

GRANT COUNTY DEVELOPMENT SERVICES

(509) 754-2011, EXT. 3001

Manufactured Home Handout

(Installation Information)



This packet contains setup information to be followed in the absence of the MH manufacturer's specifications. Enclosed are important forms to be completed by the homeowner.

- ❖ Please note that due to recent Washington State Department of Labor and Industries (L&I) rulemaking, all persons performing manufactured home installations must be a certified installer, which now include homeowners seeking to install a manufactured home for their personal use. These rules took effect on January 31, 2022. The L&I rules require the placement of Washington State Installer Certification (WAINS) Tag to the home. Final inspections will not be performed or approved until the applicable tags are completed and affixed to the manufactured home. To view the rules as adopted by L&I, please review WSR 22-01-193 and WAC 296-1501-0110 (revised language online may be delayed).
- ❖ If the drain/waste and water supply are installed and tested by the homeowner or by a licensed plumber, complete the attached **MH Plumbing Self-Certification Form** and post on site with your building permit. See Page 13.
The MH Plumbing Self-Certification Form need not be completed and posted if a certified installer has installed and tested the plumbing and they have attached their WAINS Tag as required and described above.
- ❖ Review the **Inspection Schedule**, Page 2.
- ❖ Follow the **General Instructions for the Installation of Manufactured Homes**.

*** Please Note ***

To receive a final inspection your address numbers must be clearly and permanently posted in a manner allowing easy identification by emergency responders. If your home is more than 100 feet from a county road, multiple postings and directional indicators may be required.

GRANT COUNTY DEVELOPMENT SERVICES
Manufactured Home Inspection Schedule

The 'approved plans' packet for your manufactured home must be kept on site, along with your building permit for reference by installers and inspectors. The packet should be placed in a weather resistant package and should be accessible at the front entry of the home.

FIRST INSPECTION

- Blocking - Perimeter, Main I-Beam, Point Load and Marriage Line as applicable
- HVAC Crossover Ducting - See Page 4
- 6 mil black polyethylene Ground Cover - See Page 4
- Tie-downs - See Pages 4, 10 & 11
- Water shutoff valve - within 10'0 of crawlspace access - See Pages 4 & 5
- Drain/Waste line connection
- Plumbing test or Self-Certification form - See Page 13

NOTE* - THE FIRST INSPECTION MUST BE PERFORMED AND APPROVED BEFORE THE SKIRTING OF THE MANUFACTURED HOME IS INSTALLED.

If skirting is installed before the First Inspection has been performed and approved, you may be required to: 1) remove the skirting, 2) pay a \$100.00 inspection fee, and/or 3) hire a Special Inspector to perform the First Inspection.

Exception: Poured concrete skirting may be placed prior to the first inspection.

***WARNING!* IT IS UNLAWFUL TO OCCUPY THE RESIDENCE PRIOR TO A FINAL INSPECTION BEING PERFORMED AND APPROVED.**

FINAL INSPECTION

- Skirting - Crawlspace Vents - See Page 5
- Crawlspace Access - within 10'0 of Water Supply shutoff valve - See Page 5
- Hot Water Tank pressure relief drain, dryer vent and HVAC condensation lines
- Landings, stairs, handrails and guard - See Pages 5 & 12
- Posted - Address numbers - See Page 1
- Posted - Installer Certification Tag(s) (WAINS) - See Page 1

NOTE: Additional inspection fees may be charged for repeat inspections of items that have not been corrected from prior inspections.

Important Information from GRANT COUNTY DEVELOPMENT SERVICES

General Instructions for the Installation of Manufactured Homes

Manufactured homes are required to be installed per the home manufacturer's specifications. The submitted specifications shall be for the exact make and model of the home being placed on the property, and must show all support blocking locations and the bearing loads imposed on each of them.

Homes that no longer have the manufacturer's installation specifications available shall be installed per the American National Standards Institute A225.1, as required by the Revised Code of Washington 43.22A and the Washington Administrative Codes 296-150M and 296-150I. This handout follows ANSI A225.1.

Homes that no longer have the manufacturer's installation specifications available may also be installed as per the stamped design of an engineer licensed in the State of Washington.

The manufacturers specifications and the instructions in this handout are essential to the structural integrity (blocking/tie downs) of your home. Additionally, this handout contains important code information including the minimum requirements for stairs, landings, guards and handrails.

Review all the enclosed information, paying particular attention to highlighted areas. Compliance with these issues will result in a more efficient inspection and approval process, allowing you to occupy your home without unnecessary delays.

Remember that taking a few moments of your time to carefully review all attached information can save you time and money on your project.

Please Note

When submitted, the manufacturer's specifications shall take precedence over these installation categories, which are detailed on the pages following:

- General Blocking requirements
- Tie downs
- Waste and water system – pressure test section
- HVAC Cross-over ducts
- Skirting

All other categories listed on the following pages are **requirements** for both new and relocated homes.

Site Preparation

Finish grade shall slope away from home at least 6 inches in the first 10'-0". See Figure 1 on Page 6 for an example.

1. The site must be in compliance with minimum setbacks from property lines and other buildings. Property lines may need to be identified with stakes and string lines.
2. The foundation/footing must be set on firm undisturbed soil, a minimum of 4 inches below grade. Vegetation shall be removed from the area where the home will be set.
3. Perimeter blocking must be protected from frost upheaval.

