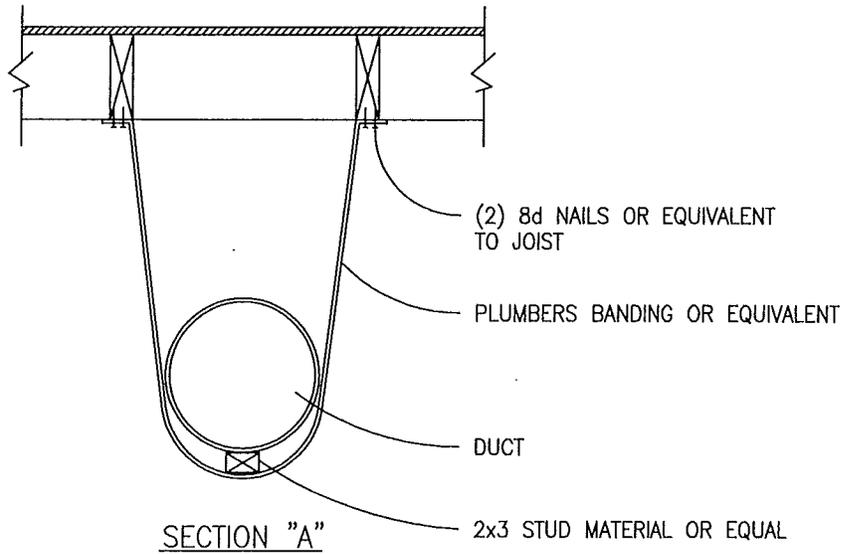
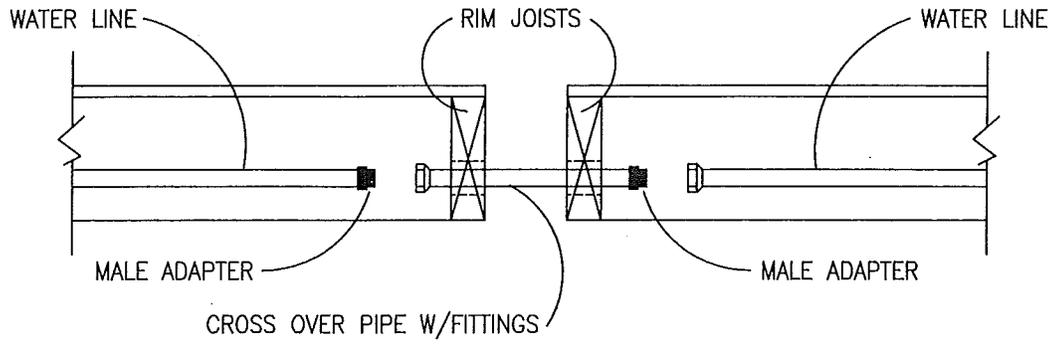


FIGURE 5.9
HEAT DUCT CROSSOVER CONNECTION



- NOTES:
1. IF FREEZING CONDITIONS EXIST, WRAP CONNECTION WITH INSULATION.

FIGURE 5.10
WATER LINE CROSSOVER CONNECTION

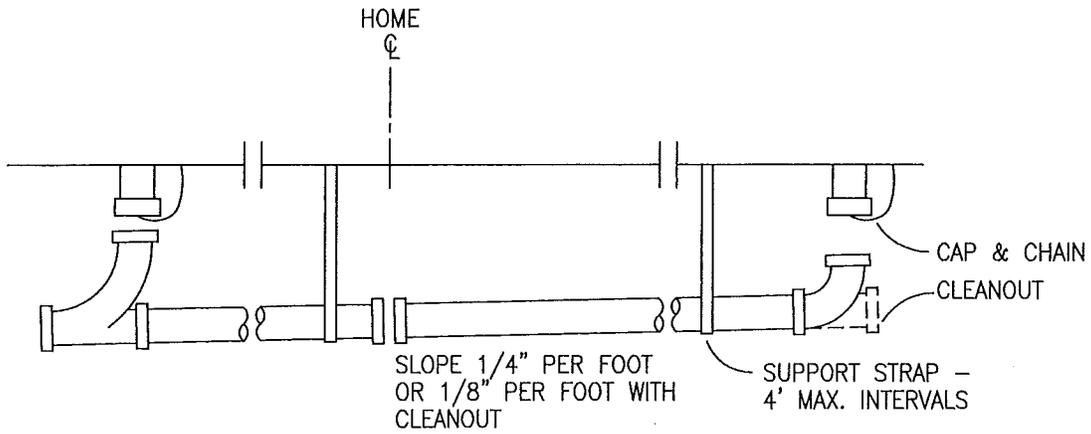
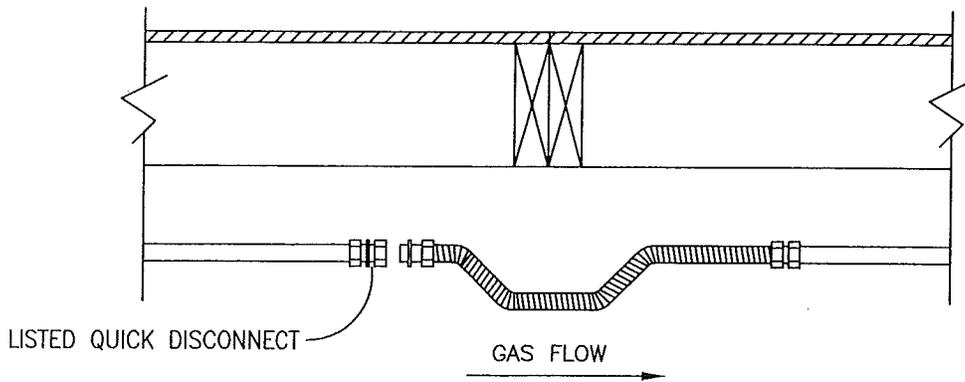


FIGURE 5.11
DRAIN LINE CROSSOVER CONNECTION



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

FIGURE 5.12
GAS LINE CROSSOVER CONNECTION

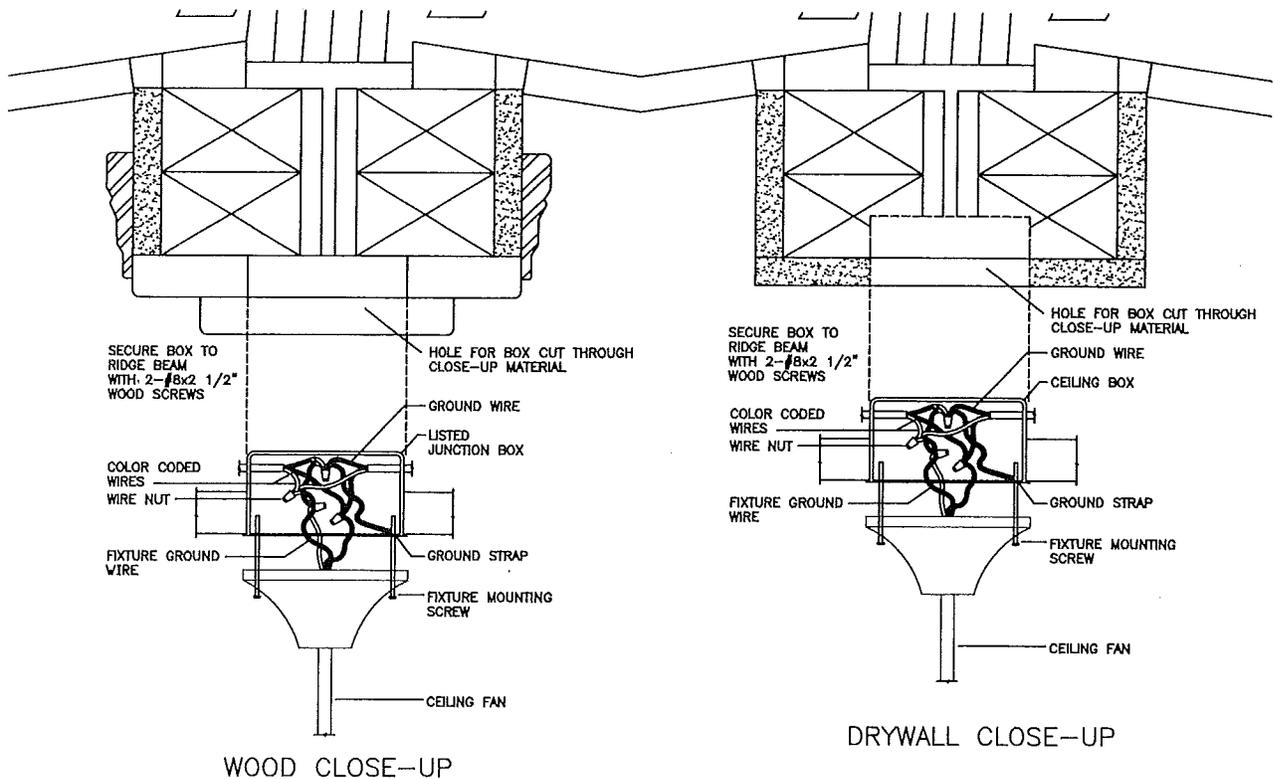
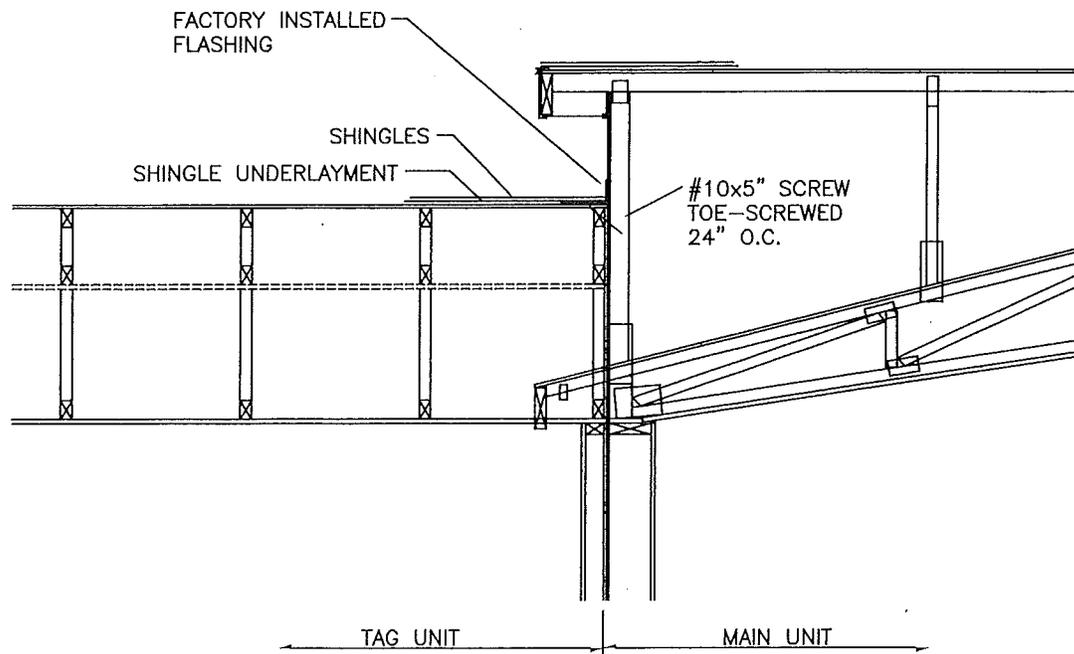
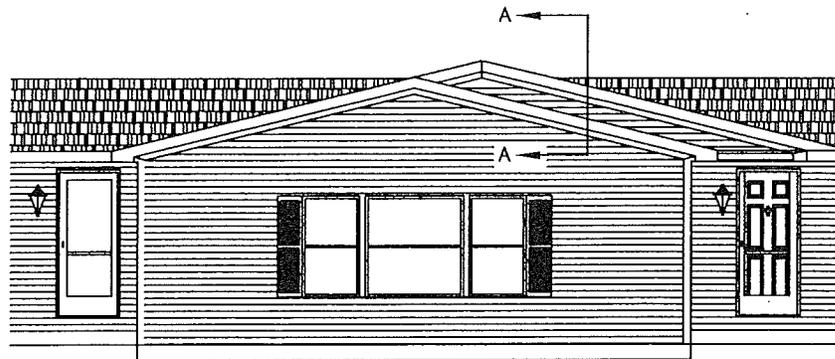


FIGURE 5.13
CEILING FAN INSTALLATION



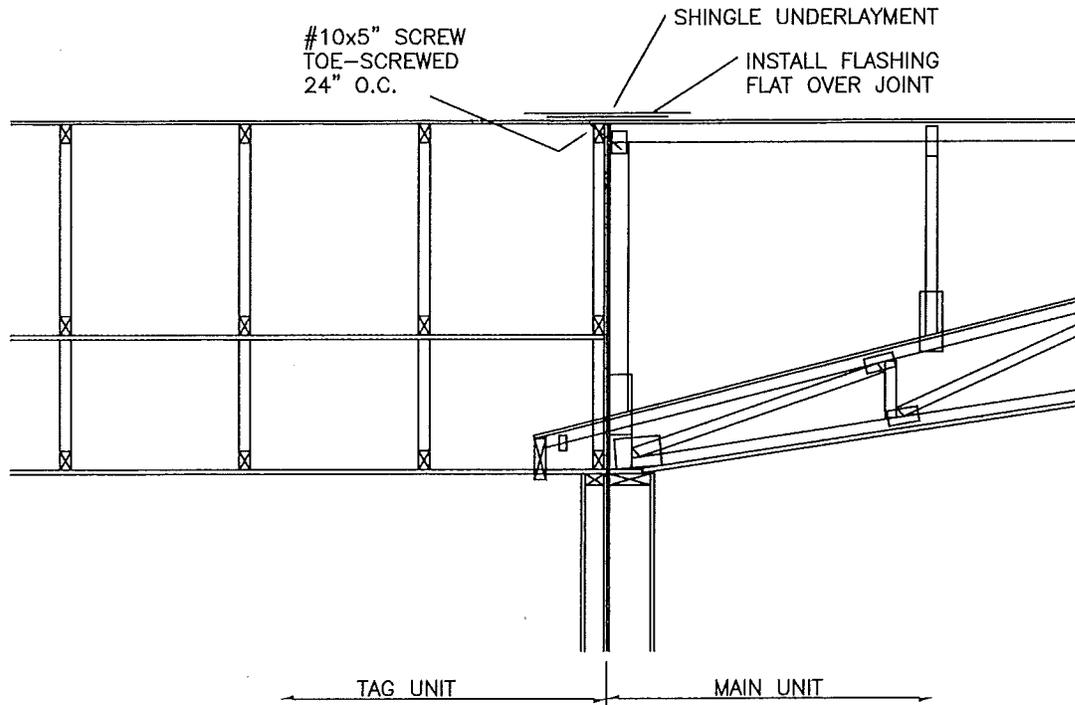
SECTION A-A



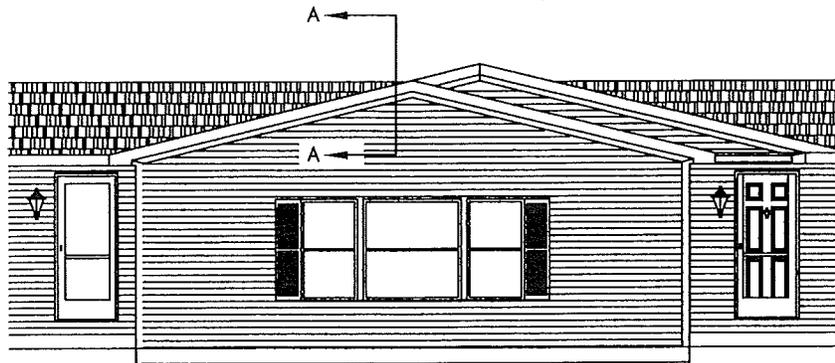
NOTES:

1. TIE UNIT TO MAIN UNIT AT FLOOR USING 3/8"x6" LAG SCREWS STAGGERED AT 2'-6" O.C. (SEE FIGURE 5.2 OR 5.3) OR USING MARRIAGE CLIPS.
2. INSTALL ROOF VALLEY FLASHING (6" WIDE MINIMUM).
3. INSTALL UNDERLAYMENT, DRIP RAILS AND SHINGLES AS SPECIFIED BY SHINGLE MANUFACTURER'S INSTALLATION INSTRUCTIONS (BACK OF SHINGLE BUNDLE).
4. INSTALL FASCIA INTO UNDERSILL TRIM AND F-CHANNEL (PROVIDED).

FIGURE 5.15
TAG UNIT ROOF LINE CONNECTION (OFF SET)



SECTION A-A



NOTES:

1. TIE UNIT TO MAIN UNIT AT FLOOR USING 3/8"x6" LAG SCREWS STAGGERED AT 2'-6" O.C. (SEE FIGURE 5.2 OR 5.3) OR USING MARRIAGE CLIPS.
2. INSTALL ROOFING CLOSE-UP (UNDERLAYMENT, FLASHING, ETC.), INSTALL SHINGLES AS SPECIFIED BY SHINGLE MANUFACTURER'S INSTALLATION INSTRUCTIONS (BACK OF SHINGLE BUNDLE).

FIGURE 5.14
TAG UNIT ROOF LINE CONNECTION (FLUSH)

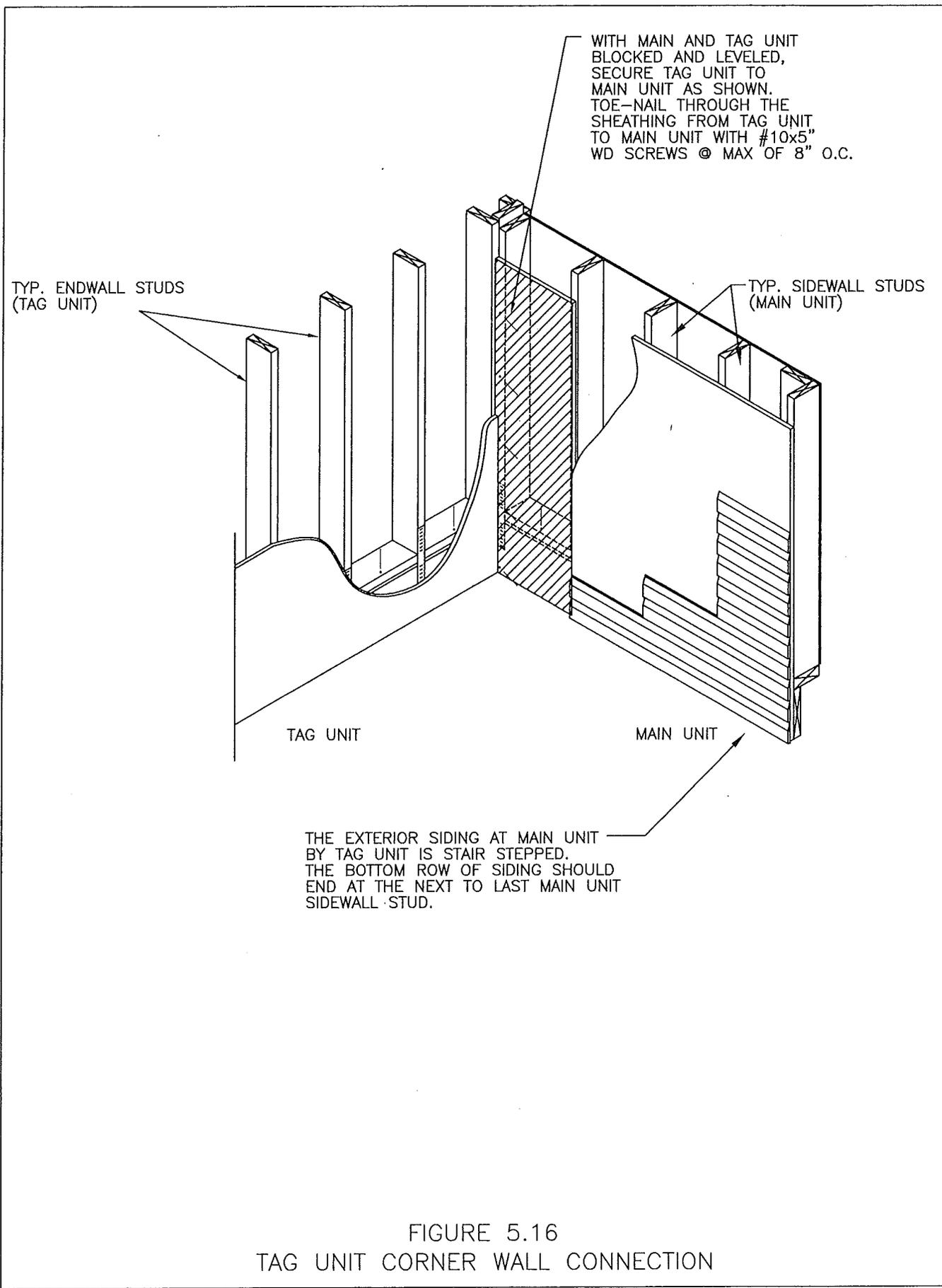


FIGURE 5.16
TAG UNIT CORNER WALL CONNECTION

Section VI Basement Set Procedures

The Wick manufactured home you are setting may be designed and constructed with a Lindsay Unified Floor System. The Lindsay Unified Floor System was developed to provide a combination floor/transportation system compatible for installation on basement foundations without the removal of the chassis used to transport the home. This unique system utilizes conventional wood floor framing members with permanently attached steel framing and transport members. If you are responsible for setting a Wick manufactured home with a Lindsay Unified Floor System, you must comply with the following instructions in the set and installation of the home.



