
2024

State of Washington

Manufactured Home Installer Training Manual

*A Guide to Installation of
Manufactured Homes in Washington State*



 Washington State Department of
Labor & Industries

Manufactured Home Installer Training & Certification Program, 7273 Linderson Way SW, Tumwater WA. 98501

Acknowledgements

The original installer training manual was prepared in 1994, under the Department of Community Trade and Economic Development now known as Department of Commerce. With the support from the Technical Work Group and many others in the manufactured housing industry.

Members within the manufactured housing industry from a wide spectrum of interests serve on technical work groups to help improve the Installer Training Program. The department extends its deep appreciation throughout the years to the following individuals for their time and guidance with our course and manual: Michael Ajax, Jefferson County; Gordon Aleshire, Pierce County; Allen Aschim, Gary Austin, Ken Baird, Jim Barter, Pete Belles, AB Boe; Joan Brown, Washington Manufactured Housing Association; David E. Cassel, P.E; Darle Lacey, TJT, Inc.; Brent Knight, Fleetwood Homes of Washington; Dave Hurley, D & J Company; John Lee, Coach Corral Mobile Home Sales; Ron Clarke, Chet Doan, George Drazen, Jerry Ennis, Paul Hancher, Nancy Hanna, Bill Eames, Dale Hellewell, Rob Johnson, David Kasper, Willie Hill; Doug Hobkirk, Manufactured Housing Community Preservationists; Bob Kaul, Randy Klein, Dave Kingen, Mike Kohl, Ed Landgrebe, Dave Lewis, Mike Lubliner, Gary Massengale, Tim McDonald, Nancy McInnis, Pat McLachlan, CTED; Mike Meinberg, John Minor, Gub Mix, Kevin Morris, Barbara Myers; John Neff, City of Lacey; Don Nelsen, Heritage Home Center; Doug Nicholson, Keith Padgett, Coach Corral Mobile Home Sales; Ralph Provencal, City of Olympia; Donald Pejsa, Don Peters, Al Rust, Cal Sanders, Department of Licensing; Grant Sawyer, Chuck Shirley, John Sanborn, Chuck Shirley, Ace Mobile Home Service; Ron Sparkman, Jon Stuewe, Jon Thomas, Bob Thompson, Wayne VanderLinden, Jack Walker, Dan Sevcik, Dan Wolfenbarger, and John McMillan, Department of Labor and Industries.

For Additional Information

Please address any comments about the manual or course to:

Department of Labor and Industries
Manufactured Home Installer Training and Certification Program
PO Box 44420, Olympia, WA 98504-4420.

For information about the Manufactured Home Installer Training and Certification Program, class registration, call: 1-800-705-1411 (Option 3) or Charles Parton (509) 454-3785 or email pacs235@lni.wa.gov

For Internet access to the installer program see our web site at:

<https://lni.wa.gov/licensing-permits/manufactured-modular-mobile-structures/installer-dealers/>

Neither the manual text nor the illustrations are law, but are for educational purposes only. Most applicable laws are referenced, or included in the Appendix. Although many industry participants are consulted, the Washington State Department of Labor and Industries (L&I) is responsible for the final text.

Table of Contents

Chapter 1

INTRODUCTION

Installer Certification	1-1
How to Use this Manual	1-2
Changes to this Manual.....	1-3
History	1-3
WAC 296-150I 1/31/2022 Revisions.....	1-7
HUD Revisions 3/15/2021	1-9

Chapter 2

LAWS

Installer Overview	2-1
Installer Certification	2-2
Responsibilities to the Consumer.....	2-6
Installer Tags and Reporting.....	2-6
Certification Period and Renewal	2-9
Continuing Education	2-9
The HUD Code	2-11
Installation Code	2-13
Installation Requirements	2-17
24 CFR Part 3285 Model Code.....	2-21
Manufacturers' Installation Manuals	2-22
Super Good Cents, Natural Choice, and Energy Star Homes	2-23
Other Codes	2-24
Who Does What.....	2-25

Chapter 3

PERMITS – SITE PREPARATION - PLACEMENT

Installation Permits	3-1
Location and Layout	3-2
Site Preparation.....	3-4
Ground Vapor Retarder.....	3-6
Handling on Site	3-7
Transit Damage.....	3-8
Safety	3-9
Permits and Preparations Checklist.....	3-11