Blocking/Supports

Cracked, deformed or otherwise damaged blocks/piers will be rejected during the inspection process. See Figures 5 & 6 on Page 9 for blocking/support examples.

1. Main frame I-beam blocking shall be spaced not more than 8 feet on center. See Figures 2 and 3 for example. A minimum of 18 inches of clearance must be provided between the bottom of the main frame and the ground/footing.
2. Perimeter blocking shall be placed at both sides of exterior doors, and shall be placed at both sides of all exterior wall openings greater than 4 feet in length.
3. Marriage Line blocking shall be placed at a minimum as per Table 8-1 and Figure 3 on Page 8. The manufacturer's installation specifications take precedence.
4. Minimum allowable footing size is 16" x 16" x 4" deep.
5. Piers/blocks may be CMU (concrete masonry units), approved adjustable metal (jack stands), pressure treated wood (minimum .60 retention rating) or other approved, tested device.
6. Jack stands with the listed capacity shall comply with these blocking requirements.

Tie downs

Standard tie downs with a minimum load capacity of 4,725 lbs. are required to be installed down the length of the home on each side starting at a maximum of 2 feet from each end and spaced at no more than 11 feet on center. See Figure 7 on Page 10 and Figure 8 on Page 11 for examples.

NOTE* - Alternate tie down methods shall be of an engineered design and shall be approved by Grant County Development Services.

Ground cover

1. A minimum of a 6-mil black polyethylene vapor barrier shall be installed on the ground throughout the crawl space area.
2. The ground cover may be omitted if the entire under floor area of the manufactured home has a concrete slab floor with a minimum thickness of 3½ inches.

Waste and water systems

For specific information regarding allowable materials and methods of installation please speak to a plans examiner or building inspector in this office.

1. Drain/Waste and water piping shall be of materials approved for those functions.
2. Drain/Waste and water systems shall be pressure tested on site. One method of testing is to fill the waste system with water to the top of the highest vent stack and allow to stand for a minimum of 15 minutes. Another method is to air test the system at 50psi for 15 minutes.
3. All exposed water pipes and waste traps shall be protected from freezing.
4. Hot water pressure relief lines and HVAC condensation lines must be routed to the exterior of the skirting and pointed down. These lines shall not cause hazards on sidewalks or walkways.
5. Water supply systems must be protected at the source with back flow prevention.
6. Outside faucets must also be equipped with back flow prevention devices.
7. The water supply system shall include a shutoff valve installed within 10 feet of crawlspace access.
8. An exterior cleanout for the drain/waste system is required within 24 inches of the building.

Cross-over ducts

Heating system cross-over ducts shall be supported above the ground and shall not be compressed or damaged in a manner that restricts flow.

Dryer ducts

Dryer ducts/vents shall exhaust to the exterior of the skirting and be well supported. The exterior dryer duct shall be constructed of a minimum 28 gauge smooth wall metal pipe with a minimum diameter of 4 inches. The duct shall be run as short a distance as possible to achieve an exterior termination.

Skirting

Skirting materials must be weather resistant and suitable for ground contact. Metal fasteners must be galvanized, stainless steel or other corrosion resistant material. The skirting must be recessed behind the siding or trim. Corrosion resistant wire mesh vents shall be installed in skirting to achieve crawlspace ventilation at a rate of 1/300. Vents shall be spaced evenly to allow adequate cross flow. A crawl space access must provide an unobstructed opening of not less than 24" x 18" and be located to provide access to all areas of the crawl space. An access shall be located within 10 feet of the water supply shut-off valve.

Landings: IRC 311.3

There shall be a landing at each exterior door - including sliding doors - and at the top and bottom of each stairway. The landing for the *required* means of egress door shall be at least the width of the door or stairway served, shall have a minimum dimension of 36 inches measured in the direction of travel, and may not be more than 1½ inches lower than the top of the threshold of the door. See Page 12.

NOTE: At all doors other than the required means of egress door, a landing may be a maximum of 7¾ inches below the top of the threshold provided the door does not swing over the stairway. At doors other than the required main entry/exit door, a landing is not required where an exterior stairway has two or fewer risers, and provided the door does not swing over the stairway.

Stairways: IRC 311.7

Stairways shall be not less than 36 inches in clear width and shall not have less than 6 feet 8 inches of headroom height. The maximum allowable riser height shall be 7¾ inches. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch. The minimum tread depth shall be 11 inches. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch.

NOTE: Stairways shall be provided a means to illuminate the stairs; including the landings and treads. For more information on stairway requirements see Page 12 and/or contact Grant County Development Services.

Guards: IRC 312

Porches, decks and landings more than 30 inches above the grade or surface below shall have guards not less than 36 inches in height. Guards for decks and landings shall not have openings which allow passage of a sphere 4 inches in diameter.

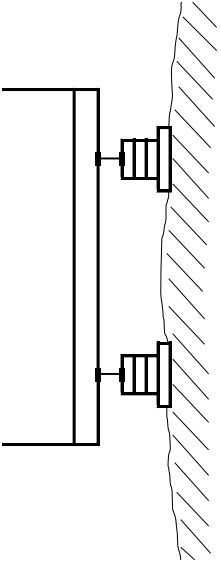
Guards that are required on the open sides of stairs shall have a height not less than 34 inches measured vertically from a line connecting the leading edge of the treads. Guards on the open side of stairs shall not have openings which allow passage of a sphere 4 3/8 inches in diameter. See Page 12.