Caution: All Wick manufactured homes designed and constructed with a Lindsay Unified Floor System must be installed on a basement foundation. Problems caused by the failure to set homes with the Lindsay Floor System on a basement foundation are not covered by the written warranties of Wick Building Systems, Inc.

Foundations

The design and construction of the basement foundation must comply with the state and local codes where the home is being set. If you are responsible for the design and/or construction of the basement foundation, it is your responsibility to ensure that the design, construction, waterproofing, insulating, lateral support and combustion air for heating equipment are in accordance with the applicable state and local codes. (See Section IV – Foundations, *Basement Foundations*.)

See Section IV

Positioning on the Foundation

If you are responsible for the set of the home, you should examine the foundation for appropriate size and to ensure the home can be placed without problems. Prepare the home for set by removing all plastic and wood braces from both units. Be sure all exposed nails and staples are removed. A typical set of a home with the Lindsay Unified Floor System is shown in Figure 6.1.

See Figure 6.1

All Wick manufactured homes constructed with the Lindsay Unified Floor System are designed to be placed on the basement foundation using either a roller system or crane. (Craning is the most common method.)



Caution: Extreme care must be exercised when lifting the unit onto the foundation walls. Failure to do so could cause damage to the home.

Section VI – Basement Set Procedures

Crane Lift Cable Locations

The cable pick up locations for crane lifting the home should be located at approximately 25% of the floor length (from each end). Crane cables should be located as near as possible to a floor truss and should be protected from cutting into the rim joist framing members by use of angle irons (3"x3"x1/4"x3' minimum) held in place with 4-3" lag screws. Remove siding at the rim joist area and notch the sheathing as necessary. Be sure to protect the cables from damaging the siding and/or overhangs on the roof. This can be accomplished by using doubled up wood members wrapped in carpet scraps as spacers between the cables and the home. Be sure the crane cable locations allow for balance of the floor sections when lifting onto the foundation. If the home does not balance, move the pickup points to new locations that will allow for proper balancing.

Gable End "Draw Strapping"

Once each section of the home has been craned (or rolled) onto the foundation, use come-a-long tools to draw each unit tight to the other. Use either metal strapping loops, angle irons with holes, irons with eyes or similar devices attached to each gable endwall at the floor level near the mating wall areas.

Note: Insulation seal has been installed at the factory along the marriage beam, endwalls and floor line. If this insulation is damaged or missing, it must be replaced.

Fastening to the Foundation

Once both units have been placed on the basement foundation and pulled together tight at the marriage wall area, it will be necessary to fasten the home to the foundation.

Sill Plate Bolt Connections

A pressure treated mud sill plate should have been installed on the foundation walls by the foundation contractor per state and local building code requirements. The floor should be fastened to the “endwall” sill plates using 16d nails, toenailed from the outside at 3" O.C., or #8x3" screws, toescrewed from the outside at 12" O.C. Pre-drill pilot holes to prevent damage to the sill plate. Toenails should be driven at an angle of approximately 30° with the member and started approximately 1/3 the length of the nail from the member end. (See Figure 6.2, *Sill Plate Connections*.)

See Figure 6.2

Fasten the floor truss to the “sidewall” sill plate using Simpson A23 lateral load connectors, or equivalent, fastened at all truss bottom chords (2 per truss; 8 nails per connector). Simpson truss connectors and nails are supplied by Wick. (See Figure 6.2, *Sill Plate Connections*.)

Marriage Beam Floor Connections

The LVL marriage beams must be lagged to each other at the area just above each basement beam support post and not more than 48" O.C. using 5/16"x6" lag bolts. Lag bolts are provided by Wick. The installation of additional lag bolts through the 2"x6" or 2"x8" filler board located above the marriage beam is not required. (See Figure 6.3, *Marriage Beam Connections*.)

See Figure 6.3

Basement Beam Post Connections

Basement Beam Posts (Jack Posts) used to support the centerline beam area must be a minimum 3" diameter adjustable screw type steel, FHA listed and rated for a 10,500 lb. minimum loading. (Jack Posts are not supplied by Wick.) Be sure to follow the foundation print for proper jack post spacing. Generally, maximum spacing is 8'-0" O.C. for homes that are 31' wide, and 8'-6" O.C. for homes that are 28' wide. Jack Posts must be installed with the screw jack downward. When posts are installed before the concrete floor is poured, they should be buried below the concrete floor surface. Prior to pouring the floor, wrap felt around the lower area of the post. This will allow for future adjustments if needed. If posts are installed after the concrete floor is poured, they must be adequately anchored to prevent lateral displacement. Use a minimum 3/8"x3½" anchor bolts, 2 per column installed at opposite corners of the steel plate. Fasten the steel plates on the top of each jack post securely to the marriage beams using 4-5/16"x3" lag bolts. (See Figure 6.4, *Basement Beam Post Connections*.)

See Figure 6.4



Caution: If the basement floor is poured after the home is set, be sure to provide proper ventilation for removal of moisture from the curing of the concrete. Failure to do so could cause damage to the home. An additional jack post may be required for special stairwell configurations. For example, when the stairwell runs from an exterior wall toward the marriage wall and placement of a jack post interferes with the stairwell opening, the post should be moved to the side of the opening. An additional post must be placed at the opposite side of the opening.

Section VI – Basement Set Procedures

Hitch, Axle and Spring Hangers

Hitches on homes with a Lindsay Unified Floor System are attached to the main I-beam steel in a manner similar to the conventional frame system. Remove the hitch. Spring hangers are mounted on the I-beam and are integral to the floor system. Therefore, the spring hangers will remain with the home. Remove the springs from the hangers, however. Do not bend the hangers out of the way to obtain basement clearance. Remove and discard the plastic bottom board material stapled to the underside area of the floor in the tire and axle areas. Remove the axles and store as necessary.

Stairwells

The main I-beam crossing the stairwell area has been removed at the factory. Therefore, no cutting of the I-beam on site will be necessary. In addition, no additional basement beam posts are required at the ends of the stairwell I-beam. Stairs shall be constructed to comply with the requirements of state and/or local codes.

Rim Joist Insulation

See Figure 6.5

The perimeter rim joist of the exterior walls must be insulated to the same R-value as the sidewalls of the home. The sidewalls of Wick sectional homes are insulated with R-19 fiberglass batts. Extra fiberglass batt insulation with an R-19 value has been shipped loose with the home. Install the vertical lengths along sidewalls, and horizontal lengths along the endwalls. If the fiberglass batts are damaged and/or missing, be sure to purchase additional batts locally and be sure they have an R-19 rating with vapor barriers. (See Figure 6.5, *Rim Joist Insulation*.)

Exterior Close-Up

Complete the close-up of the exterior roof line, endwalls and underside of the home as outlined in Section V. (See Section V – Frame Set Procedures, *Exterior Close-Up*.)

See Section V

Utility Cross Connections

Complete the cross connections between each section for the utility systems as follows:

Electrical Crossover

The electrical crossover locations in all Wick sectional homes can be distinguished by an access cover panel. Remove the panel and connect the enclosed wires as described in Section V. (See Section V – Frame Set Procedures, *Utility Cross Connections*.)

See Section V

Plumbing Crossover

Plumbing lines are run inside the framing of the floor trusses. In some situations where the plumbing pitch cannot be achieved inside the framing of the floor, small lengths of plumbing will extend beneath the floor. Many models have plumbing lines that must cross over from one half to the other. In some cases, it may simply be a water line. In other cases, it may be both water and drain lines. Holes have been precut through the filler board above the center beam in either case. Fittings for the connection of the water lines are already connected to stub lines. Fittings for the connection of the drainage and waste line are shipped loose for assembly on site. Complete the cross connections for the water lines and drainage and waste system as outlined in Section V. (See Section V – Frame Set Procedures, *Utility Cross Connections*.)

See Section V

Gas Line Crossover

The cross connection of the gas line should be completed as described in Section V. (See Section V – Frame Set Procedures, *Utility Cross Connections*.)

See Section V

Smoke Detectors

A smoke detector for the basement is provided in the ship-loose materials for the home. It will be found inside a kitchen drawer. A pre-wired junction box interconnecting the basement level detector with those on the main level is temporarily attached to the LVL beam or the bottom chord of one of the floor trusses. Install the junction box and detector on a framing member near the stairwell. Connect the basement detector to the main electrical service by connecting the wires in the junction box, black to black, white to white and yellow to red, to complete the signal to the other detectors in the home.

Section VI – Basement Set Procedures

Heat Duct Crossover

When the furnace is installed at the factory, it will be a down draft type installed on the main floor of the home. It is connected to a main heat duct for the entire home. All heat ducts to the opposite section of the home are individual 5" or 6" round flexible heat ducts. These ducts will be attached to a floor register or sidewall diffuser adapter and "coiled" up in that half of the home. These coiled up ducts must be fully extended into the opposite half of the home (where the furnace is located) and attached to the duct adapters installed in the main duct for that register. (If the duct is too long, it must be cut to the appropriate length before attaching it to the duct adapters.) The connections to the adapters should be made with plastic locking draw bands. These are shipped loose with the home. Install these connections to the adapters as necessary.

See Figure 6.6

When the furnace is shipped loose for basement installation on site, it will be an updraft type. The furnace provided by Wick must be installed by a qualified HVAC installer in accordance with the manufacturer's installation instructions. The crossovers must be completed as specified above. (See Figure 6.6, *Basement Installed Gas Furnace.*)



Caution: Furnaces installed on-site must be provided by Wick.

Interior Finish & Trim

Interior finish and trim should be completed as described in Section V. (See Section V – Frame Set Procedures, *Interior Finish & Trim.*)

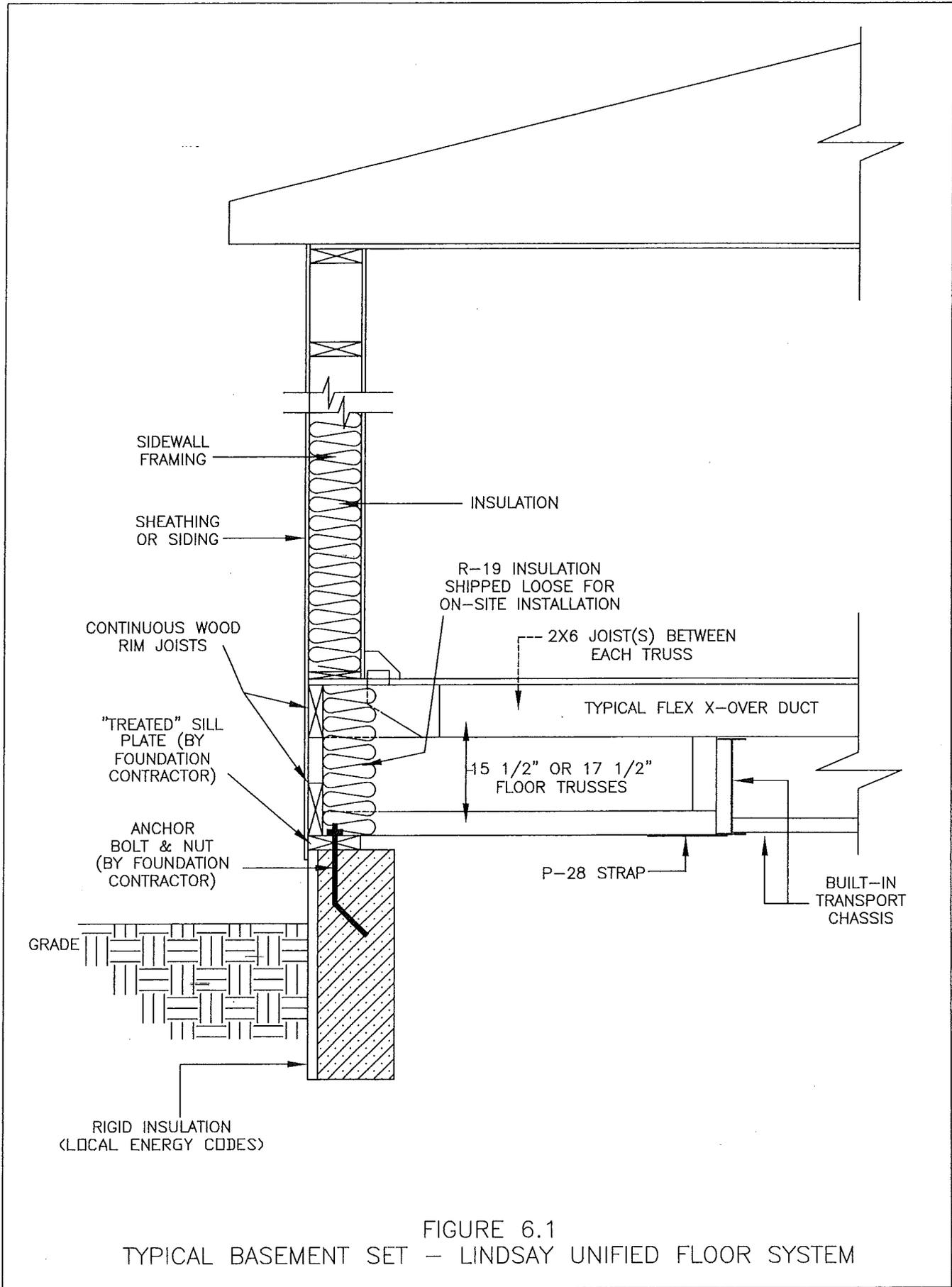


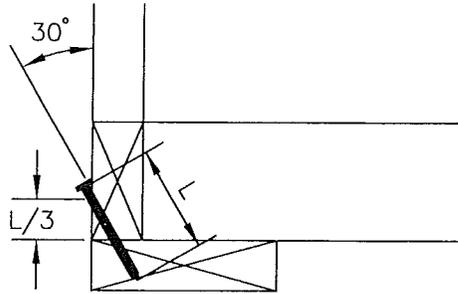
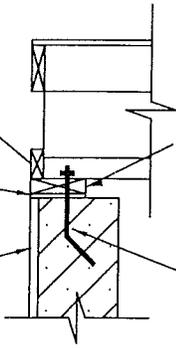
FIGURE 6.1
 TYPICAL BASEMENT SET - LINDSAY UNIFIED FLOOR SYSTEM

FASTEN END TRUSS TO THE ENDWALL SILL PLATE W/16d NAILS, 3" O.C., TOENAILED (SEE TOENAIL CONNECTION)

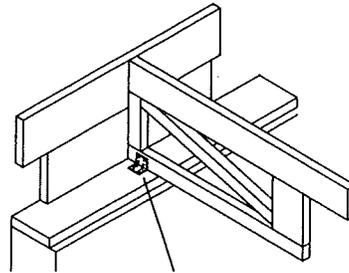
SILL SEAL
1" INSULATION BOARD

2 X 6 TREATED SILL PLATE BY OTHERS

1/2" BOLT AT 6'-0" O.C. BY OTHERS



TOENAIL CONNECTION



FASTEN TRUSS TO TREATED SIDEWALL SILL PLATE WITH SIMPSON A23 CONNECTORS OR EQUAL, FASTENED AT ALL TRUSS BOTTOM CHORDS (2 REQUIRED PER TRUSS, 8 NAILS PER CONNECTOR)

FIGURE 6.2
SILL PLATE CONNECTIONS

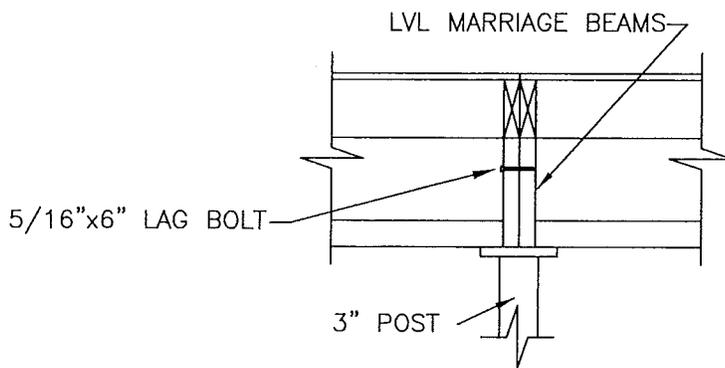


FIGURE 6.3
MARRIAGE BEAM CONNECTIONS

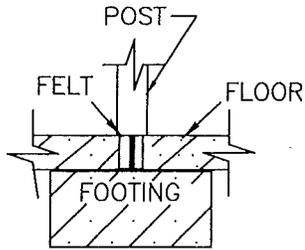
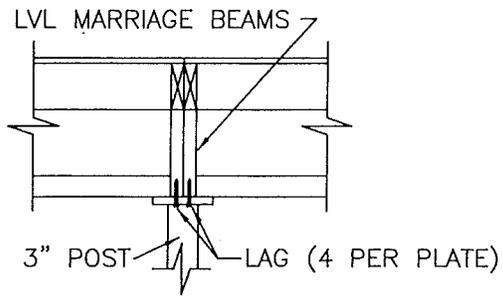


FIGURE 6.4
BASEMENT BEAM POST CONNECTIONS

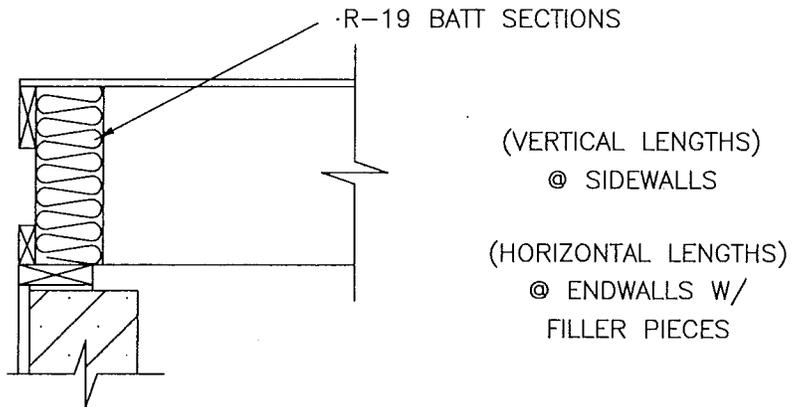
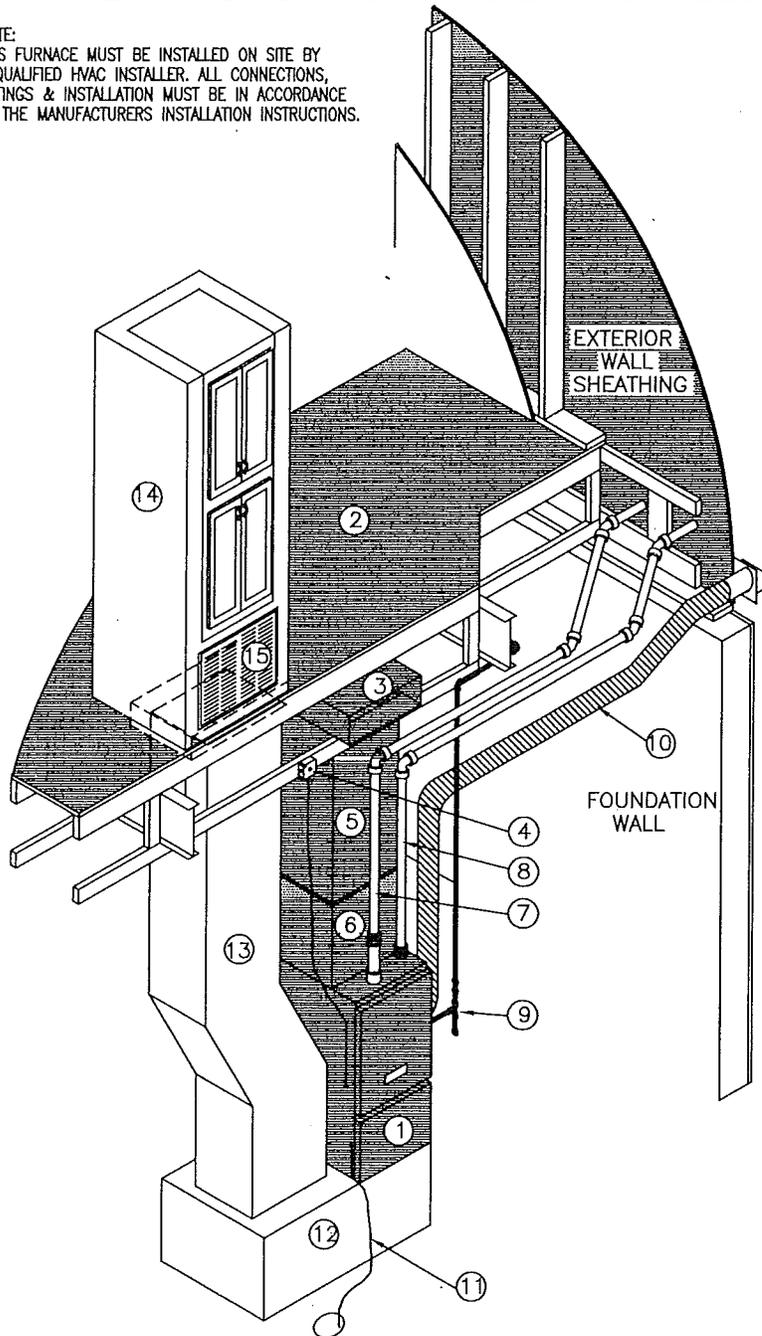


FIGURE 6.5
RIM JOIST INSULATION

NORDYNE M2 SERIES HIGH EFFICIENCY / DIRECT VENT GAS FURNACE INSTALLED IN BASEMENT

NOTE:
THIS FURNACE MUST BE INSTALLED ON SITE BY A QUALIFIED HVAC INSTALLER. ALL CONNECTIONS, FITTINGS & INSTALLATION MUST BE IN ACCORDANCE TO THE MANUFACTURERS INSTALLATION INSTRUCTIONS.