Table of Contents

Chapter 4

FOUNDATION DESIGN and CONSTRUCTION

Foundation Requirements	4-1
Crawl Space Height	4-1
Leveling	4-2
Foundation Design	4-5
Foundation Materials	4-6
Foundation Construction.....	4-7
Soil Bearing Capacity	4-7
Snow Loads.....	4-9
Frost Heave	4-10
Footings	4-10
Support Piers.....	4-17
Ridge Beam Supports	4-22

Chapter 5

STRUCTURAL CONNECTIONS

Joining Sections	5-1
Floor Connections.....	5-2
Wall Connections	5-6
Roof Connections.....	5-11
Roof Close Up.....	5-15
Hinge Roofs	5-16
Ventilation	5-17
Triple Sections	5-18
Tag Unit Roofs	5-20
Alternate Construction	5-23
On-Site Completion	5-37

Chapter 6

ANCHORING

Anchoring Requirements	6-1
HUD Wind Zones	6-1
Anchoring Equipment.....	6-3
Anchoring Methods	6-4
Earthquake Bracing.....	6-15

Chapter 7

MECHANICAL SYSTEMS

Heating Crossover Duct.....	7-1
NEEM/Energy Star Specifications.....	7-2
Combustion Appliances	7-13
Gas	7-15
Plumbing.....	7-18
Electrical	7-30
Carbon Monoxide Alarms	7-39

Table of Contents

Chapter 8

SKIRTING and CRAWL SPACE REQUIREMENTS

Skirting Requirements	8-1
Skirting Construction	8-3
Skirting Ventilation.....	8-5
Under Floor Ventilation Schedule	8-6
Access Doors	8-7
Water Heater Relief Valve and Pan Drains	8-8
Condensate Drain.....	8-9
Clothes Dryer Exhaust	8-10

Chapter 9

FINISHING

Belly Fabric Sealing.....	9-1
Interior Sealing.....	9-1
Exterior Sealing	9-2
Windows and Doors.....	9-3
Ventilation Systems	9-5
Appliances.....	9-5
Furnace.....	9-6
Smoke Alarms.....	9-6
Dealer Lot Models	9-6
Installation Checklist	9-6
MH Installation Checklist Example.....	9-7
Inspections	9-10
Installation Instruction – Required Location	9-10
Other Inspections	9-10
WABO Inspection Checklist.....	9-11
Auxiliary Structures & Alterations	9-13
Cleaning	9-15
Consumer Complaint Program.....	9-15

Chapter 10

GLOSSARY	10-1 to 10-9
-----------------------	--------------

APPENDIX A

Manufactured/Mobile Home Installer Certification and Installation Laws and WAC's

RCW 43.22A.....	A-1 to A-9
RCW 43.22.440	A-10
WAC 296-150I.....	A-11 to A-37

APPENDIX B

Manufactured/Mobile Home Alteration Laws

WAS296-150M.....	B-1 to B-35
------------------	-------------

APPENDIX C

24 CFR PART 3285 MODEL INSTALLATION CODE.....	C-1 to C-71
---	-------------

Table of Contents

APPENDIX D

MISCELLANEOUS

Active Northwest Home Manufacturers	D-1
Department of Labor & Industries Offices	D-2
Minimizing Flood Damage to Manufactured Homes	D-3 to D-4
Home Data Certifications	D-5 to D-6
Manufactured/Mobile Home and Other FAS Insignia's	D-7 to D-14
Plumbing – Drain, Waste and Vent Fittings	D-15 to D-16
PVC Piping	D-17
Guide for Cutting, Notching and Boring Joist & Studs	D-18 to D-20
How to Use Your Installer Certification Tags	D-21
How to Complete Your Certification Tag Report.....	D-22
Installer Forms	D-23 to D-28
Installer Affidavit 3285.....	D-29
Miscellaneous Code References	D-30 to D-46

Chapter 1

Introduction

- **Installer Certification**
- **How to use this Manual**
- **Changes to this Manual**
- **History**

INSTALLER CERTIFICATION

The Washington State Legislature passed the installer certification law, RCW 43.63B, in 1994 to improve manufactured home installations. Effective July 1, 1995, Washington law requires a certified manufactured home installer to be on site to supervise all phases of manufactured home installation work. This law was passed by the legislature after researching numerous complaints from manufactured home owners about their homes and finding that more than one-half of the problems were related to improper setup. The current training and certification process was developed with input from many dedicated individuals representing all facets of the manufactured housing industry, installers, and state agencies.