Handrails: IRC 311.5.6

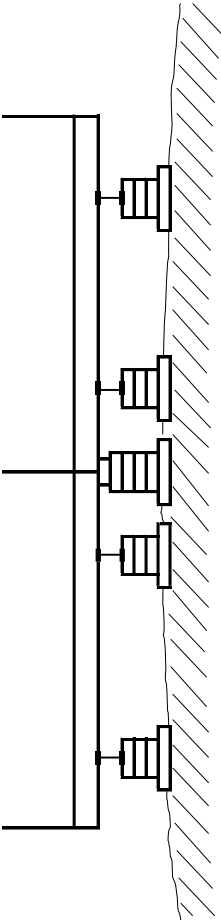
Handrails shall be provided on at least one side of each continuous run of treads or flight of stairs with four or more risers. The handrail height shall be not less than 34 inches and not more than 38 inches measured vertically from a line connecting the leading edge of the treads. Handrails shall be continuous for the full length of the flight and shall be returned or shall terminate by newel post, safety terminal, volute, or turnout. The handgrip size shall be a minimum of 1¼ inches and a maximum of 2 inches. See Page 12.

SITE PREPARATION

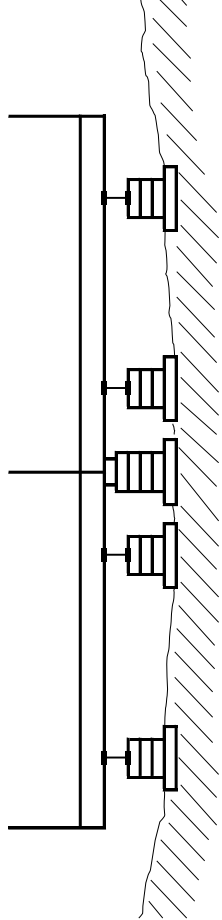
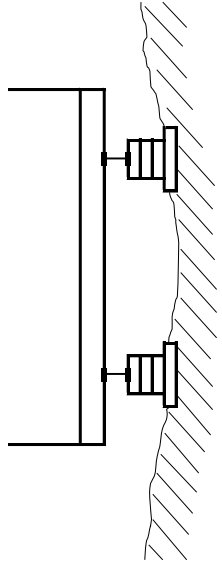
Single Section



Multi-Section



DO: Crown and grade the site to slope away from the home. Cover the placement site with 6-mil black polyethylene sheeting or equivalent.



DO NOT: Grade the site so that water collects beneath the home.

Figure 1: Elimination of water beneath the home

Main Frame and Perimeter Blocking Diagrams

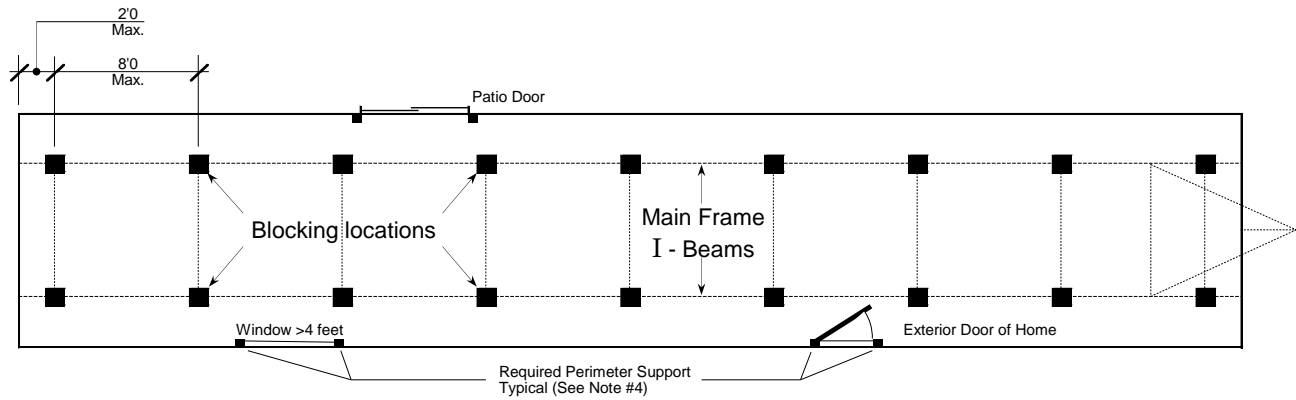


Figure 2 - Typical blocking diagram for single-section home when manufacturer's instructions are not available

Notes: Applies to both Figures 2 and 3. See Pages 4 and 9 for Blocking/Pier/Support details.

- 1) See Figures 5 and 6 on Page 9 for blocking/pier/support examples.
- 2) See Table 8-1 and Figure 4 on Page 8 for Marriage Line blocking requirements.
- 3) Main frame I-beam blocking/piers shall be spaced not more than 8 feet on center
- 4) Piers shall be located at a maximum of 2 feet from each end of the main frame I-Beams.
- 5) Place support piers beneath both sides of entry doors and any other openings greater than 4 feet in width, such as patio doors, windows, fireplaces, porch posts and slide-outs; and under those places where heavy pieces of furniture such as pianos, waterbeds, etc., may be placed.
- 6) Piers greater than 36 inches in height shall be of the Double Interlocked design and all open cells shall have at least one #4 vertical steel reinforcement and shall be filled with concrete grout. Vertical steel reinforcement shall have hooks poured into the footing beneath. See Figures 5 and 6 on Page 9.