- ① NORDYNE M2RC SERIES 90+ CONDENSING GAS FURNACE SHIPPED LOOSE AND INSTALLED BY QUALIFIED HVAC INSTALLER.
- ② UNINSULATED LINDSAY UNIFIED FLOOR SYSTEM
- ③ FACTORY INSTALLED MAIN DUCT. DUCT CONNECTOR LOCATION INDICATED ON MAIN DUCT.
- ④ ELECTRICAL JUNCTION BOX FOR FURNACE. ELECTRICAL HOOK-UP & WIRE STRAPPING DONE ON-SITE PER LOCAL CODE REQUIREMENTS.
- ⑤ HEAT DUCT CONNECTOR PROVIDED BY INSTALLER
- ⑥ AC COIL BOX
- ⑦ PVC OR ABS AIR INTAKE PIPE & FITTINGS PROVIDE BY INSTALLER, STRAP AS REQUIRED.
- ⑧ PVC OR ABS EXHAUST VENT PIPE & FITTINGS PROVIDE BY INSTALLER, STRAP AS REQUIRED.
- ⑨ VERTICAL IRON PIPE GAS LINE WITH SHUT-OFF & SEDIMENT TRAP PROVIDED BY INSTALLER
- ⑩ VENTILAIRE AIR INTAKE DAMPER FACTORY INSTALLED. FLEX HOSE SHIPPED LOOSE.
- ⑪ CONDENSATION DRAIN LINE PROVIDED BY INSTALLER.
- ⑫ 30" X 50" X 18" HIGH RETURN AIR PLAT FORM BY INSTALLER
- ⑬ MIN. 350 SQ. IN. RETURN AIR DUCT SUPPLIED BY INSTALLER
- ⑭ LINEN CABINET REPLACING STANDARD FURNACE LOCATION
- ⑮ MIN. 350 SQ. IN RETURN AIR GRILLE

FIGURE 6.6
BASEMENT INSTALLED GAS FURNACE

Water Heater

On certain installations where the roof jack supplied with the water heater is installed below the peak of the roof, or in areas where high winds occur, a roof jack extension should be installed. Follow the installation instructions provided with the extension pipe. Extension pipes can be ordered from Wick through the Parts Department.

When the home is installed on a basement, be sure to install the extension tube for the temperature and pressure relief valve discharge line. An extension tube and hose clamp is shipped loose with the home. The end of the discharge tube should terminate within approximately 6" of the basement floor and where it will not cause injury or damage to property. If the discharge needs to be routed to a side wall or utility area, do not use 90° elbows that will restrict the flow of water. Instead, route the flow of water through a larger section of drain line attached directly to the factory installed discharge line. Electric water heater tanks must be filled with water before turning on the power to prevent damage to the heating element.



Caution: Make certain no one will be exposed to the danger of coming in contact with the hot water released by the temperature and pressure relief valve. The water could be hot enough to create a scald hazard. The water released should be directed where it will not cause injury or damage. Electric water heater tanks must be filled with water before the power is turned on. If the tank is dry, the heating element will be damaged if energized for even a short period of time.

Furnace

The Furnace Roof Cap and Stack is shipped loose with the home. Install the stack and roof cap according to the manufacturer's instructions. Instructions for installation are provided on a "tag" attached to the equipment. If the home is located at 4,500' or more above sea level, the gas furnace must be de-rated for the altitude. This must be done by a qualified serviceman or licensed technician. Check with the local authorities for further information on the proper method for de-rating the furnace.



Caution: Failure to de-rate the furnace in altitudes of 4,500' or greater can cause the furnace to overheat, operate poorly or cause excessive sooting and/or dangerous levels of carbon monoxide.

Air Conditioner

If the air distribution system has been designed for central air, any equipment installed must not exceed the rating shown on the HUD Data Plate. The electrical system may contain optional factory-installed circuits for air conditioning. The maximum full load ampere draw for the desired unit must not exceed the circuit rating shown. If electrical circuits are not sized for the additional load of non-factory installed air conditioning, a separate outside electrical supply may have to be provided. Local codes will determine the acceptability of the equipment, rating, location of disconnect, circuit protection type, and connections to the equipment. "A" coil units must be compatible and listed for use with the furnace in the home. Follow the manufacturer's instructions. Install heat pumps according to the manufacturer's instructions. Be sure to direct condensation runoff away from the home by connecting a hose to the equipment runoff outlet or by other means specified by the manufacturer.

Section VII – Appliance Preparation

Fireplace

See Figure 7.1

Assemble and seal the fireplace or wood stove chimney per the manufacturer's instructions. Do not cut any roof trusses or floor joists when installing chimney pipes or combustion air intakes.

Fireplaces vented through the roof will require on-site installation of additional section(s) of chimney pipe and spark arrestor and rain cap assembly. To assure sufficient draft for proper operation, extend the finished chimney at least 3' above the highest point where it penetrates the roof, and at least 2' higher than any building or other obstruction located within a horizontal distance of 10'. If the site has obstructions extending higher than the home's roof peak within 10' of the chimney, an additional section of chimney pipe may have to be installed if required by local codes.

Combustion air intake ducts end just below the bottom covering of the floor. The combustion air intake duct must be extended to the outside when the home has a basement or crawl space. These added ducts may be purchased at your local hardware store. The fireplace manufacturer's instructions for installing combustion air ducts are attached to the fireplace. Do not allow the combustion air inlet to drop material from the hearth beneath the home. Locate the inlet damper above the expected snow level. (See Figure 7.1, *Gas or Wood Fireplace Chimney and Air Intake Installation.*)

Clothes Dryer Venting

See Figures 7.2(a) and (b)

The clothes dryer must exhaust to the exterior of the home, or of any perimeter skirting installed around it, through a moisture-lint exhaust system. All required components and fittings are provided with the home. Otherwise, install a flex duct after the home is set up at the site. 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. (See Figure 7.2(a) and (b), *Dryer Venting Methods.*)

Range, Cook Top & Oven Venting

If the home is equipped with a combination range/grill or oven that contains its own exhaust system, route the exhaust so that it does not exit under the home. Connect flexible metallic duct between the elbow protruding from the floor and the termination fitting, and support it according to the manufacturer's installation instructions. For sidewall range hood vents, turn down the clip on the vent damper. Some hoods may have an interior damper control lever. Be sure to show the homeowner its label of instructions.

Refrigerator

Remove the straps, blocks or screws used to secure the refrigerator during transport. Seal penetrations in flooring or wall board as necessary. If the refrigerator is equipped with an automatic ice-maker, check the water lines for loose connections and tighten as necessary.

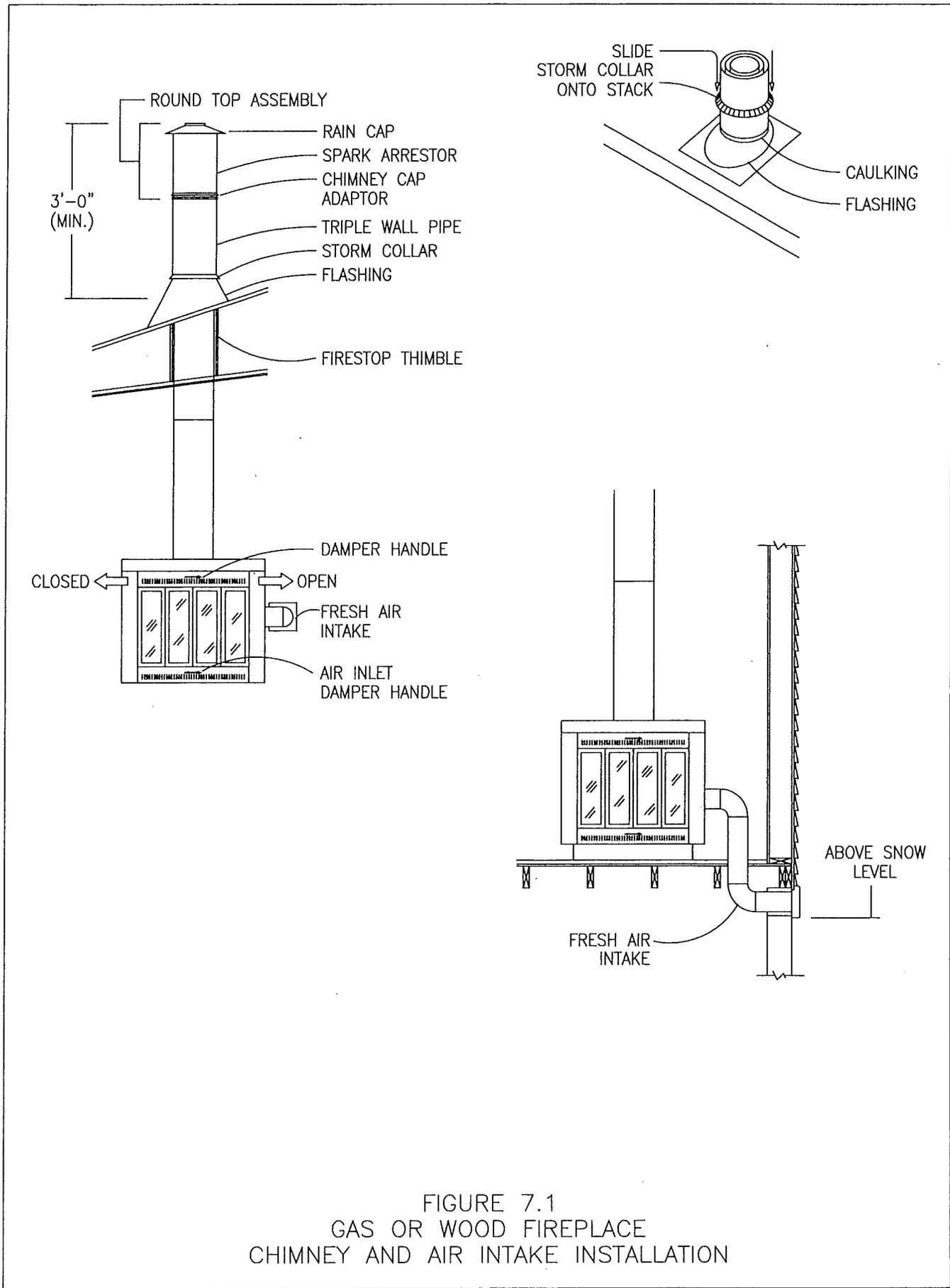


FIGURE 7.1
 GAS OR WOOD FIREPLACE
 CHIMNEY AND AIR INTAKE INSTALLATION

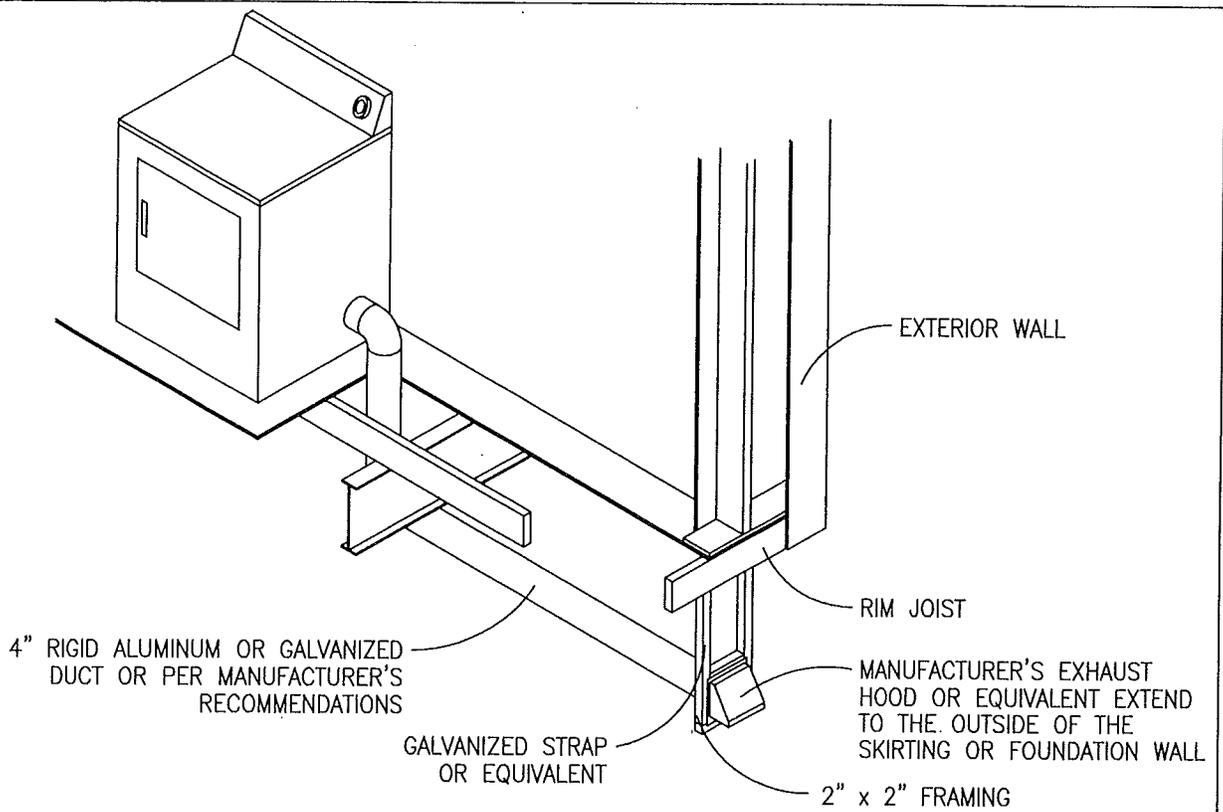


FIGURE 7.2(a)
DRYER VENTING METHODS

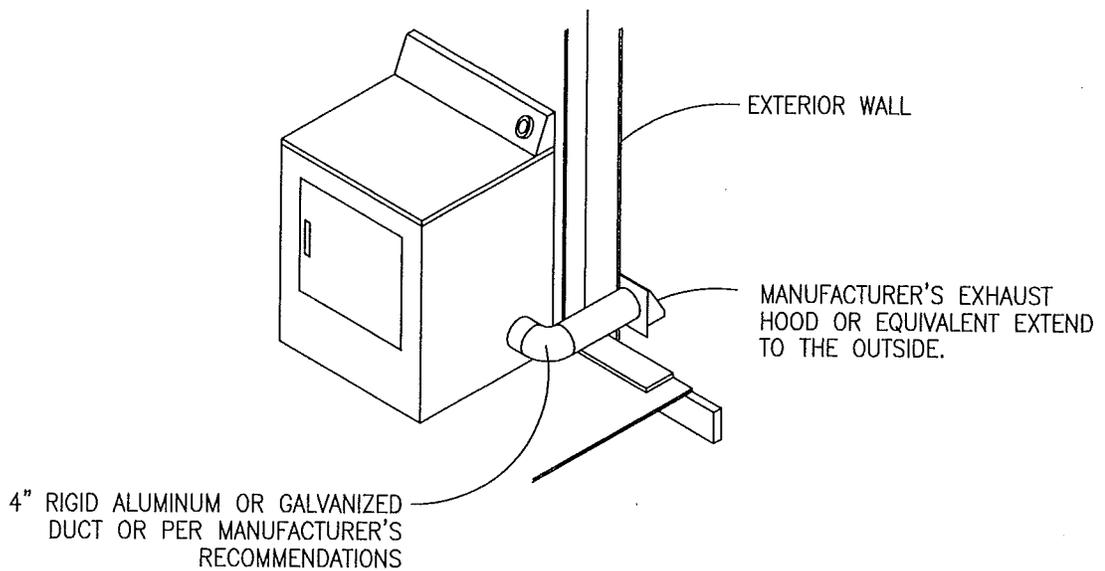


FIGURE 7.2(b)
DRYER VENTING METHODS

Only qualified service personnel, familiar with local codes and licensed where required, should make utility connections and conduct tests. Be sure to consult local, county or state authorities before connecting any utilities.

Water & Drainage Systems

The water and drainage systems in all Wick manufactured homes are tested for leaks prior to shipment from the factory. At the time these systems are connected at the site, or following any move, they must be retested for leaks that might result from vibration experienced during transit of the home. All visible water lines, drain lines and P-traps should be checked to ensure that they are free from leaks. All sinks, basins, tubs and toilets should be checked to verify that they operate properly. The hot and cold water lines should also be checked to verify that they are properly connected to fixtures. If the home is a multi-section, make sure the cross-connections have been completed before you proceed.



Caution: Failure to properly connect and test the water and drainage system could cause damage to the home.

Water System

Maximum Supply Pressure & Reduction

The water system in Wick manufactured homes is designed and intended to operate at pressures not exceeding 80 psi. If the local water supply exceeds 80 psi, a pressure-reducing valve must be installed at the water inlet.

Connection Procedures

The water system can be connected to any safe, reliable source through the 3/4" inlet pipe fitting under the home which is identified by a tag. If an accessible shut-off valve is installed between the water supply and the inlet, it must be a full flow gate or ball valve.

Freezing Protection

In areas where temperatures drop to freezing and below, the water supply should be installed below the frost line, and all exposed sections of the water supply piping, connections, shut-off valves and pressure reducers must be protected from freezing by wrapping with insulation or through the installation of a heat tape.