On October 20, 2008, The Department of Housing and Urban Development placed in statute the establishment of qualified installation standards; the licensing and training of installers; and the inspection of the installation of manufactured homes.

To become a certified manufactured home installer in Washington State, an individual must meet the following requirements:

1. Meet experience qualifications.
 - **6 months hands-on installation experience under the supervision of a certified installer; or**
 - **2 years hands-on experience in residential or commercial construction.**
2. Submit an application and fee.
3. Attend the 12-hour training course.
4. Take and pass the certification examination

NOTE: See Chapter 2 for a list of installation work that requires a certified installer.

When you are certified as a manufactured home installer in Washington, you become an industry professional with an important role: making sure, the homes you are responsible for installing are comfortable and safe. Good installation work helps ensure a quality home that will last a long time. An improper installation can permanently affect the structure and energy efficiency of the home as well as cause numerous other problems.

It is not only what you do, but also the way you do it that is important. The way you talk and act around your customers, the new homeowners, has an effect on the industry that you may not fully realize. The image the customer has of you as a professional installer reflects upon the image of the industry in general. A quality installation and good customer relations will promote the sale of more manufactured homes, resulting in increased business.

The certified installer may not have control over schedules or the weather, but getting the installation done on time will help build a good reputation. When problems arise, communicating the problem, as well as possible solutions, is essential for good homeowner relations.

HOW TO USE THIS MANUAL

The purpose of this manual is to clarify legal and technical requirements for installing manufactured homes in Washington. This industry continues to make changes, as new equipment and materials are implemented, along with State and Federal guideline and updates are made periodically. This manual is designed to be a learning tool and reference. It does not replace the manufacturer's installation manual or the instructions provided in the Washington Installation Law, WAC 296-150I.

The educational philosophy of this course is to:

- Teach the laws applicable to manufactured home installation.
- Provide a basic understanding of how to install homes, as well as why specific methods are preferred.
- Provide the resources for answering questions, working with local building departments, and solving problems that may arise during installation.
- Aid the manufactured home installer in understanding and following the home manufacturer's installation instructions.

The manual is organized in a similar order as the steps taken to install a home.

Chapter 2 outlines the federal, state, and local laws, and the rules and standards you need to know. It covers which laws take precedence. The state laws and rules are reprinted in full in Appendix A and Appendix B. Chapter 3 covers permits, site preparation, and placement.

Chapter 4 covers foundation design and construction. Chapter 5 covers structural connections. Chapters 6, 7, 8, and 9 describe anchoring, mechanical, skirting, and finishing procedures.

Illustrations in this manual are always **Examples Only** for educational purposes. The state is not promoting any particular company or equipment, but uses selected illustrations based solely on their educational value. Washington State installation code requires following the home manufacturer's installation instructions. The illustrations in this manual, which are taken from home manufacturers' installation manuals, are typical of what you will see in the field. The purpose is not necessarily to provide what L&I believe is the best way to install homes, but to teach you how to deal with what you actually experience in the field. Illustrations in the manual are designed for use in conjunction with the classroom instruction and may not be fully described in these pages. In other words, this manual is intended primarily as a guide for classroom presentation rather than a stand-alone document.

CHANGES TO THIS MANUAL

The Washington State Installation Law (Washington Administrative Code 296-150I) is reviewed for changes every year. The *Manufactured Home Installer Training Manual* is updated when changes occur in the laws relating to manufactured home installation. Department of Labor and Industries (L&I) staff also reviews and updates the manual annually. Any suggested changes to this manual or the course in general will be seriously considered and should be submitted in writing to Department of Labor and Industries, Manufactured Home Installer Training and Certification Program, PO Box 44420, Olympia, WA 98504-4420.

HISTORY AND INSTALLER UPDATES

Manufactured housing and mobile homes goes back to the early years of cars and motorized highway travel. It was derived from the travel trailer, a small unit with permanently attached wheels often used for camping. Larger units intended to be used as dwellings for several months or more in one location came to be known as house trailers.