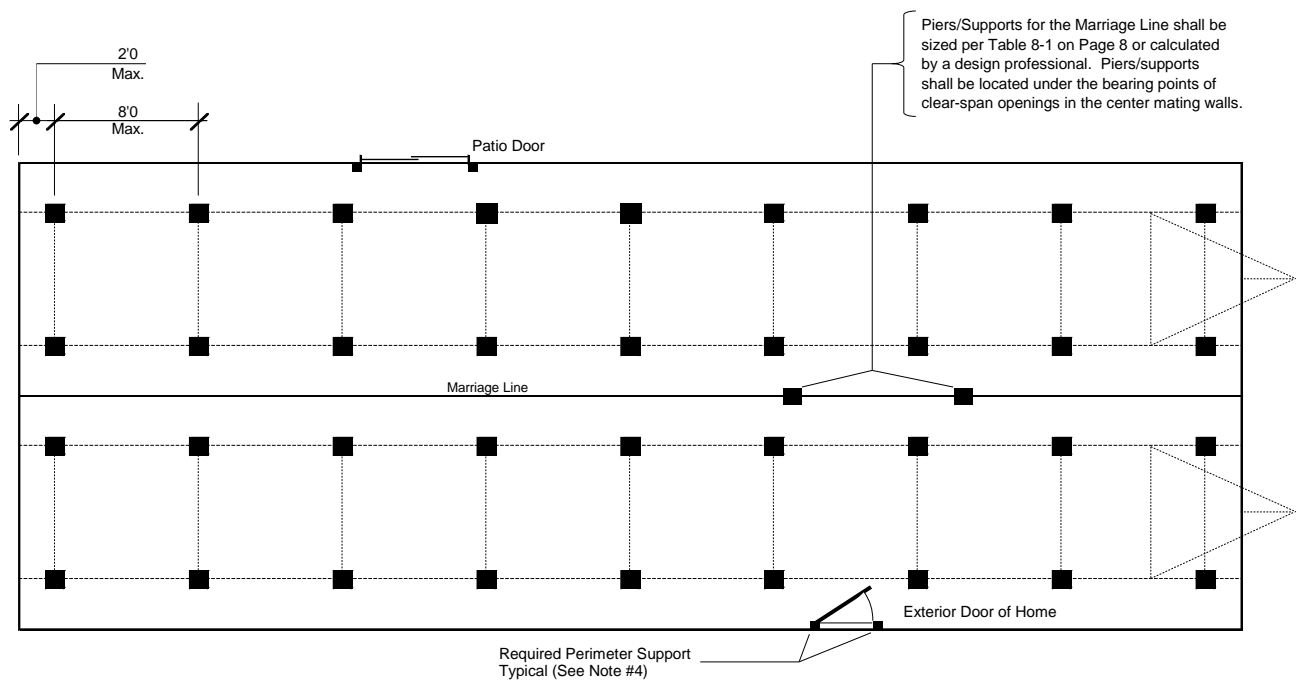


Figure 3 - Typical blocking diagram for multi-section home when manufacturer's instructions are not available

Marriage Line Pier Capacity and Blocking Diagrams

Table 8-1 Pier Capacity Schedule for Marriage Line of Multi-Section Manufactured Home

Section Width (feet)	Roof Live Load (lbs./sq.ft.)	Minimum Blocking/Pier/Support Capacity (lbs.)						
		Marriage Line Opening (feet)						
		5	10	15	20	25	30	35
8	20	600	1200	1800	2400	3000	3600	4200
	30	800	1600	2400	3200	4000	4800	5600
	40	100	2000	3000	4000	5000	5000	7000
10	20	800	1500	2300	3000	3800	4500	5300
	30	1000	2000	3000	4000	5000	6000	7000
	40	1300	2500	3800	5000	6300	7500	8800
12	20	900	1800	2600	3500	4400	5300	6100
	30	1200	2300	3500	4700	5800	7000	8200
	40	1500	2900	4400	5800	7300	8800	10200
14	20	1000	2000	3000	4100	5100	6100	7100
	30	1400	2700	4100	5400	6800	8100	9500
	40	1700	3400	5100	6800	8400	10100	11800
16	20	1200	2300	3500	4700	5800	7000	8100
	30	1600	3100	4700	6200	7800	9300	10900
	40	1900	3800	5800	7500	9700	11600	13600

To determine the pier capacities for the Marriage Line supports, follow the example shown in Figure 4 below.

Example: The example drawing below shows the manufactured home has a 14 foot Section Width.
The Grant County Roof Live Load for a manufactured home is 30 lbs. per square foot.

Using Table 8-1 above, determine the required minimum pier capacity for each Marriage Line opening in Figure 4.

- 1) In Table 8-1, follow the "Section Width" column down to "14 feet".
- 2) Then follow across the "30 lbs./sq.ft." row in the "Roof Live Load" column.
- 3) To determine the minimum pier capacity for the 18 foot Living Room opening, follow across the "30 lbs./sq.ft." row to the column headed "20". The number in this column is the pier capacity for that opening.
- 4) If the opening size falls between two columns shown on Table 8-1, round up to the higher column.
- 5) If a pier carries a load from two openings, add the column totals of the two openings to get the total pier capacity.

In this example, as per Table 8-1, the pier capacity for the 18 foot Living Room opening is 5,400 lbs. The 16 foot Kitchen opening is 5,400 lbs. The 8 foot Family Room opening is 2,700 lbs. The 5 foot hallway opening is 1,400 lbs.