Caution: Failure to install Heat Tape which is approved for use in manufactured homes could create a fire hazard and cause damage to the home or result in serious injury or fatal accidents.

Section VIII – Utility Systems

Heat Tapes, either automatic or non-automatic, can be used to protect exposed plumbing from freezing. Use only Heat Tapes listed by a nationally recognized testing laboratory for use with manufactured homes. Heat Tapes must be installed in accordance with the manufacturer's instructions.

Automatic Heat Tape

Automatic Heat Tape is approved for installation on all types of water pipe, including non-metallic. Secure it to the pipe, insulate it, and weatherproof it according to the manufacturer's instructions.

Non-automatic Heat Tape

Non-automatic Heat Tape may not be approved for non-metallic pipe unless it is left exposed with no outer wrap of insulation.

Testing Procedures

Even though the water system was tested at the factory, it must be checked and tested again for leaks at the installation site. Before testing, close all water faucets, spigots, and stool tank float valves, and use one of the following procedures to test the water system:

Hydrostatic Test

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

Pneumatic Test

Hook the cold inlet and hot outlet lines on the hot water tank together. Connect an air pump and pressure gauge to the water inlet and pressurize the system to 100 psi. Isolate the pressure source from the system. The gauge must stand for at least 15 minutes with no drop in pressure. Locate and correct any leaks indicated by bubbles from soapy water, repeating the procedure until all have been eliminated. Reconnect the water heater and the water supply.



Caution: When using the Pneumatic water test procedure, you must bypass the hot water tank by hooking its cold inlet and hot outlet lines together. Failure to do so could cause damage to the water heater or injury to those involved in the test.

Drainage System

Piping from the outlet to the site connection of the drainage system must be installed with sufficient slope and it must be suitably supported to prevent the possibility of water standing in the pipe. If the home is a multi-section, make sure the cross connection has been completed before you proceed.

Connection Procedures & Proper Slopes

Materials and instructions to complete the drainage system may be shipped loose with the home if portions were not completed at the factory. Assemble the drainage system following the specific instructions and diagrams provided. Start at the most remote end and work toward the outlet, supporting the piping with temporary blocking to achieve the proper slope. Drain lines must slope at least 1/4" fall per foot of run. Use a plumber's level to check for proper slope. When a clean-out is installed at the upper end of the run, 1/8" fall per foot is allowed. Connect the main drain line to the site sewer hookup using an approved elastomer coupler. When the entire system has been completed, install permanent drain line supports at 4' O.C. (See Figure 8.1, *Drain Pipe Slopes & Connections*, and Figure 8.2, *Connection to Sewer*.)

See Figures
8.1 and 8.2

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.

Protection from Freezing

Wick has insulated fittings in the drainage system subject to freezing, such as P-traps in the floor. Be sure to replace this insulation if removed during assembly or testing. Wick recommends insulating drain lines installed below the bottom board in areas subject to extreme freezing temperatures.

Drainage System Testing

Even though the drainage system was tested at the factory, it must be checked again for leaks before making the final connection to the site sewer.

Section VIII – Utility Systems

Gas Supply System

All Wick manufactured homes are shipped natural gas ready. Special orifices and regulators are required for the use of LP gas and/or at altitudes above 3,000 feet. See the instructions accompanying each gas burning appliance for modifications. Before making any connection to the site supply, check the inlet orifice to all gas appliances to ensure they are correctly set up for the type of fuel to be supplied. If the home is a multi-section, make sure the cross-connection of the gas system has been completed before you proceed.

Note: When LP gas will be utilized for the fuel supply, use only LP gas or butane cylinders or “bottles” bearing the approval marking of either the U.S. Department of Transportation (DOT) or the American Society of Mechanical Engineers (ASME). DOT cylinders are acceptable in most states. Consult with your local LP gas supplier for requirements in your state concerning the proper cylinder to use.

Proper Supply Pressure

All Wick manufactured homes are designed for a gas supply pressure range of not greater than 14" of water column. For natural gas systems, the incoming gas pressure should remain between 6" and 8" of water column. For LP gas systems, the pressure should lie between 12" and 14" of water column.

Gas Conversions

All gas fueled appliances must be carefully adjusted to accommodate the type of fuel being used by installing the proper orifice for the appliance. Orifices are attached to each appliance and should be installed in accordance with the instructions provided by the appliance manufacturer.



Caution: Failure to properly adjust or convert a gas fueled appliance to accommodate the type of fuel being used could cause damage to the home or result in serious injury or fatal accidents.

Testing Procedures

The gas supply systems in all Wick manufactured homes are tested for leaks prior to shipment from the factory. The gas supply system must be retested at the time the system is connected to the main supply at the site for leaks or loose connection that might result from vibration experienced during transit. Prior to connections to the main gas supply, conduct one of the following two tests when the air and piping temperatures are nearly equal and will remain stable.



Caution: Failure to properly test the gas supply system, including the incoming fuel lines, connections, and appliance valves and controls, could cause damage to the home or result in serious injury or fatal accidents.

Piping Only Test

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

System Test

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 gas inlet. Pressurize the system with air to at least 6 oz. Check all gas shut-off valves and flex line connections to valves and appliances for leaks, using soapy water or bubble solution. Repair any leaks found and retest. Close all equipment shut-off valves upon completion of test.

Note: Do not bubble check brass fittings with solutions containing ammonia.

Note: The instructions for testing the gas system are printed on a tag near the gas supply inlet.

Note: Some local jurisdictions or utility companies may have additional requirements for testing the gas supply system. You must consult with the proper authorities for any other testing requirements in your area.

Connection Procedures

Before making any connection to the site supply, inspect all gas-fueled appliance vents to ensure they have been connected to the appliances and make sure that roof jacks and stacks have not come loose during transit or they are properly installed if they were not installed at the factory. The gas system should only be connected to the gas supply by an authorized representative of the gas company.

Note: Wick hinged roofs may require on-site installation of stacks and roof jacks.

Gas Appliance Start-Up

One at a time, open each equipment shut-off valve, light pilots and adjust burners according to each appliance manufacturer's instructions. Check the operation of the furnace and water heater thermostats and set them to the desired temperatures.



Caution: Before lighting the pilot on the water heater, you must fill the tank with water. Failure to do so could cause damage to the water heater.

Section VIII – Utility Systems

Oil Systems

Oil may be used as a fuel supply for heating. If oil is used, an adequate supply must be readily available, either through an individual oil storage tank located adjacent to the home or through a centralized oil distribution system which is now found in many manufactured home parks. Homes equipped with oil-burning furnaces must have their oil supply tank and piping installed on site. These items are not supplied by Wick. Consult the oil furnace manufacturer's instructions for proper pipe sizing and installation procedures.

When oil is used as fuel, all connections, testing and adjustment of oil tanks, lines and controls must be performed in accordance with the instructions provided by the manufacturer of the furnace.



Caution: Failure to properly connect, test, and adjust oil tanks, lines, connections, and controls could cause damage to the home or result in serious injury or fatal accident.

Tank Installation Requirements

Unless the home is installed in a community with a centralized oil distribution system, you must install an oil storage tank outside the home. Locate the tank where it is accessible for service and supply and safe from fire and other hazards. All oil storage tanks and piping must meet applicable local regulations and should only be installed by experienced, qualified service technicians.

Gun (Pump-Fed) Furnaces

Wick furnaces using oil as fuel supply are pump-fed type. Since the furnace includes a fuel pump, the tank may be installed above or below ground. For tanks installed below ground, do not exceed the lifting capacity of the pump, and extend the filler neck 1 foot above grade and provide a 13" diameter minimum vent pipe extending at least 2' above grade.

Sloping and Draining Requirements

Install the tank to provide a gradual slope toward the fill end or drain plug. This will facilitate pumping or draining of water or sludge, when necessary.

Shut-Off Valve & Fuel Line Filter

A readily accessible and approved manual shut-off valve must be installed at the outlet of the oil supply tank, and an approved oil filter or strainer must be installed in the oil line downstream from the shut-off valve. The oil filter must contain a drain for the entrapment and disposal of any water in the oil supply.

Leak Test Procedure

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

Electrical Power Supply

The design of the electrical system in all Wick manufactured homes complies with the requirements of the National Manufactured Home Construction and Safety Standards (HUD Code) and the applicable sections of the National Electrical Code (NEC). All service equipment and electrical connections must meet the requirements of these codes and be installed by a qualified electrician who is familiar with them.



Caution: Failure to comply with the applicable electrical codes in the installation of service equipment and connection of the electrical power supply could result in serious injury, fatal accidents and/or damage to the home.

An electrical power supply large enough to meet the needs of the home must be available at the site. The current rating of the home (in amperes) can be found on a tag located outside the home next to the feeder or service entrance, and on the electrical distribution panelboard. If the home is a multi section or includes a tag unit, make sure you have completed the electrical cross connections and bonding of the frames before you proceed.



Caution: Failure to provide the proper size power supply for the home could result in improper operation of and/or damage to motors and appliances. If the home is a multi section or includes a tag unit, be sure to complete the electrical cross connections and bonding of the frames before supplying power to the home.

Rating of House Wiring

All Wick manufactured homes are equipped for 100 amp service or greater and designed for connection to an electrical wiring system rated at 120/240 Volt AC. The connection will be a "feeder" type requiring wiring at the site. All wiring must be U.L. listed. Conductors and raceways are sized for copper 4-wire service. The following paragraphs describe the wiring and grounding of the electrical feeders. Consult the current National Electrical Code, Section on Manufactured Homes, for further information.

Feeder Conductors

The label on the electrical distribution panelboard gives the feeder current capacity in amperes. The ampere rating of the service panel must not exceed the power supply assembly rating. The provisions of the NEC require Manufactured Home feeder conductors to be a permanently installed feeder consisting of a listed cord or four color-coded insulated conductors that must be identified in accordance with the National Electric Code. Do not use a three-wire feeder system that does not connect to the ground bar in the electrical distribution panelboard.



Caution: Manufactured Home feeder conductors must consist of four insulated color-coded conductors identified in accordance with the National Electrical Code. Do not use a three-wire feeder system that does not connect to the ground bar. The neutral and ground must be kept separate. Failure to use the proper feeder system could cause damage to the home or result in serious injury or fatal accidents.

Section VIII – Utility Systems

Service Entrance Equipment (Meter Base)

See Figure 8.3

Wick does not supply the service entrance equipment (meter base). All equipment provided must be weatherproof, and conductors must be suitable for use in wet locations. The meter base must be free-standing and cannot be attached to the home. (See Figure 8.3, *Typical Meter Base Connection*.)



Caution: The Service Entrance Equipment (Meter Base) for manufactured homes must be free-standing and cannot be attached to the home. Failure to properly install the Service Entrance Equipment (Meter Base) could cause damage to the home or result in serious injury or fatal accidents.

Electrical Panelboard Grounding

See Figure 8.3

The electrical distribution panelboard in the home is wired with the grounding system insulated from the neutral system. Both the electrical and non-electrical metal parts of the home must be grounded properly through the ground bar. Neither the frame of the home nor the frame of any appliance shall be connected to the grounded circuit conductor (neutral) in the home.

The neutral (white) conductor must not be connected to the equipment ground. Insulate the grounded circuit conductor (white wire) from the grounding conductors (green wires) and from equipment enclosures and other grounded parts. Insulate neutral circuit terminals in the distribution panelboard, and in ranges, clothes dryers, and counter-mounted cooking units, from the equipment enclosure. Bonding screws, straps, or buses in the distribution panelboard or in appliances must be removed and discarded. This is typically already done at the manufacturing facility. (See Figure 8.3, *Typical Meter Base Connection*.)

Note: Grounding is not required on the inlet of a non-metallic water system or on plumbing fixtures such as tubs, faucets, shower risers and metal sinks when they are connected only to non-metallic water and drain piping.



Caution: Never use the neutral conductor of the feeder cable as a ground wire. Do not ground the neutral bar in the electrical distribution panel. Failure to properly ground the electrical system could cause damage to the home or result in serious injury or fatal accidents.

Meter Base Grounding

See Figure 8.4

Wick does not supply the grounding electrode or conductor(s). The grounding electrode should be either ½" diameter stainless steel, copper clad steel or copper rod, ¾" diameter galvanized pipe or conduit, or 5/8" diameter iron or steel rods. The electrode shall be installed so that at least 8 ft. of length is in contact with the soil and driven to a depth of not less than 8 ft. except that, where rock bottom is encountered, the electrode shall be driven at an oblique angle not to exceed 45° from the vertical or shall be buried in a trench that is at least 2½ ft. deep. The upper end of the electrode shall be flush with or below ground level unless the above ground end and the grounding electrode conductor attachment are protected against physical damage. Connect the grounding conductor wire to the grounding electrode with a grounding clamp. (See Figure 8.4, *Suggested Meter Base Grounding Method*.)

Connection Procedures

All Wick manufactured homes come with an under-the-floor entrance with a permanently attached conduit raceway that runs from the electrical distribution panelboard to a point under the floor. Install properly sized conductors from the main power supply to the distribution panelboard. Determine the required feeder size using Table 8.1. Protect conductors emerging from the ground from a minimum of 18" below grade to 8' above grade, or to the point of entrance to the home. The distance measured from the top surface of a buried cable, conduit or raceway to the finished grade must meet minimum burial requirements outlined in the National Electrical Code. Use a moisture-proof bushing at the end of the conduit from which the buried cable emerges. (See Table 8.1, *Electrical Wire Feeder & Junction Box Size*, and Figure 8.3, *Typical Meter Base Connection*.)

See Table 8.1
and Figure 8.3

System Testing & Equipment

The electrical system in all Wick manufactured homes is inspected and tested prior to shipment from the factory. Before the electrical system is connected to the main power supply, the following tests must be conducted using approved testing equipment.

Pre-Connection Tests

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

Circuit Conductor Continuity Test

Conduct a continuity test by placing all branch circuit breakers and switches controlling individual outlets in the ON position. This 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.

Grounding Continuity Test

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 gas lines
- Metal ducts (except foil covered insulated ducts)
- Frame of the home

Section VIII – Utility Systems

Post-Connection Tests

Conduct the following tests after the electrical system has been connected to the main electrical power supply. Turning on the main circuit breaker and each individual circuit breaker, test as follows.



Caution: If the water heater is electric, be sure it is filled completely before activating the water heater circuit. Failure to do so could cause damage to the heating element.

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 reverse polarity, open grounds or shorts, and correct as necessary.

Ground Fault Circuit Interruption (GFCI)

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

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.

NOTE:

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

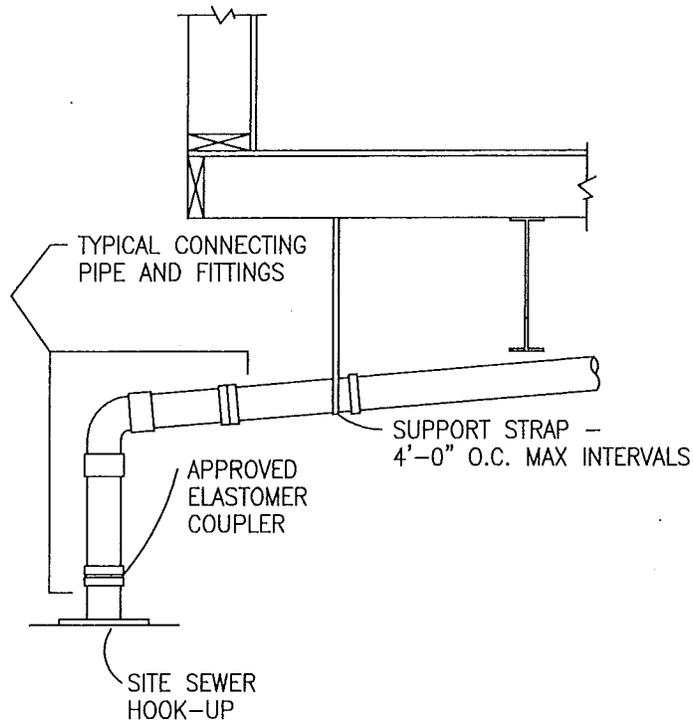


FIGURE 8.1
CONNECTION TO SEWER

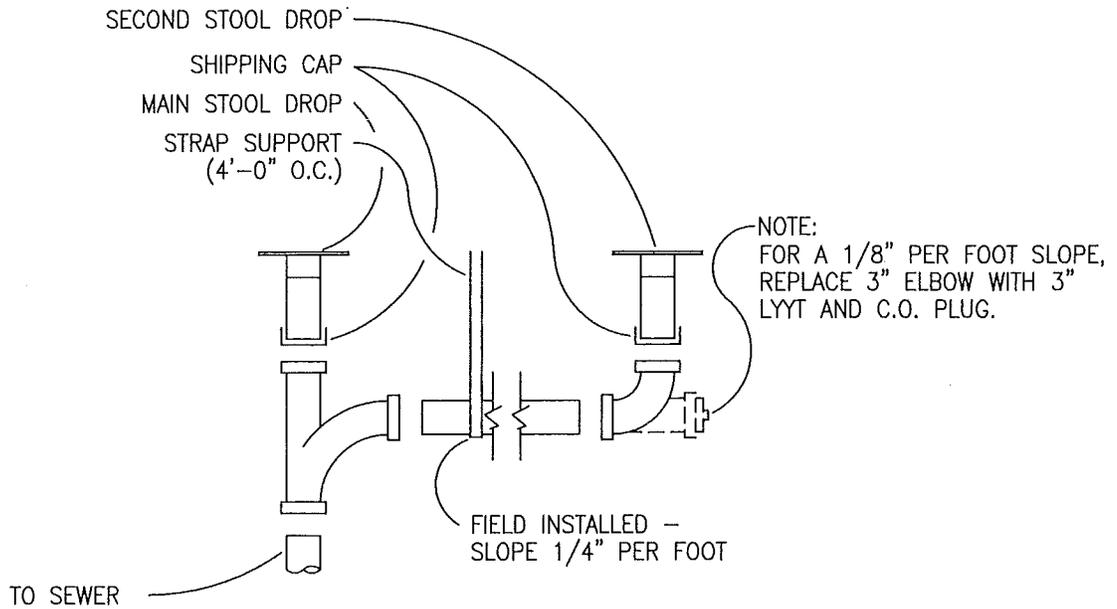
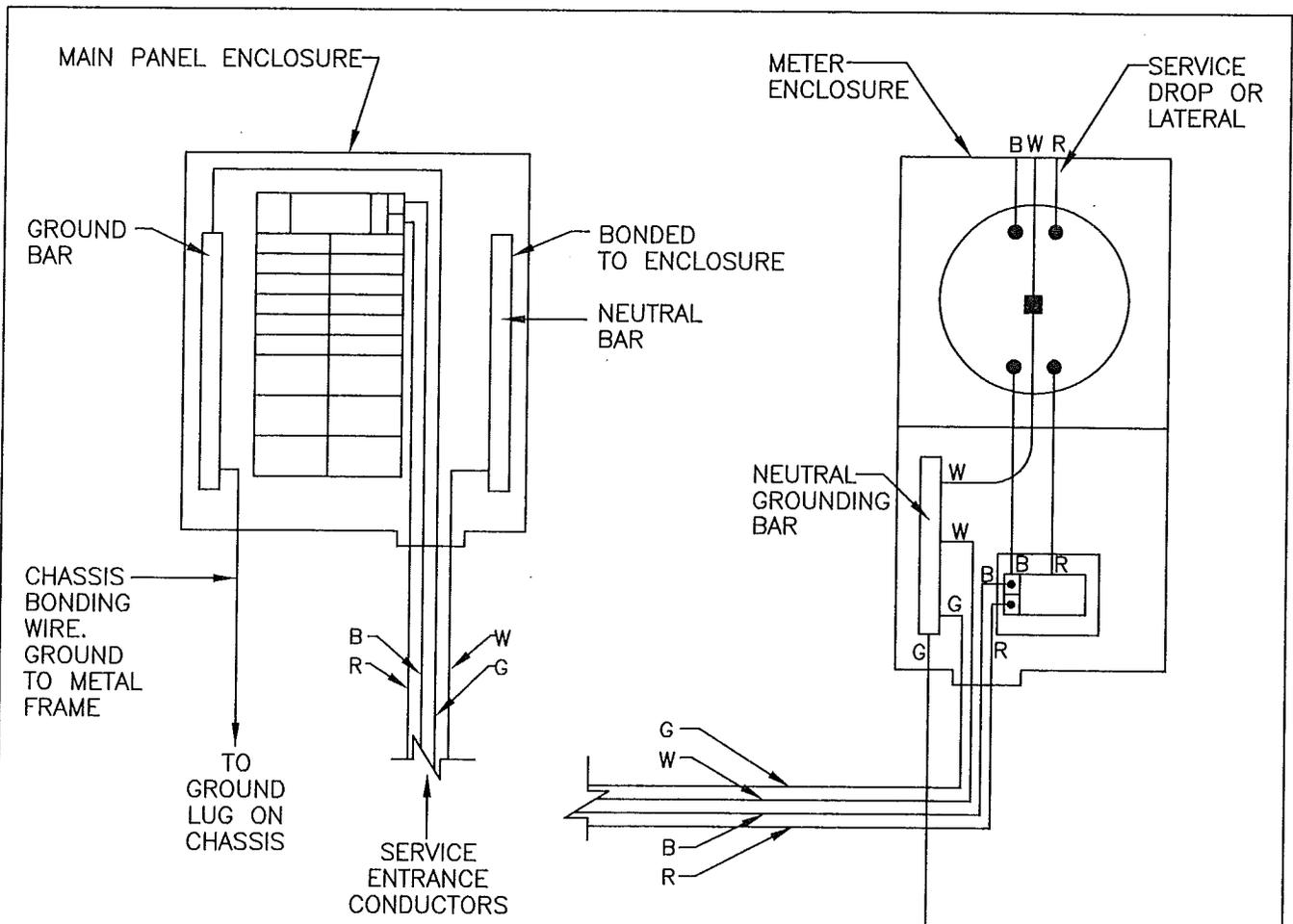


FIGURE 8.2
DRAIN PIPE SLOPES AND CONNECTIONS



W - WHITE = NEUTRAL
 B - BLACK = POWER
 R - RED OR BLACK = POWER
 G - GREEN = GROUND

RUN ALL FOUR INSULATED WIRES IN CONDUIT TO CONDUIT IN HOME

CAUTION!
 MANUFACTURED HOME FEEDER CONDUCTORS SHALL CONSIST OF FOUR CONTINUOUS, INSULATED, COLOR-CODED CONDUCTORS THAT SHALL BE IDENTIFIED BY FIELD MARKING OF THE CONDUCTORS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLE 550. DO NOT USE A THREE-WIRE FEEDER SYSTEM THAT DOES NOT CONNECT TO THE GROUND BAR.