The original focus of this form of housing was its mobility. Units were initially marketed primarily to people whose lifestyle required mobility. However, beginning in the late 1950s, the home began to be marketed primarily as an inexpensive form of housing designed to be set up and left in a location for long periods of time, or even permanently installed with a masonry foundation. Previously, units had been eight feet or less in width, but in 1956, the 10-foot wide home was introduced, along with the new term “mobile home.” The homes acquired a rectangular look, made from pre-painted aluminum panels, rather than the streamlined look of travel trailers, which were usually painted after assembly. All of this helped solidify the line between these homes and house/travel trailers. The smaller units could be moved simply with a car, but the larger, wider units usually required the services of a professional trucking company and often, a special moving permit from a state highway department.

In the 1960’s mobile homes were manufactured with few, if any codes or standards being followed in any state. In 1962, the State of Washington established standards for plumbing, heating and electrical requirements.

On January 1, 1968 laws were passed in Washington that affected the regulations of mobile home construction. These rules and regulations made it unlawful for any person to lease, sell or offer for sale, within this state, any mobile homes, commercial coaches and/or recreational vehicles manufactured after this date, containing plumbing, heating, electrical or other equipment, and after July 1, 1970 body and frame design or construction unless such equipment meets the requirements of the rules and regulations.

In the 1970’s, the homes became even longer and wider, making the mobility of the units more difficult. Today, when a factory built manufactured home is moved to a location, it is usually kept there permanently and the mobility of the units has considerably decreased. Manufactured home construction has changed over the years. No longer can they be called “trailers” or “mobile homes.”

Many people who could not afford a traditional site-built home or did not desire to commit to spending a large sum of money on housing began to see these factory built homes as a viable alternative for long-term housing needs. The units were often marketed as an alternative to the apartment rental. However, the tendency of the units of this era to rapidly depreciate in resale value made using them as collateral for loans far riskier than traditional home loans. Terms were usually limited to less than the thirty-year term typical of the general home-loan market, and interest rates were considerably higher. In other words, home loans resembled motor vehicle loans far more than traditional home mortgages.

In 1974, Congress passed the first federal law to establish a national program of construction standards for manufactured homes, previously termed mobile homes. The federal law charged the U.S. HUD with the responsibility to adopt national preemptive procedural regulations and construction standards applying to manufacturers, dealers, and state and private enforcement agencies. HUD completed its work and adopted their procedural and enforcement regulations and construction standards on June 15, 1976. On and after June 15, 1976 all manufactured homes as defined in the law were required to be manufactured in compliance with the new HUD standards regardless of any preexisting state or local code. Most manufactured homes will never be relocated after they are correctly installed. The responsibility of a manufactured home installer has never been more important.

Significant Dates for Manufactured Housing in Washington State:

6/15/1976 to 7/1/1992 - Labor & Industries has been designated by HUD to regulate all manufactured home factories in Washington producing HUD built homes. The state acts as the In-Plant Primary Inspection Agency (IPIA). HUD has also designated the Department of Labor & Industries to carry out the State Administrative Agency (SAA) program. The State IPIA program under contract with Housing and Urban Development (HUD) is the exclusive inspection agency to audit and inspect in-state manufacturers building HUD code homes. The SAA program monitors all consumer complaints and other information referred to it that relate to non-compliances, defects, serious defects or imminent safety hazards per Manufactured Home Procedurals and Enforcement Regulations.

7/1/1992 - The State Administrative Agency program was moved under the Department of Community Trade and Economic Development (currently Department of Commerce). The IPIA (In-Plant Primary Inspection Agency) program has remained at Labor and Industries since the inception of the HUD program. The Department of Labor & Industries, Factory Assembled Structures, IPIA inspectors have handled all SAA consumer complaint inspections in the field.

7/1/1995 - The Department of Community Trade and Economic Development (DCTED) developed the Installer Certification requirements for installers.

7/1/1996 - Washington State required that all manufactured homes be anchored. Prior to this date the Washington Administrative Code WAC 296-150B recommended manufactured and mobile homes to be anchored on personal property. Many homes in Washington State were anchored prior to 1996 on personal property.

9/16/2002 - HUD 24 C.F.R. MHCSS 3280.209 Smoke Alarm requirements. Manufacturers are to locate alarms in the living area remote from the kitchen and cooking appliances, in each room designated for sleeping. For each home designated to be placed over a basement, the manufacturer must provide a smoke alarm for the basement. All smoke alarms locations and signaling systems are now required to be provided with interconnected smoke alarms.

7/1/2003 - State rules were established to include the placement of installer tags on each home being installed.

2004 - L&I & DCTED begin teaching Installer Certification & CE's classes together.