The Marriage Line pier capacity (in pounds) in each location on Figure 4 below is as follows:

East end Living Room	5,400	West end Family Room	2,700
Living Room/Kitchen	10,800	Hallway (each end)	1,400
Kitchen/Family Room	8,100	West end of home	1,400

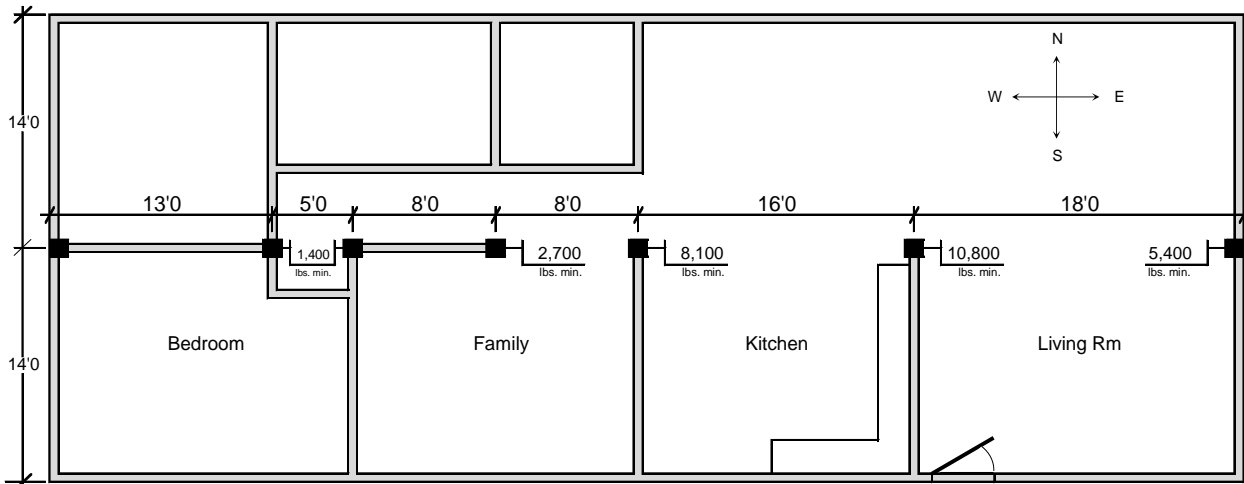


Figure 4 - Example of multi-section home to determine pier capacity of Marriage Line support blocking.

Main Frame and Marriage Line Blocking Details

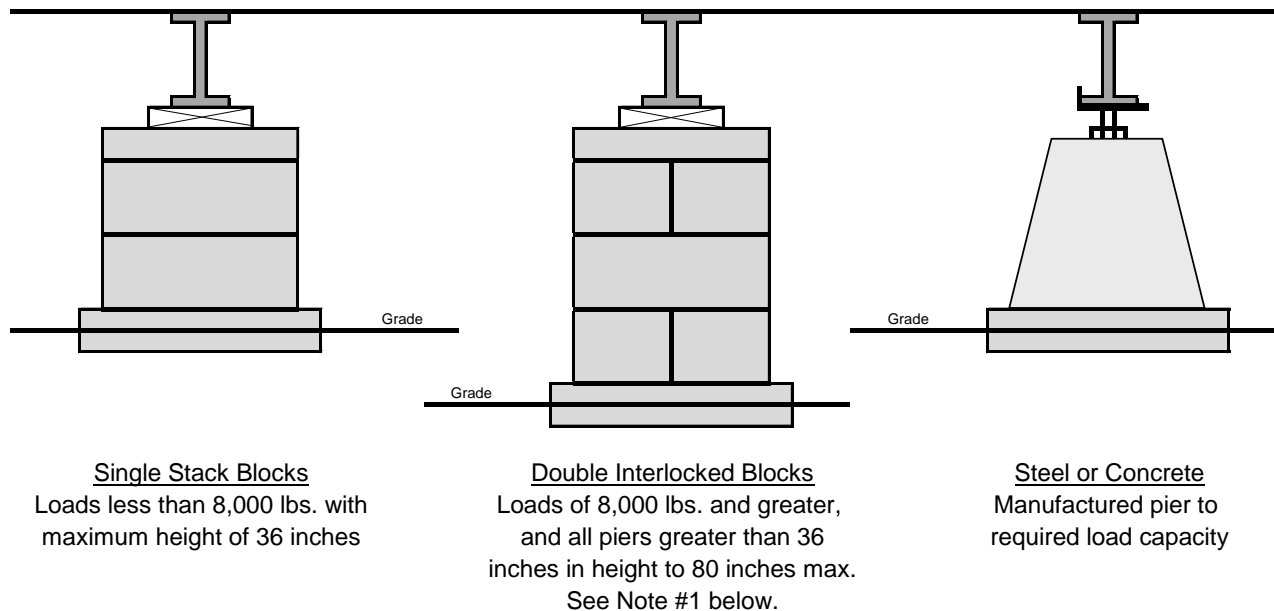


Figure 5 - Pier Blocking Designs

1. Piers greater than 36 inches in height shall be of the Double Interlocked design and all open cells shall have at least one #4 vertical steel reinforcement and shall be filled with concrete grout. Vertical steel shall have hooks poured into the footing beneath. See Figure 6 below.
2. When more than one-fourth of the area of a home is installed so that the bottom of the main-frame members are more than 36 inches above ground level, the foundation and stabilizing system shall be of an engineered design and shall be approved by Grant County Development Services.
3. Corner piers over three blocks high shall be the Double Interlocked Block design.