BE SURE TO KEEP THE NEUTRAL AND GROUND SEPARATE.

SEE TABLE 8.1 FOR PROPER WIRE SIZES.

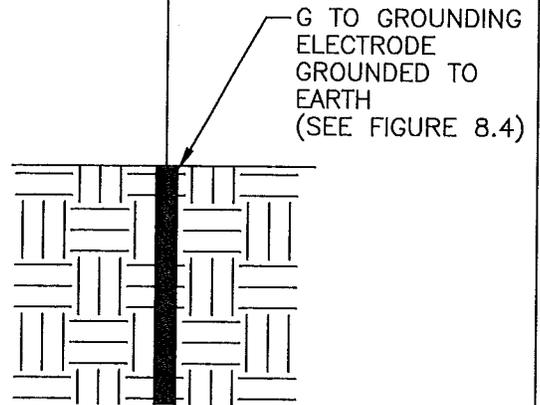
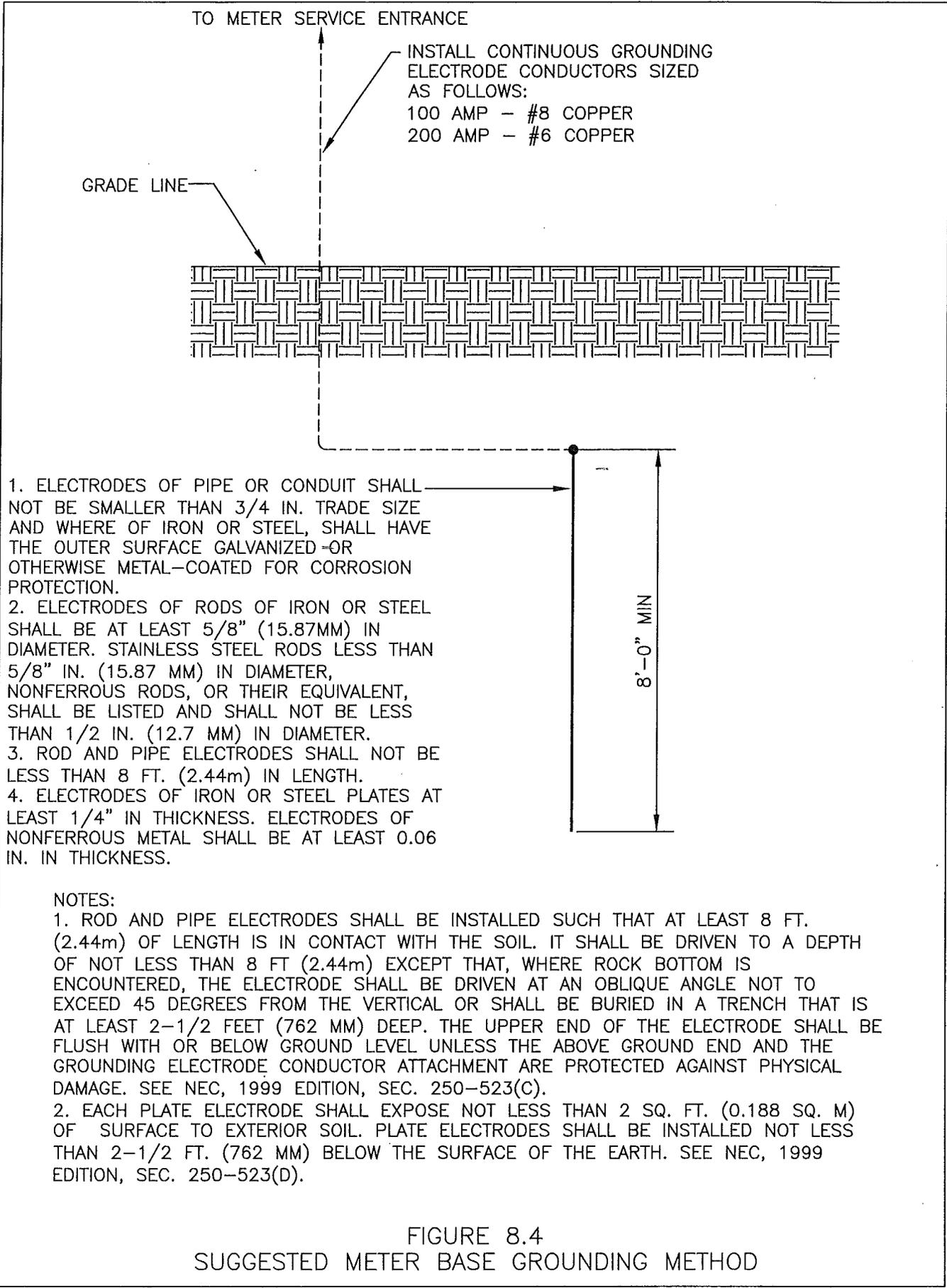


FIGURE 8.3
 TYPICAL METER BASE CONNECTION



**TABLE 8.1
ELECTRICAL WIRE FEEDER & JUNCTION BOX SIZE**

Main Breaker (Service) Size (AMPS)	Conductor Size (AWG)*		Grounding Conductor Size (AWG)		Factory Installed Feeder Raceway Trade Size (in.)*	Minimum Junction Box Size
	CU	AL	CU	AL		
100	#4	#2	#8	#6	1½"	12"x12"x4"
200	#2/0	#4/0	#6	#4	2"	16"x16"x4"

NOTE:

*Conductor size and feeder raceway sized for 75 C. rated conductors, types RH, RHH, RHW, without outer covering, THW or XHHW, two line and one neutral.

Awnings & Carports

When carports are installed, they must be free-standing with columns to support their own weight and separation as required by state or local building codes. The roof of the adjacent structure must not exceed the height of the roof of the home. Flash roof line valleys as necessary to prevent damage from rain water.

Breezeways

All breezeways must be designed and constructed according to applicable state and local building codes. Among other things, this is very important for fire safety reasons. For example, the access doors to be breezeway from the home and/or the garage may need to be approved fire-rated doors. Certain walls may need to be fire rated, and GFI protected receptacles will be required under certain conditions. Requirements may vary, so you must consult with the proper building authorities. Breezeways may be attached to the home, but the breezeway structure must be designed to support its own loads, and the roof connections and valleys must be properly flashed to prevent damage from rainwater.



Caution: Failure to follow state and/or local building codes with respect to design and construction of breezeways could cause damage to the home or result in serious injury or fatal accidents.

Garages

Garages that will be attached to the home or located near it must be designed and constructed according to applicable state and/or local building codes. This is very important for both electrical and other fire safety reasons. For example, if the garage is attached to the home, an approved firewall must be located between the home and the garage. The access door(s) between the home and the garage must be fire-rated as well. If the garage is not attached to the home, typically the distance between the home and garage will determine the fire safety measures that must be taken. For example, in Wisconsin, if the garage is located less than five (5) feet from the home, there are specific fire safety precautions that must be followed. Requirements may vary, so you must consult with the proper building authorities. In all cases, garages must be designed to support their own weight and electrical circuits must be provided with approved ground fault interruption.



Caution: Failure to follow state and/or local building codes with respect to electrical and other fire safety precautions in the design and construction of garages, both attached and detached, could cause damage to the home or result in serious injury or fatal accidents.

Section IX – Accessory Structures

Porches, Decks & Railings

Site constructed porches, decks and railings must be designed and constructed to meet the requirements of applicable local building codes. Porches and decks must be designed to support their own weight and approved ground fault interruption must be provided in electrical circuits, if any.

Steps, Stairways and Landings

Site constructed steps, stairways and landings must be designed and constructed to meet the requirements of applicable local building codes.

Telephone, Cable Television & Satellite Dishes

The walls and floors of all Wick manufactured homes contain electrical wiring and plumbing lines. Extreme caution must be used to prevent contact with or damage to these systems when installing communication cables in homes that do not have factory installed telephone and cable TV jacks. This type of work should only be performed by trained and qualified personnel.

Section X

Anchoring Procedures

The home must be secured against high winds after blocking and leveling has been completed. All anchoring equipment used to secure the home must be certified by a professional engineer, architect or nationally recognized testing lab as to resistance based on the maximum angle of diagonal tie and/or vertical tie loading, the angle of anchor installation, and the type of soil in which the anchor is to be installed.

The general requirements for securing the home against damage from high winds are provided in the instructions, drawings, and specifications that follow. Please be sure to consult with the proper local authorities to determine if there are requirements for anchoring in your area.

General Requirements for Anchoring Systems

- Anchoring equipment must be certified by a registered professional engineer or architect as to resistance based on the installed angle of diagonal tie and/or vertical tie loading and angle of anchor installation and the type of soil in which the anchor is installed.
- Ground anchors must be embedded below the frost line and be at least 12" above the water table. Ground anchors should be installed to their full depth. Stabilizer plates should be installed to provide added resistance to overturning or sliding forces.
- Manufactured homes in Wind Zone I require diagonal frame ties placed along the main frame and below the outer sidewalls. In addition, longitudinal frame ties must be located on each I-beam, front and rear. Diagonal frame ties should be as evenly spaced as practicable along the length of the manufactured home with no more than two (2) feet open-end spacing on each end. Longitudinal frame ties should be placed at or near the first crossmember connection to the main I-beam.
- Protection shall be provided at sharp corners where the anchoring system requires the use of external straps or cables and to minimize damage to siding by the cable or strap.
- Anchoring equipment must be capable of resisting an allowable working load equal to or exceeding 3,150 lbs. and shall be capable of withstanding a 50% overload (4,725 lbs. total) without failure of either the anchoring equipment or the attachment point on the manufactured home.
- Anchoring equipment exposed to weathering shall have a resistance to weather deterioration at least equivalent to that provided by a coating of zinc on steel of not less than 0.30 ounces per square foot of surface coated, and in accordance with the following: (1) Slit or cut edges of zinc-coated steel strapping do not need to be zinc coated; and (2) Frame tie strapping material must be Type 1, Finish B, Grade 1 steel strapping, 1¼" wide and 0.035" in thickness and certified by a registered professional engineer or architect as conforming with ASTM Standard Specification D3953-91, Standard Specification for Strapping, Flat Steel, and Seals. The number of frame ties required varies with the length of the home.

Section X – Anchoring Procedures

Diagonal Frame Ties

Tie-Down Spacing

See Figure 10.1

If the home has a roof pitch of 4.3/12 or less, refer to the chart contained in Figure 10.1 to determine the maximum spacing of diagonal frame ties. A diagonal frame tie must be located no more than 2'-0" from each end of the I-beams. Space all other ties as shown in Figure 10.1. [See Figure 10.1, *Recommended Tie-Down System – Diagonal Frame Ties (Roof Pitch 4.3/12 or Less)*.]

See Figure 10.2

If the home has a roof pitch greater than 4.3/12, refer to the chart contained in Figure 10.2 to determine the maximum spacing of diagonal frame ties. A diagonal frame tie must be located no more than 2'-0" from each end of the I-beams. Space all other ties as shown in Figure 10.2 [See Figure 10.2, *Recommended Tie-Down System – Diagonal Frame Ties (Roof Pitch Greater than 4.3/12)*.]

See Figure 10.3

If the home has a "clerestory" roof design, refer to the chart contained in Figure 10.3 to determine the maximum spacing of diagonal frame ties. A diagonal frame tie must be located no more than 2'-0" from each end of the I-beams. Space all other ties as shown in Figure 10.3. [See Figure 10.3, *Recommended Tie-Down System – Diagonal Frame Ties (Clerestory Roof Design)*.]

See Figures
10.9 & 10.10

For tag units, diagonal frame ties must be located at 10'-0" O.C. maximum spacing. A diagonal frame tie must be located no more than 2'-0" from each end of the I-beams. (See Figure 10.9, *Recommended Tie-Down System – Single Section with Tag Unit* and Figure 10.10, *Recommended Tie-Down System – Multi Section With Tag Unit*.)

Tie-Down Installation

Note: See Figures 10.4(a) and (b) for methods in common use and effective for securing the home against high winds. These illustrations are general anchoring methods. Be sure to consult with your local building authority for other appropriate or required methods.

Step 1.

See Figure
10.4(a)

Determine the location of frame ties required as described above. Install single-headed ground anchors and frame ties at the required tie-down locations with the anchor under the perimeter of the home. Do not tighten! (See Figure 10.4(a), *Tie-Down Attachment Details, Diagonal Frame Ties*.)

Step 2.

See Figure
10.4(b)

If the home is equipped with optional over-the-roof ties, install a separate ground anchor under the rim of the home on each side of the home. Anchors may be inset from the exterior line of the home to accommodate skirting installation. Connect the over-the-roof ties to the anchors. Do not tighten! (See Figure 10.4(b), *Tie-Down Attachment Details, Over-The-Roof Ties*.)

Step 3.

With one man on each side of the home, start at the front of the home and simultaneously tighten straps on both sides.



Caution: Straps must be tightened simultaneously on both sides to prevent the home from pulling off its piers. Do not tighten straps on one side at a time.

Longitudinal Frame Ties

Tie-Down Spacing

A longitudinal frame tie must be located at or near the first crossmember connection to the main I-beam, front and rear, or each unit I-beam if a multi section home. [See Figure 10.5, *Recommended Tie-Down System – Longitudinal Frame Ties, Single Section Homes*, Figure 10.6, *Recommended Tie-Down System – Longitudinal Frame Ties, Multi Section Homes (Roof Pitch 4.3/12 or Less)* and Figure 10.7, *Recommended Tie-Down System – Longitudinal Frame Ties, Multi Section Homes (Roof Pitch Greater Than 4.3/12)*.]

See Figures 10.5,
10.6 & 10.7

For tag units, one (1) longitudinal frame tie must be located at each end of the unit. The ties may be located anywhere along the length of the unit so long as the strap directions are opposite from each other. (See Figure 10.9, *Recommended Tie-Down System – Single Section With Tag Unit* and Figure 10.10, *Recommended Tie-Down System – Multi Section With Tag Unit*.)

See Figures
10.9 & 10.10

Tie-Down Installation

Note: See Figure 10.8 for methods in common use and effective for securing the home against high winds. This illustration is a general anchoring method. Be sure to consult with your local building authority for other appropriate or required methods.

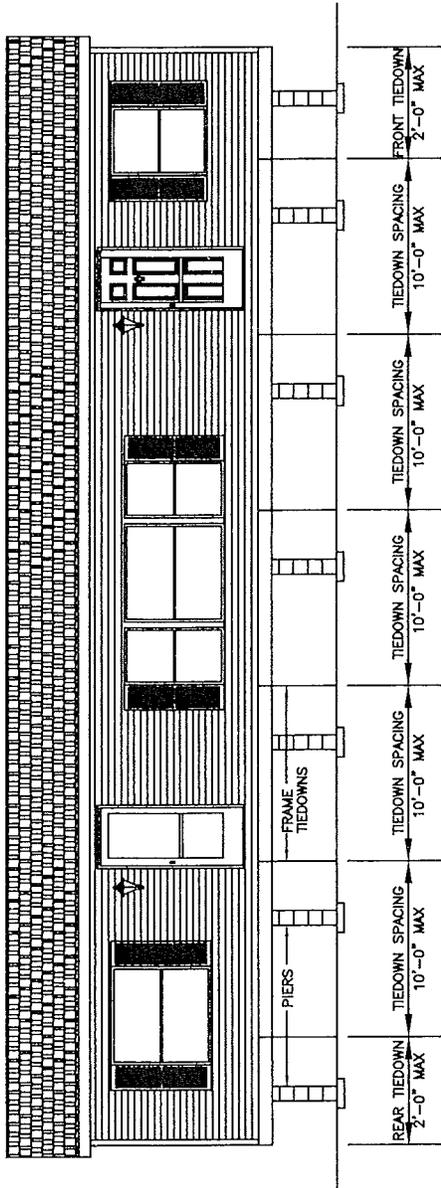
Select a crossmember where piers do not interfere with the required angle of the strap. Install the strap just inside the main beams looped around the crossmember and tie to an anchor located directly under the main beam at the angle specified. If the angle cannot be obtained, install the anchor with an approved stabilizing plate. (See Figure 10.8, *Tie-Down Attachment Details, Longitudinal Frame Ties*.)