11/30/2005 – 24 C.F.R. MHCSS 3288.709(h) HUD required all water heaters to be installed with a drain pan and the drain pipe to terminate to the exterior of the home.

7/1/2007 - the SAA and Installer Certification programs were transferred back to Labor & Industries.

2/8/2008 - HUD approves Washington Dispute Resolution Program.

6/20/2008 - HUD required that all States have an installer program.

Chapter 1 - Introduction

10/20/2008, HUD establishes new Model Manufactured Home Installation Standards and Manufactured Housing Installation Rules and Regulations - 24 CFR 3285 & 3286.

2/9/2009 - HUD required that all manufacturer's update their installation manuals to reflect 24 CFR 3285 & 3286 regulations.

1/1/2013 - Washington State Building Code Council adopted rules requiring that all buildings classified as residential occupancies, as defined in the state building code to be equipped with carbon monoxide detectors.

4/24/2015 – 24 C.F.R. MHCSS 3280.607(b)(v) Shower and tub-shower combination valves to be either pressure balanced, thermostatic, or combination mixing valves that conform to the requirements of ASSE 1016-2005 and having a maximum temperature setting of a 120 degrees Fahrenheit. Hot water supply for bathtubs and whirlpool bathtubs to be equipped with a water temperature-limiting device that conforms to the requirements of ASSE 1070-2004 and will deliver hot water with a maximum temperature of 120 degrees Fahrenheit.

9/7/2016 – HUD requires that all manufacturers have SC (Site-Completion) approvals for all aspects of construction. (See Chapter 5)

1/1/2018 – The Manufactured Home Installer Training and Certification Program as a result of House Bill 1329. This bill replaces the mandatory penalty of \$ 1,000 for each infraction of manufactured home installation requirements with discretionary authority to issue warnings, and a monetary penalty of no more than \$ 250 for a first infraction and no more than \$ 1,000 for a second or subsequent infraction.

In 2020 The Department completed a review and re-write of the Installer Certification and Installation Program. The new changes and clarification of WAC 296-150I are now broken out into three areas. 1) Manufactured Home Installer Requirements 2) Installer Certification Required and 3) Manufactured Home Installation requirements. Significant changes and clarifications are as follow:

WAC 296-150I-0020 Definitions:

Approved homeowner: is an individual person who owns a manufactured home and who also passes the departments' installer training class and test, with the intention of installing their own home and residing in that home upon completion of the installation work.

Authorized Representative: means an employee of a state agency, city, or county acting on behalf of the department.

Final Infraction: means an infraction that was not appealed during the time period required by RCW 43.22A.200, or was unsuccessfully contested via the appeal process allowed by law.

Installation: means all on-site work necessary for the setting up and completion of a manufactured or mobile home, starting with the preparation of the building site through final permit approval by the local enforcement agency. Some categories of installation work may be exempt from certification requirements.

Local Enforcement Agency: is the governing body of each city, town or county with the power to enforce local regulations governing the use, location and construction of buildings in that jurisdiction.

Vapor Retarder: means a ground cover material of 6-mil black polyethylene sheeting or equivalent.

WAC 296-150I-0110 for the installation of a manufactured home the homeowner must attend and pass an installer training class prior to starting the work.

WAC 296-150I-0130 Manufactured home installer shall verify the acceptability of the site preparation before beginning any installation work.

WAC 296-150I-0140 Approved homeowners performing the installation work on their own manufactured home are required to purchase an installer certification tag for use on their home.

WAC 296-150I-0160(2) the installer certification tags must be placed on the end of the home section directly above or below the HUD label or (optional) placed on the chassis main I-beam directly adjacent to and visible from the crawl space access.

WAC 296-150I-0200 The department of labor and industries will ensure installers comply with the requirements of RCW 43.22A.130 which requires a certified manufactured home installer to be present for each phase of the installation being performed by all members of the installation crew by: (1) Random site inspections of manufactured home installations and verification of installer certification and supervision.

WAC 296-150I-0310 A vapor barrier retarder must be installed under all manufactured homes.

Chapter 1 - Introduction

WAC 296-150I-0310 A carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in manufactured homes and on each level of the dwelling in accordance with the manufacturer's recommendations.

WAC 296-150I-0310(2)(b)The Model Code CFR 24 Part 3285 to be used on all secondary installation locations when the original manufacturer's installation manual is not available. Model Code 24 CFR Part 3285 replaces ANSI A225.1 1994 Edition.