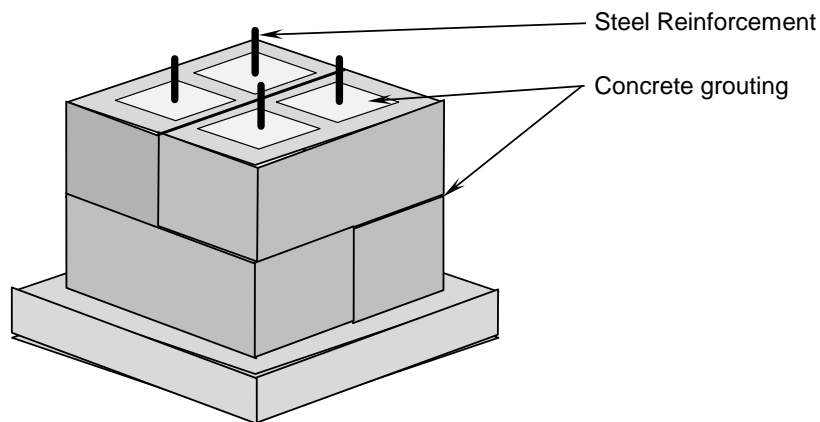


Figure 6 - Double Interlocking Pier Block Design for Piers over 36 Inches in Height

Main Frame Tie-Down Schedule and Diagrams

Table 10-1 Tie-Down Schedule

Grant County is in Zone 1.

Strap Method	Minimum Anchor Load Capacity	Maximum Anchor Spacing		
		Zone I	Zone II ⁽³⁾	Zone III ⁽³⁾
Single Strap	4725 lbs.	11'-0"	6'-0"	4'-6"
Double Strap	4725 lbs. ⁽¹⁾	11'-0" ⁽²⁾	6'-0" ⁽²⁾	4'-6" ⁽²⁾

- 1) Unless listed/labeled for a higher capacity by the anchor manufacturer.
- 2) Unless a greater spacing is specified by the anchor manufacturer.
- 3) Manufactured homes located in Wind Zones II and III shall have a vertical tie installed at each diagonal tie location.
- 4) See Figure 8 on Page 11 for Tie-Down strap details.
- 5) Alternate Tie-Down methods shall be of an engineered design and shall be approved by Grant County Development Services.