See Figure 10.8

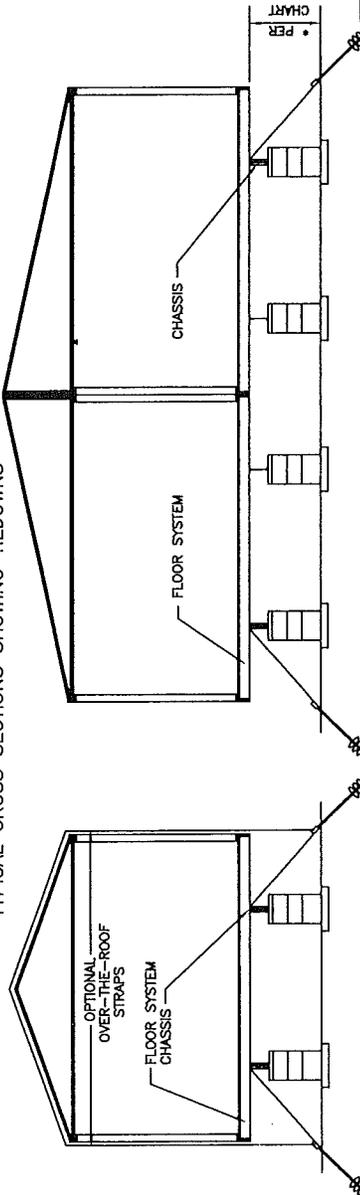
Section X – Anchoring Procedures

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TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



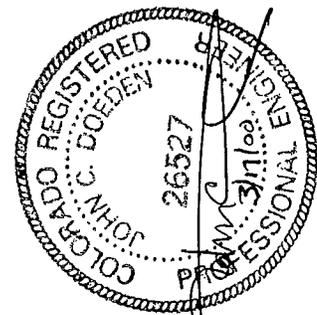
TYPICAL CROSS SECTIONS SHOWING TIEDOWNS



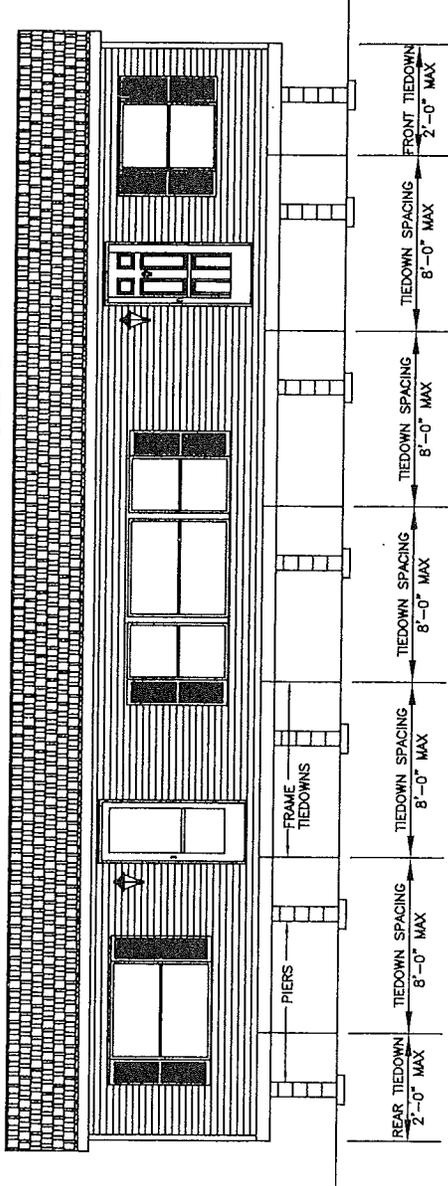
- NOTES:
1. WIND ZONE 1 DESIGN (15 PSF LATERAL).
 2. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT PER CHART.
 3. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS UNLESS REQUIRED BY THE LOCAL JURISDICTION.
 4. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
 5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY WICK. ALL OTHER ANCHORING EQUIPMENT SUPPLIED BY OTHERS.
 6. PLACEMENT OF FRAME TIEDOWN STRAPS AND ANCHORS MAY BE OFFSET UP TO FOUR FEET TO ALLOW ALIGNMENT WITH OVER-THE-ROOF STRAPS PROVIDED NO DECREASE IN THE TOTAL NUMBER OF FRAME TIEDOWNS RESULTS.
 7. 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.
 8. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL SLIT OR CUT EDGES DO NOT NEED TO BE ZINC COATED.
 9. 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.
 10. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND SHALL BE INSTALLED TO THEIR FULL DEPTH. 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 D3953-91. *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 0.035 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*.

FRAME TIEDOWN SPACING CHART				
WALL HEIGHT	FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	* MAXIMUM PIER HEIGHT (INCLUDES DEPTH OF BEAM)
8'-0" MAX	13'-8" SINGLE 15'-6" SINGLE 27'-4" DOUBLE 30'-4" DOUBLE	3" MAX 3" MAX 24" MAX 10" MAX	10'-0" 10'-0" 10'-0" 10'-0"	46" 60" 46" 56"
9'-0" MAX	13'-8" SINGLE 15'-6" SINGLE 27'-4" DOUBLE 30'-4" DOUBLE	3" MAX 3" MAX 24" MAX 10" MAX	10'-0" 10'-0" 10'-0" 10'-0"	32" 50" 38" 46"

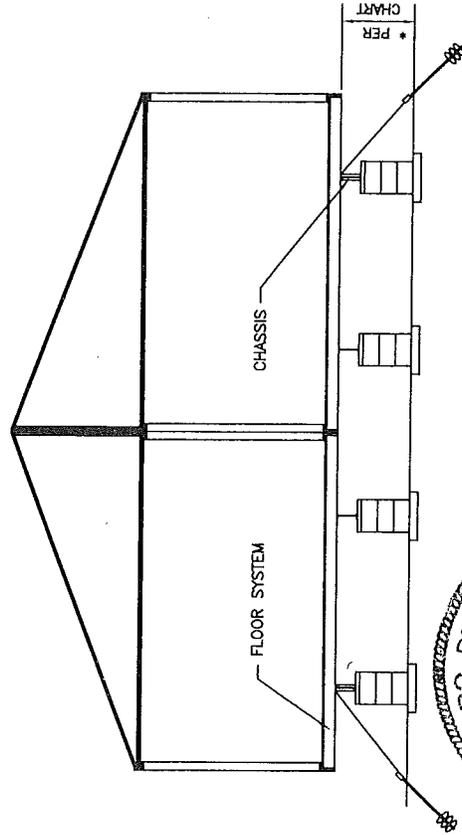
FIGURE 10.1
RECOMMENDED TIEDOWN SYSTEM
DIAGONAL FRAME TIES
(ROOF PITCH 4.3/12 OR LESS)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



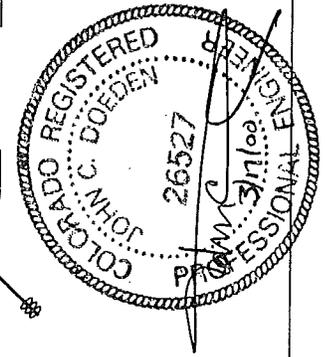
TYPICAL CROSS SECTION SHOWING TIEDOWNS



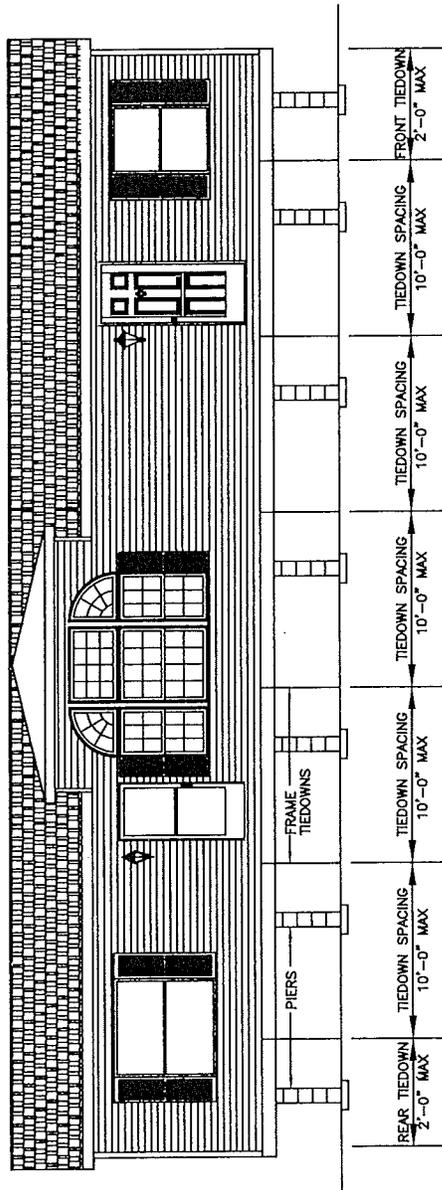
- NOTES:
1. WIND ZONE 1 DESIGN (15 PSF LATERAL).
 2. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT PER CHART.
 3. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS UNLESS REQUIRED BY THE LOCAL JURISDICTION.
 4. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
 5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY WICK. ALL OTHER ANCHORING EQUIPMENT SUPPLIED BY OTHERS.
 6. PLACEMENT OF FRAME TIEDOWN STRAPS AND ANCHORS MAY BE OFFSET UP TO FOUR FEET TO ALLOW ALIGNMENT WITH OVER-THE-ROOF STRAPS PROVIDED NO DECREASE IN THE TOTAL NUMBER OF FRAME TIEDOWNS RESULTS.
 7. 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.
 8. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL. SLIT OR CUT EDGES DO NOT NEED TO BE ZINC COATED.
 9. 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.
 10. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND SHALL BE INSTALLED TO THEIR FULL DEPTH. 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 D3953-91, "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 0.035 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".

FRAME TIEDOWN SPACING CHART				
WALL HEIGHT	FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	* MAXIMUM PIER HEIGHT (INCLUDES DEPTH OF BEAM)
8'-0" MAX	27'-4" DOUBLE 30'-4" DOUBLE	24" MAX 10" MAX	8'-0" 8'-0"	40" 46"

FIGURE 10.2
RECOMMENDED TIEDOWN SYSTEM
DIAGONAL FRAME TIES
(ROOF PITCH GREATER THAN 4.3/12)



TYPICAL SIDE ELEVATION SHOWING TIEDOWN SPACINGS



TYPICAL CROSS SECTIONS SHOWING TIEDOWNS

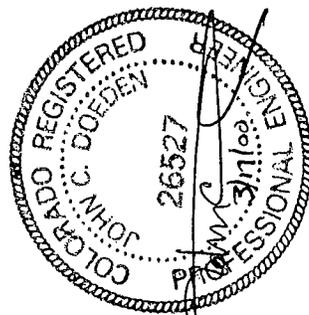
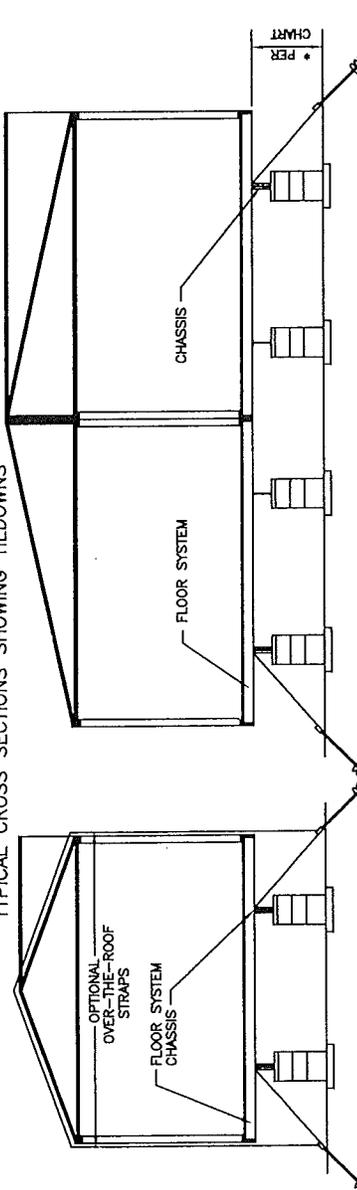


FIGURE 10.3
RECOMMENDED TIEDOWN SYSTEM
DIAGONAL FRAME TIES
(CLERESTORY ROOF DESIGN)

NOTES:

1. WIND ZONE 1 DESIGN (15 PSF LATERAL).
2. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT PER CHART.
3. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS UNLESS REQUIRED BY THE LOCAL JURISDICTION.
4. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
5. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY WICK. ALL OTHER ANCHORING EQUIPMENT SUPPLIED BY OTHERS.
6. PLACEMENT OF FRAME TIEDOWN STRAPS AND ANCHORS MAY BE OFFSET UP TO FOUR FEET TO ALLOW ALIGNMENT WITH OVER-THE-ROOF STRAPS PROVIDED NO DECREASE IN THE TOTAL NUMBER OF FRAME TIEDOWNS RESULTS.
7. 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.
8. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL. SLIT OR CUT EDGES DO NOT NEED TO BE ZINC COATED.
9. 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.
10. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND SHALL BE INSTALLED TO THEIR FULL DEPTH. 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 D3953-91. *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 0.035 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.

FRAME TIEDOWN SPACING CHART				
WALL HEIGHT	FLOOR WIDTH	EAVE OVERHANG	TIEDOWN SPACING	* MAXIMUM PIER HEIGHT (INCLUDES DEPTH OF BEAM)
10'-1" MAX	13'-8" SINGLE	3" MAX	10'-0"	29"
	15'-6" SINGLE	3" MAX	10'-0"	37"
	27'-4" DOUBLE	24" MAX	10'-0"	29"
	30'-4" DOUBLE	10" MAX	10'-0"	37"

NOTES:

1. WIND ZONE I (15 PSF LATERAL)
2. OVER-THE-ROOF TIE-DOWNS ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS UNLESS REQUIRED BY THE LOCAL JURISDICTION.
3. ANCHORS, TIE-DOWN STRAPS AND DEVICES TO HAVE A MINIMUM WORKING LOAD RATING OF 3150# (OVERLOAD OF 4725#) AND MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. PROTECTION SHALL BE PROVIDED AT SHARP CORNERS WHERE THE ANCHORING SYSTEM REQUIRES THE USE OF EXTERNAL STRAPS OR CABLES.

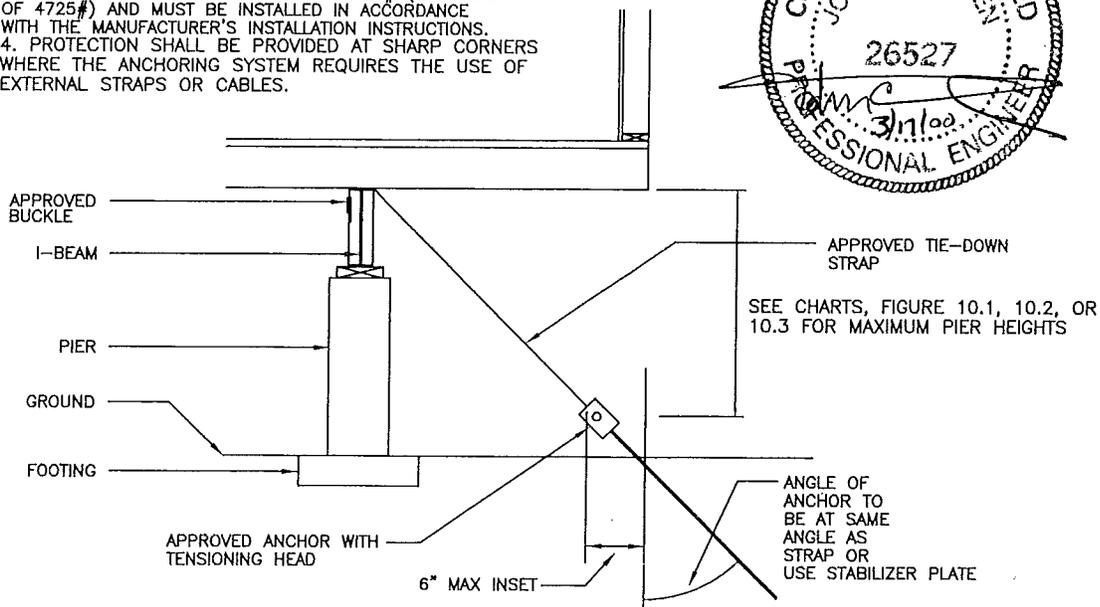


FIGURE 10.4(a)
TIEDOWN ATTACHMENT DETAILS
DIAGONAL FRAME TIES

NOTES:

1. WIND ZONE I (15 PSF LATERAL)
2. OVER-THE-ROOF TIE-DOWNS ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS UNLESS REQUIRED BY THE LOCAL JURISDICTION.
3. ANCHORS, TIE-DOWN STRAPS AND DEVICES TO HAVE A MINIMUM WORKING LOAD RATING OF 3150# (OVERLOAD OF 4725#) AND MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. PROTECTION SHALL BE PROVIDED AT SHARP CORNERS WHERE THE ANCHORING SYSTEM REQUIRES THE USE OF EXTERNAL STRAPS OR CABLES.

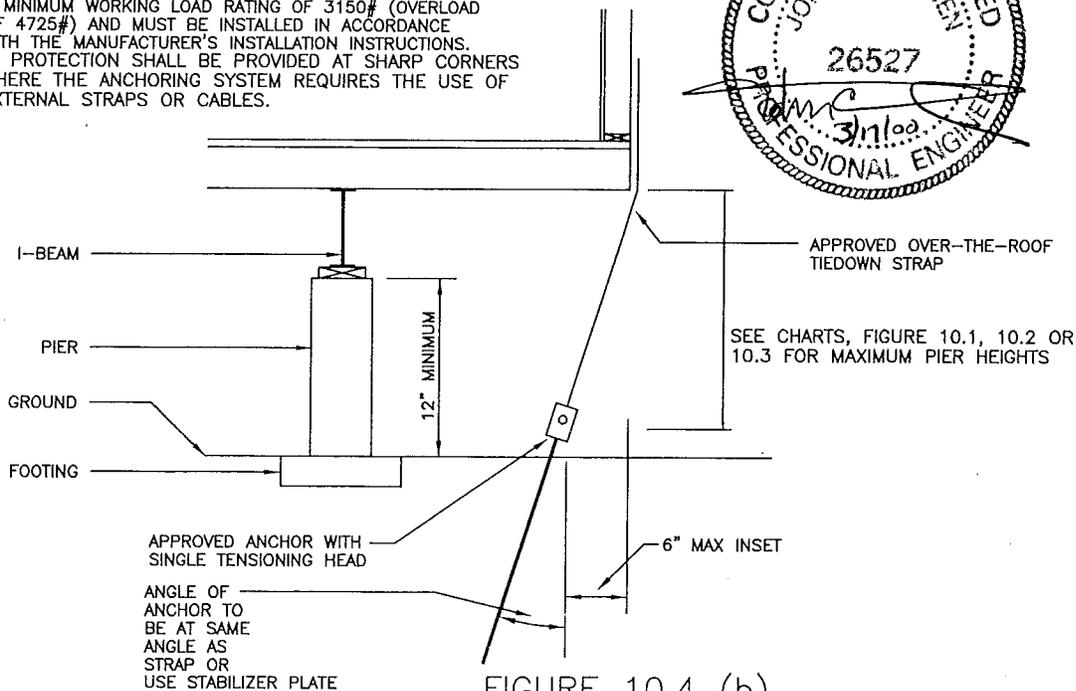
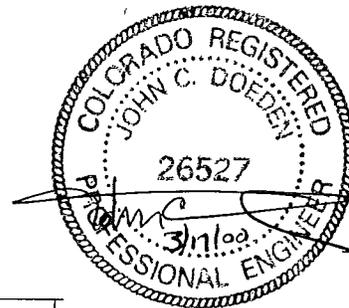
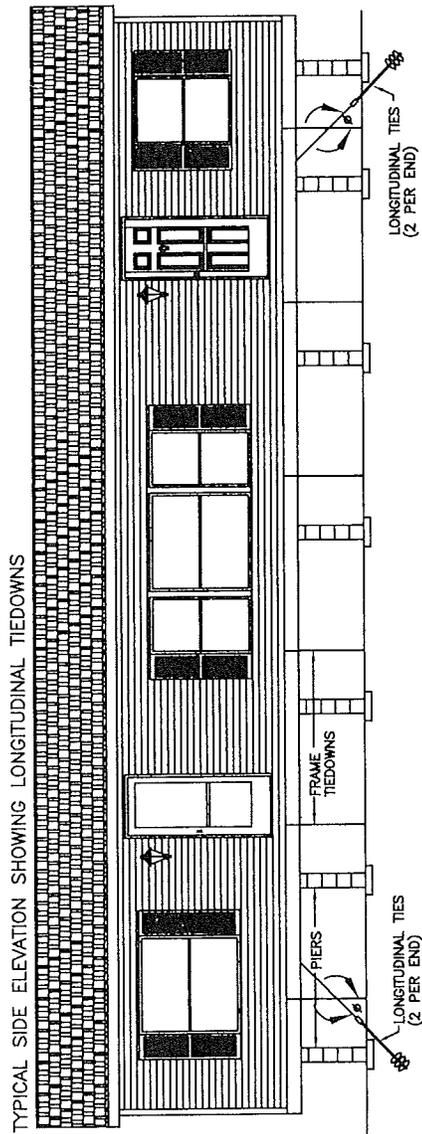
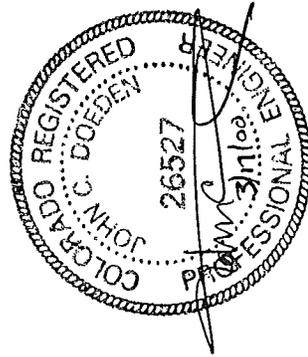


FIGURE 10.4 (b)
TIEDOWN ATTACHMENT DETAILS
OVER-THE-ROOF TIES

FIGURE 10.5 RECOMMENDED TIE DOWN SYSTEM LONGITUDINAL FRAME TIES -- SINGLE SECTION HOMES



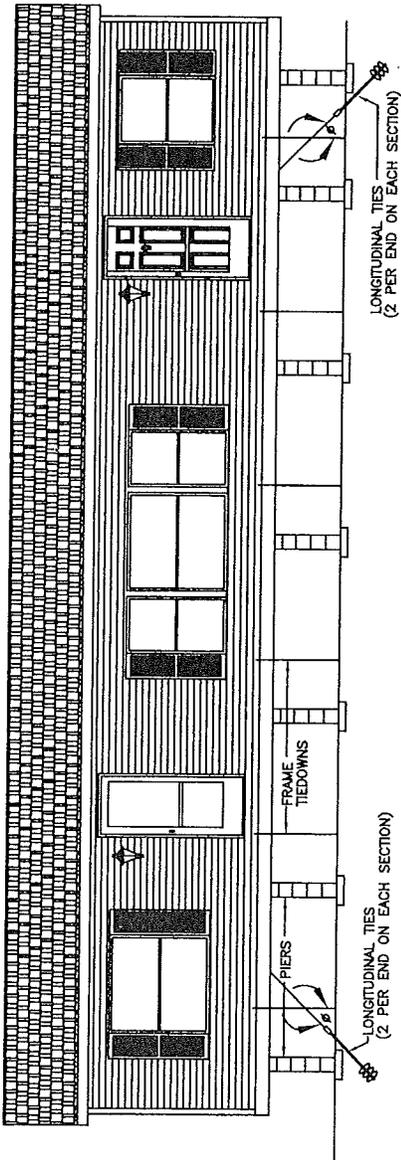
- NOTES:
1. WIND ZONE 1 DESIGN (15 PSF LATERAL) DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 9'-0".
 2. ANCHORING EQUIPMENT IS NOT PROVIDED BY WICK. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725 POUNDS AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
 3. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL. SLIT OR CUT EDGES DO NOT NEED TO BE ZINC COATED.
 4. 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.
 5. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND SHALL BE INSTALLED TO THEIR FULL DEPTH. STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
 6. 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, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
 7. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1 1/4" WIDE AND 0.035 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".
 8. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS AT EACH END AND CANNOT BE DOUBLED. 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.
 9. 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.
 10. SEE DETAIL 10.8 FOR LONGITUDINAL TIEDOWN ATTACHMENT.