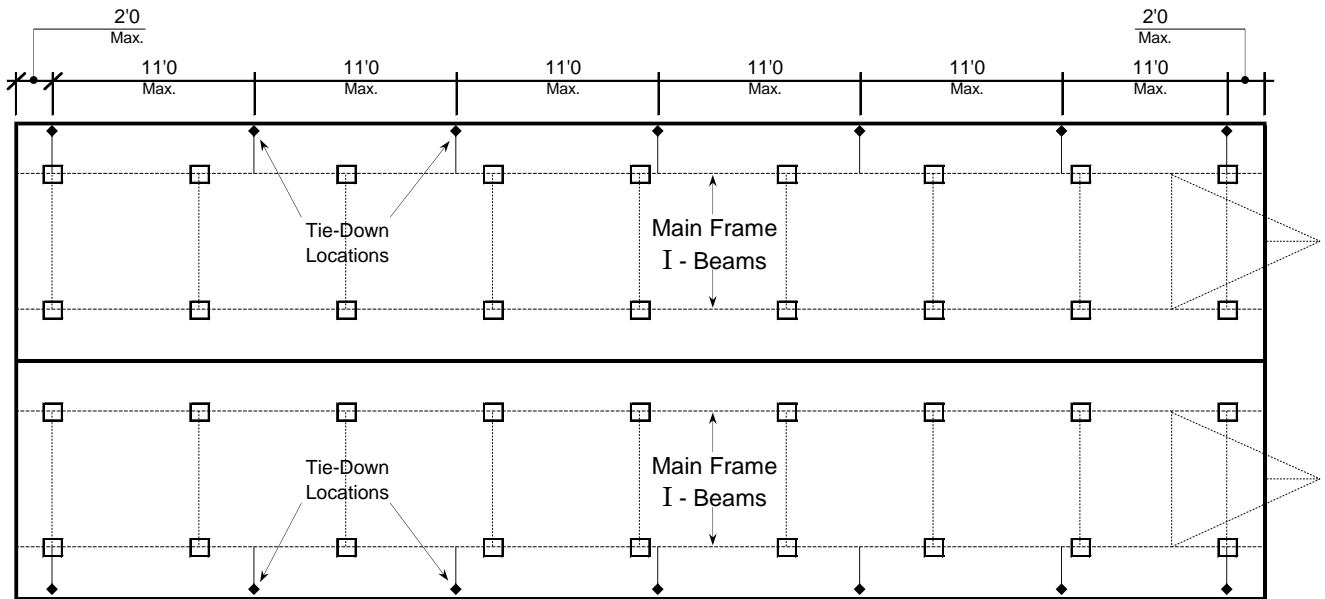
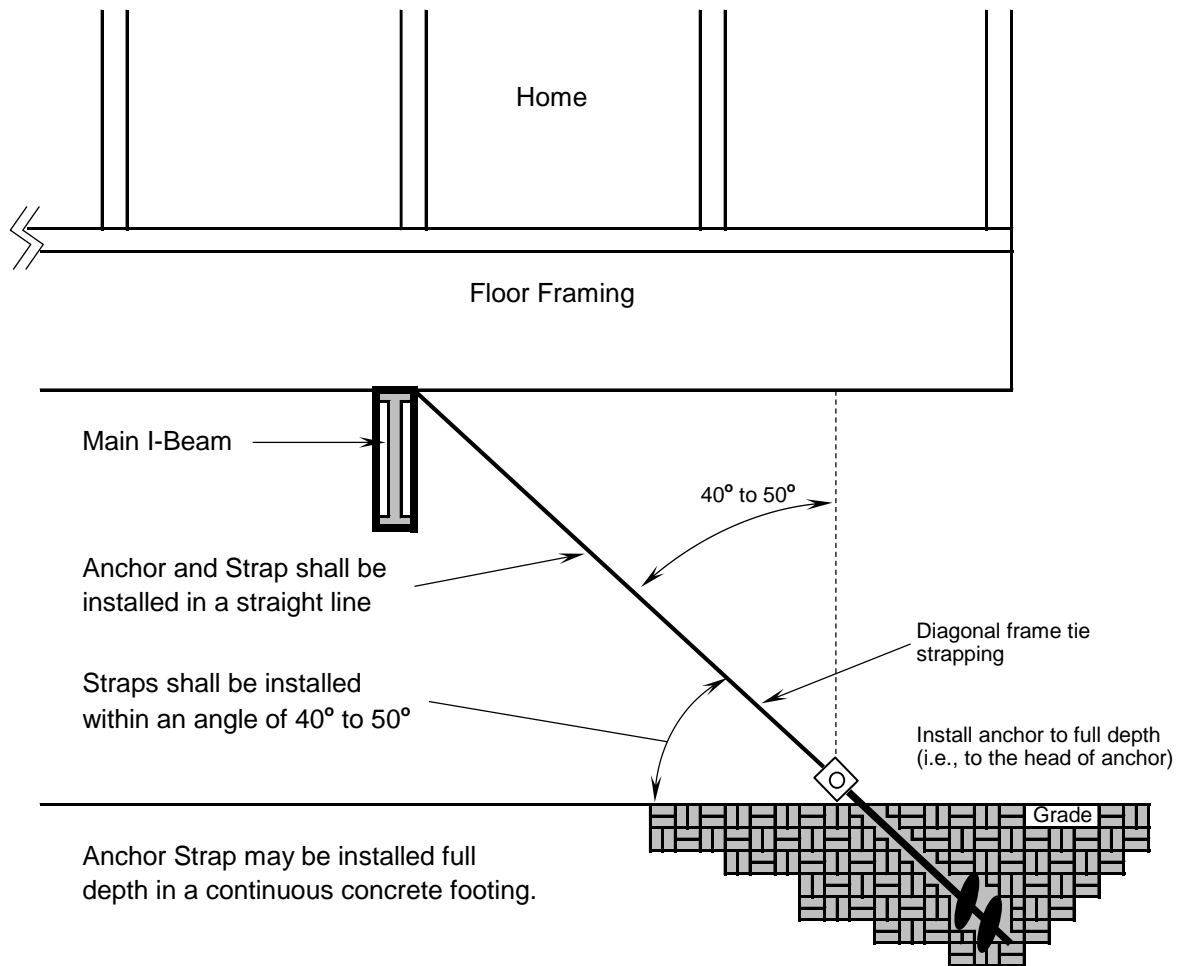


Figure 7 - Typical Tie-Down diagram for multi-section home when manufacturer's instructions are not available

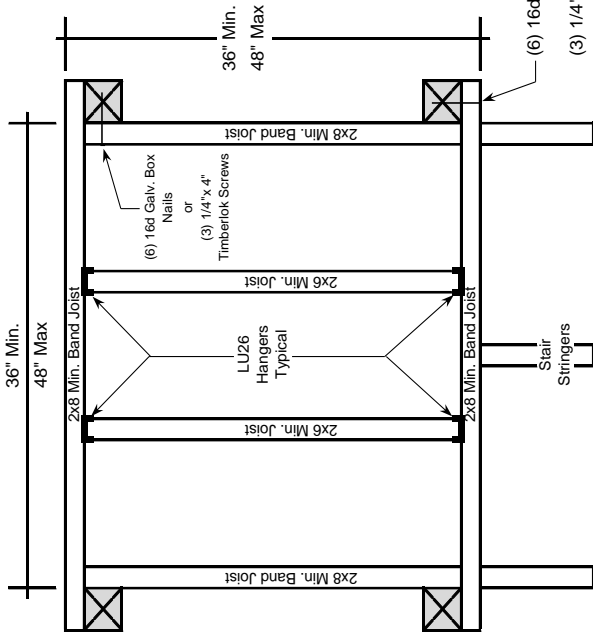
Tie Down Installation Detail



1. All anchoring parts shall be certified to a 4,725 pound capacity.
2. The ground anchors shall be sized in accordance with the direction of the load and the type of soil.
3. The ground anchor's auger shall be installed below the frost line.
4. Ground anchors may be installed vertically if either a 10 inch x 18 inch (minimum) concrete collar or an approved metal stabilizing device is installed.