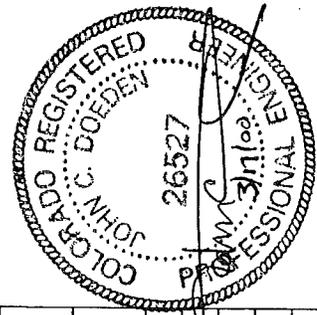
ROOF SLOPE NOT EXCEEDING 20 DEGREES NO RESTRICTION AS TO PIER TYPE OR HEIGHT (EXCEPT AS LIMITED BY OTHER DETAILS)		
FLOOR WIDTH	MINIMUM QUANTITY EACH END OF EACH SECTION	MINIMUM STRAP ANGLE (DEGREES)
164" SINGLE WIDE	2	32
188" SINGLE WIDE	2	39

FIGURE 10.6
 RECOMMENDED TIE DOWN SYSTEM
 LONGITUDINAL FRAME TIES - MULTI SECTION HOMES
 (ROOF PITCH 4.3/12 OR LESS)

TYPICAL SIDE ELEVATION SHOWING LONGITUDINAL TIEDOWNS



- NOTES:
1. WIND ZONE 1 DESIGN (15 PSF LATERAL).
 2. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 9'-0".
 3. ANCHORING EQUIPMENT IS NOT PROVIDED BY WICK.
 4. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION 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.
 5. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL. SLIT OR CUT EDGES DO NOT NEED TO BE ZINC COATED.
 6. 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.
 7. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND SHALL BE INSTALLED TO THEIR FULL DEPTH. STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
 8. 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, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
 9. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1 1/4" WIDE AND 0.035 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".
 10. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS AT EACH END AND CANNOT BE DOUBLED.
 11. 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.
 12. 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.
 13. SEE DETAIL 10.8 FOR LONGITUDINAL TIEDOWN ATTACHMENT.

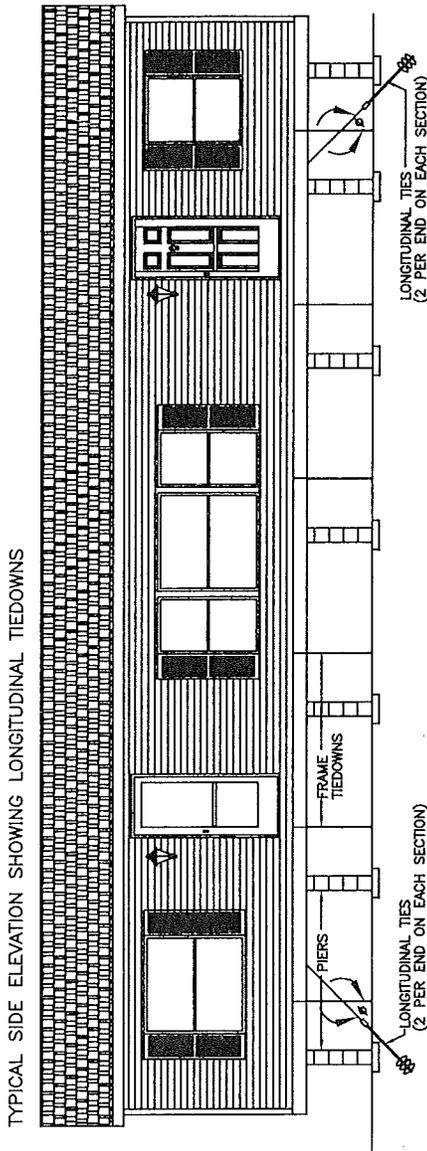


ROOF SLOPE NOT EXCEEDING 20 DEGREES DOUBLE WIDE UNITS (ALTERNATE WITH BLOCK PIERS*)		ROOF SLOPE NOT EXCEEDING 20 DEGREES NO RESTRICTION AS TO PIER TYPE OR HEIGHT (EXCEPT AS LIMITED BY OTHER DETAILS)				
FLOOR WIDTH	MINIMUM UNIT LENGTH		NUMBER OF LONGITUDINAL TIES (TOTAL EACH END)	FLOOR WIDTH	MINIMUM QUANTITY EACH END OF EACH SECTION	MINIMUM STRAP ANGLE (DEGREES)
	SINGLE STACK	DOUBLE STACK				
27'-4" DOUBLE WIDE	66'-0"	60'-0"	0	164" DOUBLE WIDE*	2	37
	32'-0"	32'-6"	2			
30'-4" DOUBLE WIDE	NA	64'-0"	0	182" DOUBLE WIDE*	2	43
	49'-0"	34'-0"	2			

* FOR USE IN ABOVE TABLE:
 SINGLE STACK BLOCK PIERS = 28" MAXIMUM HEIGHT
 DOUBLE STACK BLOCK PIERS = 63" 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

FIGURE 10.7
RECOMMENDED TIE DOWN SYSTEM
LONGITUDINAL FRAME TIES - MULTI SECTION HOMES
(ROOF PITCH GREATER THAN 4.3/12)

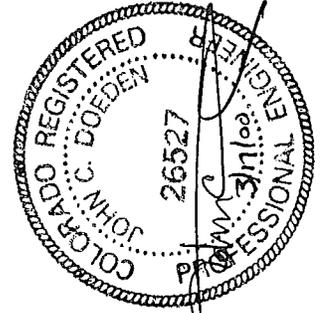


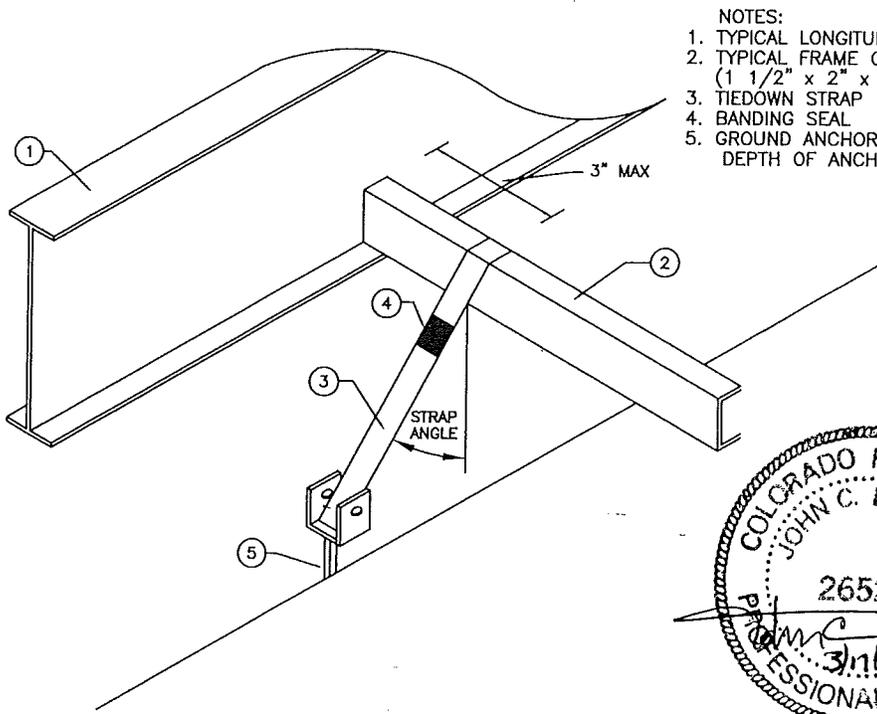
- NOTES:
1. WIND ZONE 1 DESIGN (15 PSF LATERAL).
 2. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 9'-0".
 3. ANCHORING EQUIPMENT IS NOT PROVIDED BY WICK.
 4. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4725 POUNDS AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
 5. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL SLIT OR CUT EDGES DO NOT NEED TO BE ZINC COATED.
 6. 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.
 7. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE AND SHALL BE INSTALLED TO THEIR FULL DEPTH. STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
 8. 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, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
 9. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1 1/4" WIDE AND 0.035 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".
 10. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS AT EACH END AND CANNOT BE DOUBLED.
 11. 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.
 12. 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.
 13. SEE DETAIL 10.8 FOR LONGITUDINAL TIEDOWN ATTACHMENT.

ROOF SLOPE UP TO 6 ON 12 DOUBLE WIDE UNITS (ALTERNATE WITH BLOCK PIERS*)		ROOF SLOPE UP TO 6 ON 12 NO RESTRICTION AS TO 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				
27'-4" DOUBLE WIDE	72'-0"	54'-0"	0	164" DOUBLE WIDE*	2	39
	36'-0"	32'-0"	2	182" DOUBLE WIDE*	2	48
30'-4" DOUBLE WIDE	NA	69'-0"	0			
		56'-0"	2			

* FOR USE IN ABOVE TABLE:
SINGLE STACK BLOCK PIERS = 28" MAXIMUM HEIGHT
DOUBLE STACK BLOCK PIERS = 63" 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





- NOTES:
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

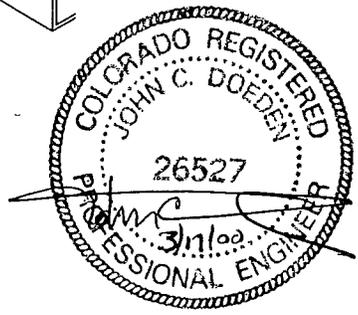
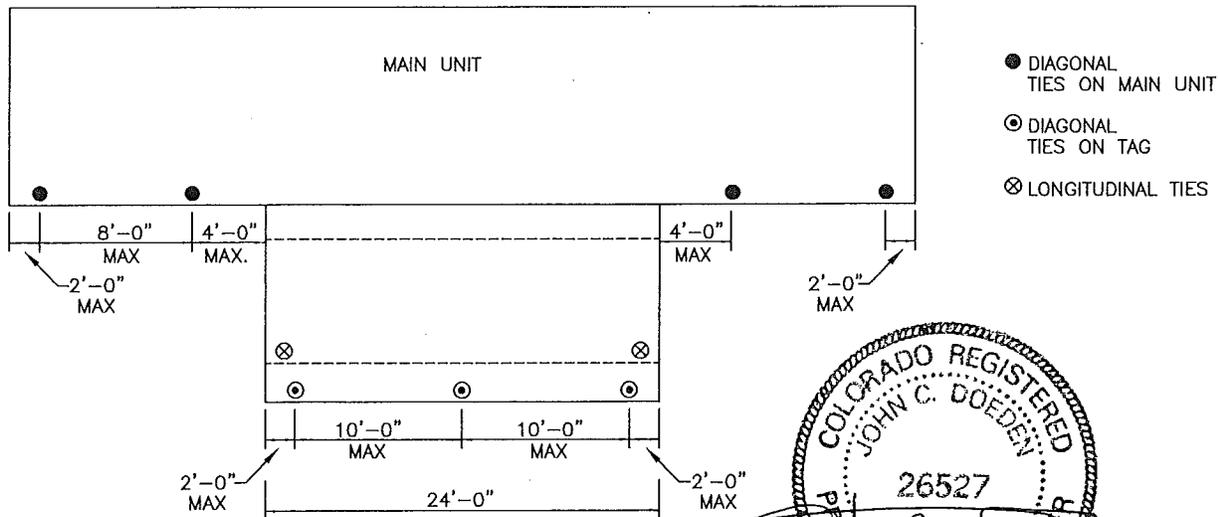
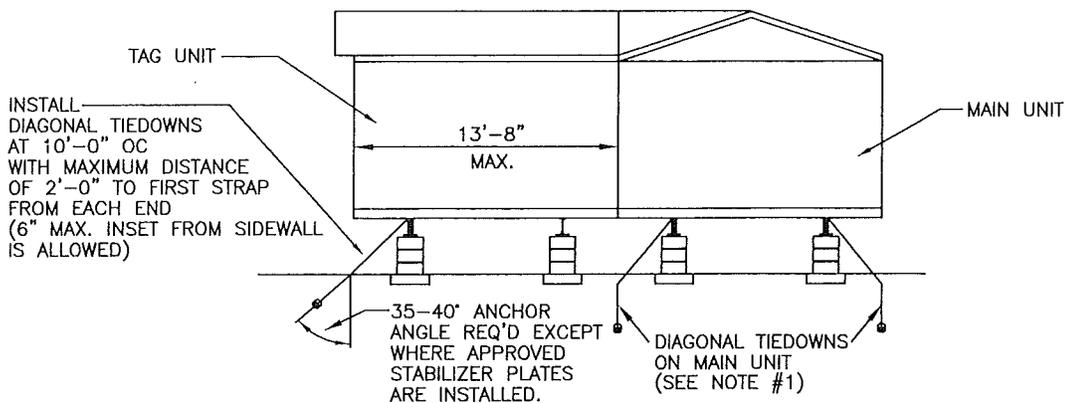


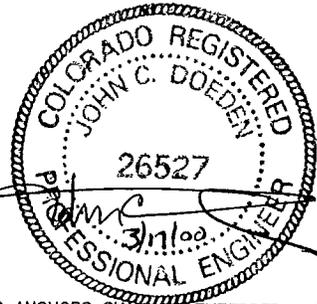
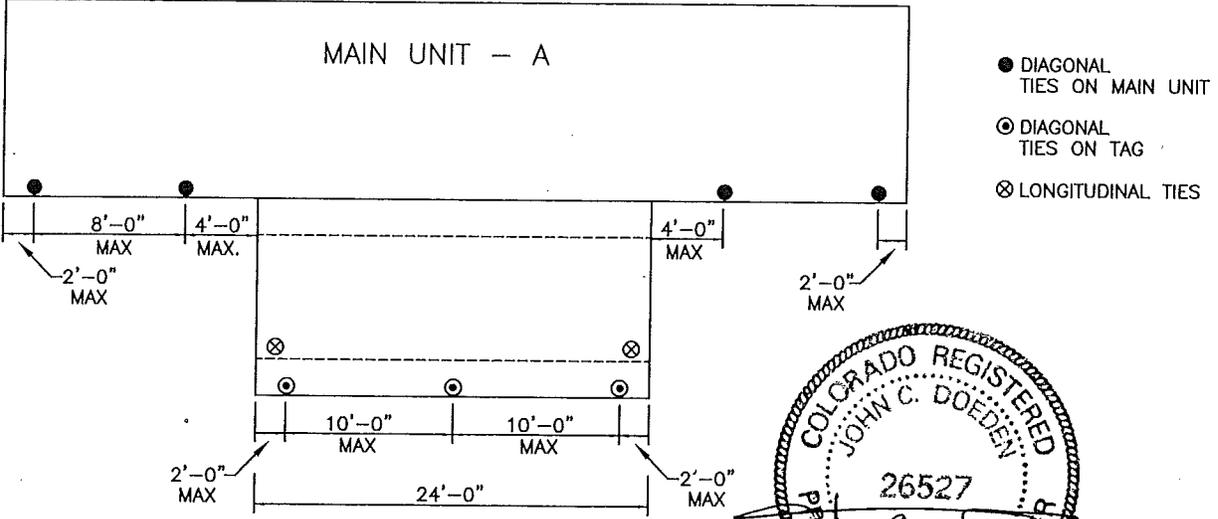
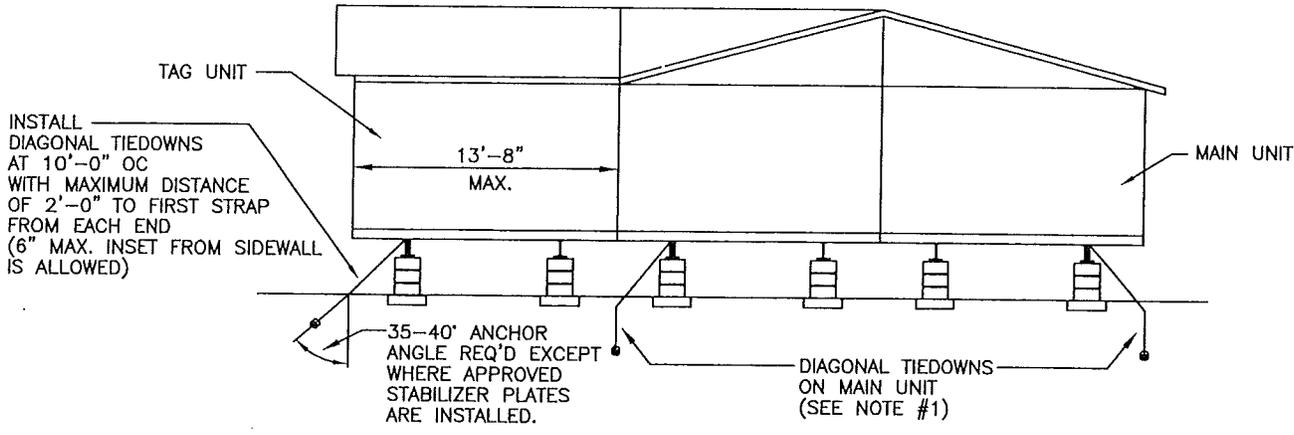
FIGURE 10.8
TIEDOWN ATTACHMENT DETAILS
LONGITUDINAL FRAME TIES



NOTES:

1. WIND ZONE 1 DESIGN (15 PSF LATERAL).
2. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 9'-0".
3. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS UNLESS REQUIRED BY THE LOCAL JURISDICTION. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
4. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY WICK. ALL OTHER ANCHORING EQUIPMENT SUPPLIED BY OTHERS.
5. PLACEMENT OF FRAME TIEDOWN STRAPS AND ANCHORS MAY BE OFFSET UP TO FOUR FEET TO ALLOW ALIGNMENT WITH OVER-THE-ROOF STRAPS PROVIDED NO DECREASE IN THE TOTAL NUMBER OF FRAME TIEDOWNS RESULTS.
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. SLIT OR CUT EDGES DO NOT NEED TO BE ZINC COATED.
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 SHALL BE INSTALLED TO THEIR FULL DEPTH. STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
10. 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, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
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12. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS AT EACH END AND CANNOT BE DOUBLED.
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.
14. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED, A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
15. SEE FIGURES 10.1, 10.2, 10.3, 10.5, 10.6 AND 10.7 FOR MAIN UNIT TIE DOWN REQUIREMENTS.