Figure 8 - Installation of Tie Down Straps and Anchors

Overview - Landing Framing



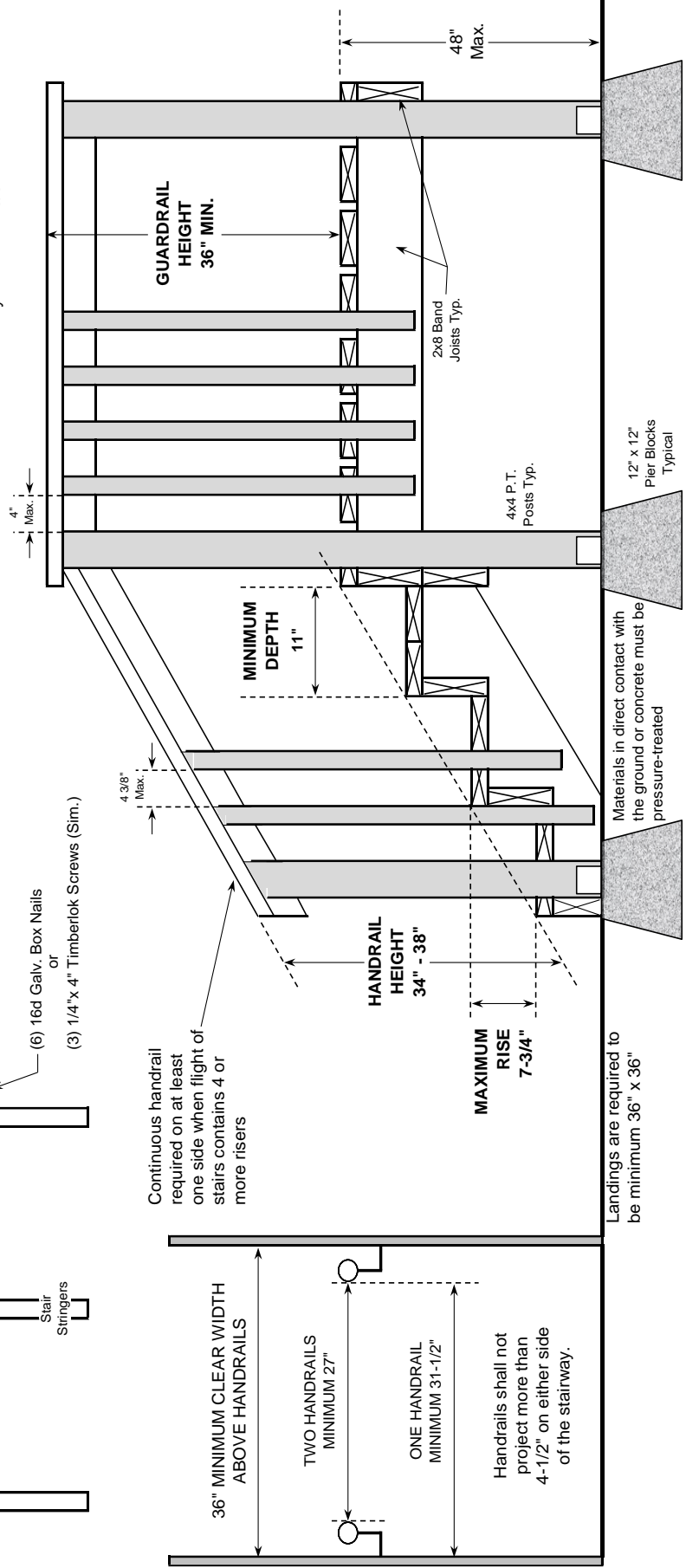
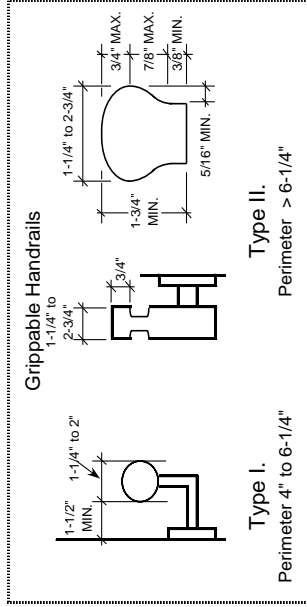
MH Stairs and Landing Sample Plan

Guards are required on stairs, landings and decks when decks or landings are greater than 30" above the surface below. Guard in-fill shall withstand 50lb./sq.ft. load. Guardrails and Handrails shall withstand a 200 lb. concentrated load.

Open risers are permitted, provided the opening between treads does not permit the passage of a 4" sphere.

The greatest tread depth within a flight of stairs shall not exceed the smallest by more than 3/8".

The greatest riser height within a flight of stairs shall not exceed the smallest by more than 3/8".



Grant County Development Services
MH Plumbing Self Certification Form
For Homeowners and Licensed Plumbers

This form may be completed in lieu of leaving a pressure test on the water and sewer lines for inspection by our office. You must fill out this form completely and return it to the Grant County Development Services or leave it on site with your permit for pick up during your inspection.

Permit Holder: _____

Building Permit #: _____

Site Address: _____

MH Make: _____

MH Model: _____

I certify that the drain/waste system and water supply lines for this described home have been site tested in accordance with the Manufacturer's Specifications and/or the WA ST Building Code, and have been found to be free of defects or leaks on this date: _____

Licensed Plumber's Name	Plumber's Signature	License #
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(or)

Homeowner's Name	Owner's Signature	Phone #
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NOTE

This form is not for use by Certified MH Installers. Certified Installers are to complete and attach their installer (WAINS) tag to the home as required.