FIGURE 10.9
RECOMMENDED TIE DOWN SYSTEM
SINGLE SECTION WITH TAG UNIT



- NOTES:
1. WIND ZONE 1 DESIGN (15 PSF LATERAL).
 2. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 9'-0".
 3. OVER-THE-ROOF TIES ARE NOT REQUIRED WITH PROPERLY SPACED AND INSTALLED FRAME TIEDOWNS UNLESS REQUIRED BY THE LOCAL JURISDICTION. OVER-THE-ROOF TIES (WHEN REQUIRED) MAY BE SECURED TO THE SAME GROUND ANCHORS AS THE FRAME TIEDOWNS.
 4. OVER-THE-ROOF STRAPS (WHEN REQUIRED) ARE SUPPLIED BY WICK. ALL OTHER ANCHORING EQUIPMENT SUPPLIED BY OTHERS.
 5. PLACEMENT OF FRAME TIEDOWN STRAPS AND ANCHORS MAY BE OFFSET UP TO FOUR FEET TO ALLOW ALIGNMENT WITH OVER-THE-ROOF STRAPS PROVIDED NO DECREASE IN THE TOTAL NUMBER OF FRAME TIEDOWNS RESULTS.
 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. SLIT OR CUT EDGES DO NOT NEED TO BE ZINC COATED.
 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 SHALL BE INSTALLED TO THEIR FULL DEPTH. STABILIZER PLATES SHOULD BE INSTALLED TO PROVIDE ADDED RESISTANCE TO OVERTURNING OR SLIDING FORCES.
 10. 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, "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
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 12. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS AT EACH END AND CANNOT BE DOUBLED.
 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.
 14. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED, A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
 15. SEE FIGURES 10.1, 10.2, 10.3, 10.5, 10.6 AND 10.7 FOR MAIN UNIT TIE DOWN REQUIREMENTS.

FIGURE 10.10
RECOMMENDED TIE DOWN SYSTEM
MULTI SECTION WITH TAG UNIT

Shingled Roofs

All Wick manufacture home roofs are sealed around vents, stacks and other flashings prior to shipment from the factory. These areas must be examined and resealed, if necessary, to prevent leaks that can result from vibration experienced during transit of the home. The shingle hold-down straps should be removed, and all penetrations from staples or other fasteners should be sealed.

Exterior Light Fixtures

To install exterior light fixtures, remove the junction box covers and make wire-to-wire connections using wire nuts. Connect wires, black to black, white to white, and ground to ground. Push wires into box and secure the fixture to the junction box. Install the light bulb and attach the globe. Caulking must be applied around the base of the light fixture to ensure a water-tight seal to the sidewall. (See Figure 11.1.)

See Figure 11.1

Miscellaneous Finish Procedures

Inspect and remove tape or levers installed to hold dampers for roof or sidewall vents closed during shipping. Inspect and remove clips on sliding windows installed for shipping purposes.

Section XI – Exterior Finish Work

Skirting

Skirting should be secured as necessary to assure stability. In frost-susceptible areas, the installation should allow for frost heave ground movement. An access should be provided and located so that water supply and sewer drain connections can be inspected or repaired when necessary. Before you skirt the crawl space, remember to install a vapor barrier on the ground under the home.

Wood, Aluminum or Fiberglass Skirting

If you install wood, aluminum or fiberglass type skirting, a skirt rail should be installed at the bottom of the floor for attachment of the skirting. This “skirt rail” should be set in at least 1½" to 1¾" from the edge of the siding. (Generally, the siding will extend below floor level.) When the home is sided with wood type siding products, the skirting must be attached in a manner that does not allow water to become trapped between the siding and receiver strip.

Vinyl Skirting

If you install vinyl skirting such as the T-Lok® brand skirting on vinyl-sided homes, a 2" opening should be provided where fasteners pass through the siding to allow room for expansion and contraction of the siding.

If the bottom row of siding is cut to accommodate installation of the Top Trim Mounting Piece: The mounting piece must be installed so that the nail slots are located “below” the cut edge of the bottom of the siding. Do not nail the lower 1" flange of the vinyl to the sheathing, and do not drive nails directly into the siding.

If the bottom row of siding is not cut to accommodate installation of the Top Trim Mounting Piece: Pre-drill ½" to ¾" slots or holes in the siding where nails will pass through the mounting piece and the siding. Do not install the fasteners directly into the siding and top trim piece. Nails must be installed through the slots provided in the top trim mounting piece and the pre-drilled holes made in the siding, and they must be driven loosely.



Caution: When attaching skirting to vinyl-sided homes, do not install fasteners directly into the siding and top trim mounting piece. Slots for fasteners must be pre-drilled in the siding to allow for normal expansion and contraction of the siding. Fasteners must be installed through the slots provided in the top trim mounting piece and the pre-drilled holes made in the siding. Failure to do so could cause damage to the siding.

Crawl Space Ventilation

Crawl space skirting or foundation walls must provide adequate ventilation to prevent moisture accumulation under the home and to provide combustion air for any heat-producing appliances. Ventilation openings should be covered with a corrosion-resistant wire mesh not less than 3" and not more than 2" in any dimension, or with screened or louvered openings, to prevent entry of dry vegetation, waste materials or rodents.

See Figure 11.2

The amount of ventilation in skirting or crawl space foundations must be 1 square foot of "free area" for every 300 square feet of crawl space area. If combustion air for heat-producing appliances is taken from under the home, ventilation should be increased by at least 37.0 sq. in. per appliance to assure proper operation of the appliance(s).



Caution: A poly vapor barrier must be installed on the ground in the crawl space. Problems resulting from the failure to install a vapor retarder on the crawl space surface are not covered by the written warranties of Wick Building Systems, Inc.

To compute the total amount of "free area" ventilation required, divide the square footage of the floor area of the home by 300 (always round up!). If heat producing appliances drawing combustion air from under the home are installed, the total "free area" ventilation must be increased.

Example Calculations for Crawl Space:

Assuming the home is a 16'x80':
16' x 80' = 1280 sq. ft. of crawl space area
 $1280 \div 300 = 4.26$ sq. ft. (round up to 4.5)
 $4.5 \times 144 = 648$ sq. in.

Assuming the home is a 28'x56':
28' x 56' = 1568 sq. ft. of crawl space area
 $1568 \div 300 = 5.22$ sq. ft. (round up to 5.5)
 $5.5 \times 144 = 792$ sq. in.

The amount of ventilation obtained will depend on the type and size of the vent installed, and the type of covering over the vent opening, such as wire mesh, screen or louvers. Some vinyl skirting products have pre-vented skirting panels that can be installed. You should refer to the skirting or vent manufacturer's specifications to determine the amount of free area your ventilation system will provide.

Ventilation openings should be installed as "high" as reasonably practicable, but not higher than the bottom of the floor of the home. To assure cross-ventilation, the openings or pre-vented skirting panels should be installed within three (3) feet of each corner of the home and spaced equally along the sidewalls and endwalls of the home.



Caution: If a clothes dryer is installed, its exhausted air must be vented "outside" the skirting, extending beyond the perimeter of the home. Clothes dryer vents must not be allowed to terminate under the home.

Section XI – Exterior Finish Work

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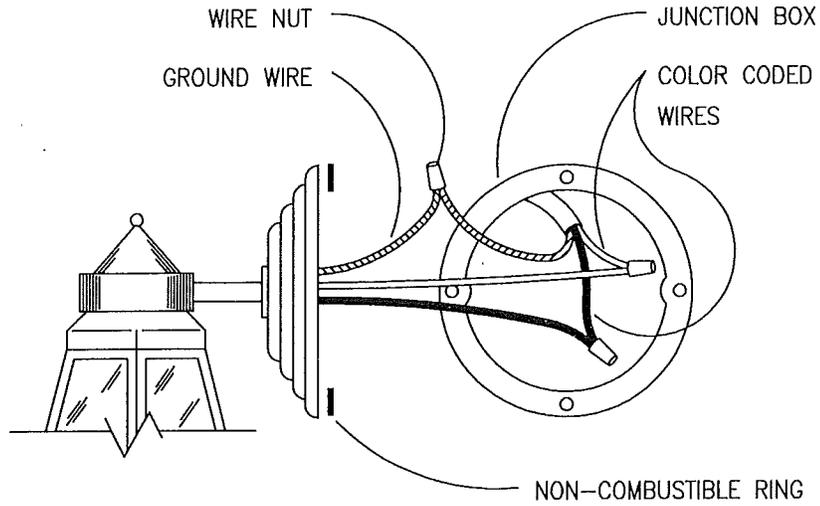


FIGURE 11.1
INSTALLATION OF EXTERIOR LIGHTS

NOTES:

1. MIN. 6 MIL. POLY VAPOR BARRIER REQUIRED.
2. ONE SQ. FT. OF VENTING PER EVERY 300 SQ. FT. OF CRAWLSPACE.
3. 16" x 8" VENTS TO BE A MIN. OF 50 SQ. IN OF FREE AIR.

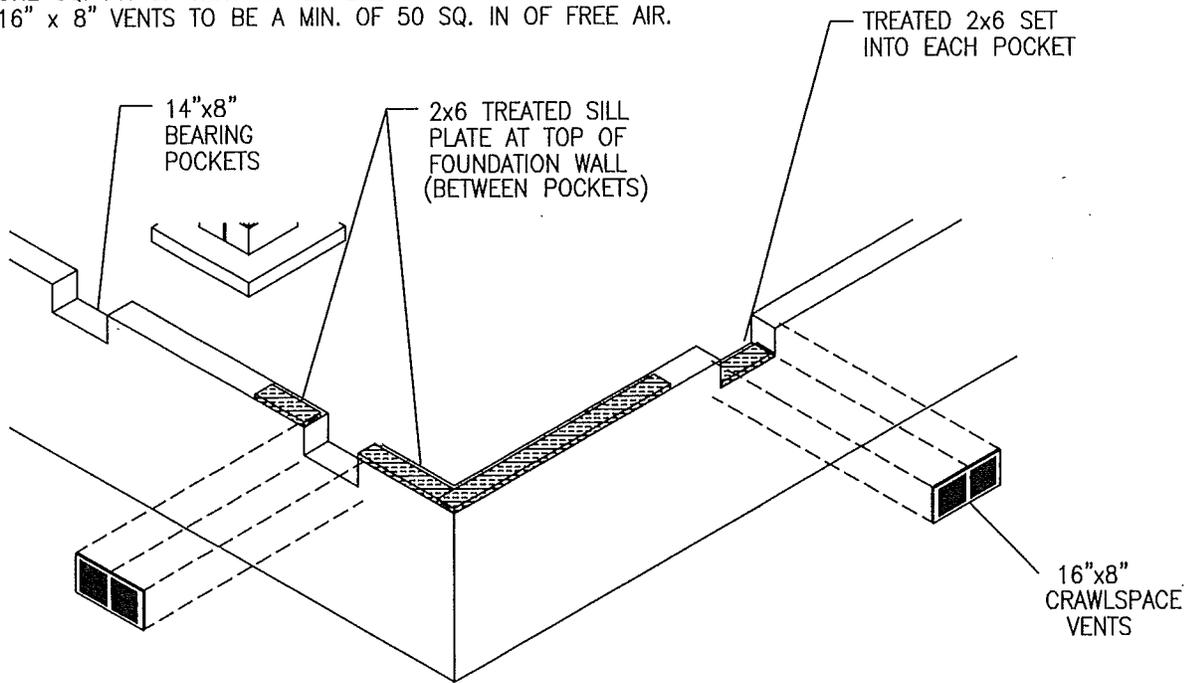


FIGURE 11.2
CRAWL SPACE VENTILATION



When plans are made to move the home to a new location, contract with a professional home transporter to make the move. A professional transporter knows the applicable highway department regulations and is equipped to obtain the necessary permits and arrange for escort vehicles, if necessary. There are a number of precautions that should be followed before moving the home. Below are some of the important items that will need attention in arranging for and preparing the home for any move.

Moving to New Zones

Verify that the geographical area for which the home was designed is compatible with the new home location. A home that was designed for a warm climate may not be suitable to withstand high snow loads. One that was designed for interior, non-coastal states will differ in construction from one designed for hurricane zones. The maps contained on the Data Plate in the home will provide this information.

General Preparation

Drain all water lines and blow out with air to assure that no water is trapped in the line. If moving in the winter, fill traps with antifreeze.

Cap the water inlet and sewer outlet and place dust caps on the ends of all pipe connections.

Disconnect all appliances, secure doors and install appropriate shipping braces. Drain the water heater. To avoid a burned out element on electric water heaters, disconnect the power at the main surface panel until the unit is refilled with water.

Close and latch all windows. Lock all doors. To secure storm doors, insert a screw in the hole in the flange on the exterior frame of the door. Look for the screw hole provided in the flange that lines up with the screw hole in the storm door.

Brace sliding doors with wood wedges at the bottom and tape securely in position.

Disassemble and pack hanging light fixtures and ceiling fans.

Transportation System

Check tires for general condition and proper inflation. Be sure tires have at least 1/16" tread and do not have any cracks or splits. Check the wheel bearings for sufficient grease packing. Check the operation of the brakes making sure the wires are properly attached to drums, axles and frame members. Check wheel lug bolts for tightness at the start of the trip and after the home has been on the road for 25 or 30 miles and at each stop thereafter. If the tires or axles have been removed, they must be replaced with adequate equipment.

Section XII – Relocating the Home

Transit of Furniture & Personal Affects

Do not move furniture or other personal affects or belongings, or setup materials in the home during transit. Damage caused to the home or to such furniture or personal affects is not covered under the warranties of Wick Building Systems, Inc.

Multi Section Homes

Reinstall temporary structural supports and bracing materials before moving the home. After the sections have been separated, secure 2"x6" shipping braces at the front end and in the axle area. Place ridge beam supports in open areas at a maximum of 4' on center. Cover open sides of each section with weatherproof material such as a 6 mil plastic sheathing.

Temporary Sets

All homes that are stored as inventory or set for display on sales lots must be properly blocked to prevent deflection and possible structural damage.

Cross Beam Frame

Lot inventory homes held for less than 30 days should be leveled front to rear using the A-Frame (Hitch) Jack Stand and blocking under each main I-beam at the rear of the home.

Lot inventory homes held for more than 30 days should be set with a minimum of 8 piers per section. Place a pier no more than 2'-0" from each end of each main I-beam. Piers can be single stack with a minimum pad footing of 16"x16". Open cell concrete blocks (CMU's) should be capped and shimmed as necessary to achieve an approximate level condition. Piers can be placed at ground level. No tie-down straps or anchors are required.

Lot display homes shall be blocked and leveled as described in Section V and pier supports provided as described in Section IV with the following exceptions: Pier footings can be placed at ground level. No tie-down straps or anchors are required. Close up the floor, roof and endwalls with #10x5" lags installed at 36" O.C.

Lindsay Unified Floor Frame

Homes constructed with the Lindsay Unified Floor System may be set for display on the sales lot using the frame Long Beam as bridge for supporting the piers. Piers must be placed on the outside Long Beam on each half at 8'-0" O.C. starting from the hitch end. A pier must be placed no more than 1'-6" from each end of the outside Long Beam. A pier must be placed 1'-6" from each end of the inside Long Beam on each section. Piers must also be placed at the Marriage Wall at 8'-0" starting from the hitch end. (This is typical of basement jack post spacing). Piers can be single stack concrete CMU's with minimum 16"x16" footers placed at ground level and capped and shimmed as necessary to achieve an approximate level condition. Connect the floor, roof and endwalls using #10x5" lags installed at 36" O.C.



Caution: Homes with the Lindsay Unified Floor System can only be set for display if the home is ordered with bottom board installed complete.

After installation is complete, the home should be inspected and tested to verify that it has been properly blocked, leveled and anchored, and that the plumbing, fuel supply and electrical systems of the home have been properly connected. To assist you, we have prepared an inspection checklist which outlines some of the principal areas which should be inspected and tested prior to occupancy.

Foundations

Check to ensure that:

- Footings are the proper size and construction for soil conditions
- Pier spacing is in accordance with specifications
- Pier construction meets specifications
- Doors are properly leveled
- Bottom board is fastened securely around the perimeter of the home and rips or tears have been properly repaired
- The undercarriage chassis floor joist and frame are free from installation or transportation damage or serious defect

Anchoring

Check to ensure that:

- Approved anchors are used
- Correct number of anchors, studs, or both are used
- Anchors are installed at correct angles and in accordance with the anchor manufacturer's listing for approval

Skirting

Check to ensure that:

- Skirting has been used and installed in accordance with the manufacturer's specifications
- The minimum amount of "free area" venting has been installed
- Skirting is installed to adjust to frost movement in areas where it occurs
- Poly groundcover is properly installed
- Clothes dryer venting terminates "outside" the skirted area

Section XIII – Final Inspection

Water & Drain Systems

Check to ensure that:

- The proper materials for water and drain lines have been used
- Connection and splices are properly made
- (For sectional units and units with tags) Connections between each unit are properly made
- Supports are made of proper material and are properly spaced
- Proper slope has been maintained on all drain lines
- Water lines are protected from freezing in areas where it occurs
- All necessary inspections and tests have been performed
- All visible water and drain lines and “p” traps are free from leaks
- All sinks, basins, tubs and toilets operate properly
- All hot and cold water lines are properly connected to fixtures, dispense water as labeled and operate properly

Electrical Systems

Check to ensure that:

- The panel amperage matches the connection to the home
- Home has been properly grounded
- The main power supply has been properly connected and tested by a licensed electrician
- (For sectional units and units with tags) Connections between each unit are properly made and access covers are in place
- All receptacles, switches and light fixtures operate properly
- Ground fault interrupters operate properly

Gas/Fuel Oil Systems

Check to ensure that:

- Correct materials and fittings have been used
- The gas system pressure test has been conducted
- (For sectional units and units with tags) Connections between each unit are properly completed with access as required
- The main incoming fuel line has been properly connected and tested by a qualified technician

Appliance Operating & Venting

Check to ensure that:

- Water heater and furnace vent or shipped loose chimney extensions have been mounted and serviced in accordance with the manufacturer's instructions
- Appliance venting is in accordance with the manufacturer's instructions
- (For solid fuel burning fireplaces) Fresh air intake is properly installed
- Kitchen and bath exhaust fan operation and air flow are correct
- (For all fireplaces) The chimney stack extension and roof cap have been installed in accordance with the manufacturer's instructions and the combustion air intake is not obstructed
- Temporary shipping screws and blocking have been removed and screw holes filled with suitable touchup material as necessary

Windows & Doors

Check to ensure that:

- All windows open, close and latch properly
- Windows meet egress requirements and have operation instruction labels on them
- All interior and exterior doors open, close and latch properly
- All temporary shipping hardware has been removed from windows and doors

Interior of Home

Check to ensure that:

- Ceilings, walls and floor coverings are free from damage or serious defects
- Carpeting is properly stretched and seamed
- Cabinets and countertops are free from damage or serious defects
- All trim and molding is installed properly and free from damage or serious defects
- All plumbing fixtures are free from damage or serious defects
- All appliances and interior furnishings are free from damage or serious defect
- All window coverings are free from damage or serious defect

Section XIII – Final Inspection

Exterior of Home

Check to ensure that:

- Shingled roofs are free from visible damage or serious defect; there are no missing or loose shingles
- All hold down straps on shingled roofs have been removed and all staple holes have been properly sealed
- Penetration at roof stacks, vents and chimneys have been properly sealed
- Siding is free from damage or other serious defect
- The drip edge and fascia is properly installed and free from damage or serious defect
- (Gutters and down spouts are installed) The water is diverted away from the home

Miscellaneous

Check to ensure that:

- Smoke detector(s) are tested and operate properly
- “HUD” label has not been damaged, removed or covered by skirting
- Installation/anchoring certificates or seals have been issued and installed, if required
- Data Plate is intact and legible

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