WAC 296-150I-0330 Requirements for temporary placement of manufactured homes. Manufactured homes in storage or on display longer than ninety days must also be supported at each centerline column and along each rim joist at the manufacturer's identified support points. Retailers to install all homes dealer lot after 90 days to be installed to the manufacturer's installation requirements.

WAC 296-150I-0375 State monitoring of the installation and inspections of manufactured homes. The department monitors the installation and inspections of manufactured homes within the state to assure compliance with the regulations established by HUD, for manufactured housing.

WAC 296-150I-0380 When the manufacturer's installation instructions are not available for a secondary installation, the installer shall provide an affidavit in lieu of the instruction manual, that the home is installed to the provisions of this chapter.

3/15/2021 MHCSS 3280 HUD Revisions

§3280.3 Manufactured home procedural and enforcement regulations and consumer manual requirements.

(b) Consumer manuals must be in accordance with § 3282.207 of this chapter.

§3280.103 Light and ventilation.

(b) Whole-house ventilation. Each manufactured home must be provided with whole-house ventilation having a minimum capacity of 0.035 ft³/min/ft² of interior floor space or its hourly average equivalent. This ventilation capacity must be in addition to any openable window area. In no case shall the installed ventilation capacity of the system be less than 50 cfm. The following criteria must be adhered to:

(d) Optional ventilation provisions. As an option to complying with the provisions of paragraphs (b) and (c) of this section, ventilation systems complying with ANSI/ASHRAE Standard 62.2 (incorporated by reference, see § 3280.4) may be used.

§3280.209 Smoke alarm requirements.

Labeling. Each smoke alarm required under paragraph (b) of this section must conform with the requirements of UL 217 (incorporated by reference, see § 3280.4), or ANSI/UL 268

(incorporated by reference, see § 3280.4), and must bear a label to evidence conformance.

Combination smoke and carbon monoxide alarms shall be listed and must bear a label to evidence conformance with UL 217 and ANSI/UL 2034.

Combination alarms. Combination smoke and carbon monoxide alarms shall be permitted to be used in lieu of smoke alarms. If installed, such alarms must meet location requirements for both smoke alarms and carbon monoxide alarms.

§3280.211 Carbon monoxide alarm requirements

Labeling. Carbon monoxide alarms shall be listed and must bear a label to evidence conformance with ANSI/UL 2034 (incorporated by reference, see §3280.4). Combination carbon monoxide and smoke alarms shall be listed and must bear a label to evidence conformance with ANSI/UL 2034 and UL 217 (incorporated by reference, see §3280.4).

§3280.608 Hangers and supports.

Piping supports. Piping must be secured at sufficiently close intervals to keep the pipe in alignment and carry the weight of the pipe and contents. Unless otherwise stated in the standards incorporated by reference for specific materials at §3280.604(a), or unless specified by the pipe manufacturer, horizontal plastic drainage piping must be supported at intervals not to exceed 4 feet and horizontal plastic water piping must be supported at intervals not to exceed 3 feet. Vertical drainage and water piping must be supported at each story height.

§3280.609 Water distribution systems.

(iii) Relief valves must be provided with full-sized drains, with cross sectional areas equivalent to that of the relief valve outlet. The outlet of a pressure relief valve, temperature relief valve, or combination thereof, must not be directly connected to the drainage system. The discharge from the relief valve must be piped full size separately to the exterior of the manufactured home, not underneath the home, or to an indirect waste receptor located inside the manufactured home. Exterior relief drains shall be directed down and shall terminate between 6" and 24" above finished grade. Drain lines must be of a material listed for hot water distribution and must drain fully by gravity, must not be trapped, and must not have their outlets threaded, and the end of the drain must be visible for inspection.

§3280.610 Drainage systems.

(4) Size Requirement - The drain outlet and drain connector shall not be less than 3 inches inside diameter.

(5) Preassembly of drain lines. Section(s) of the drain system, designed to be located underneath the manufactured home or between stories of the manufactured home, are not required to be factory installed when the manufacturer designs the system for site assembly and also provides all materials and components, including piping, fittings, cement, supports, and instructions necessary for proper site installation.

§3280.612 Tests and inspection.

Water system. All water piping in the water distribution system must be subjected to a pressure test. The test must be made by subjecting the system to air or water at 80 psi + or - 5 psi for 15 minutes without loss of pressure. The water used for the test must be obtained from a potable water source.

§3280.705 Gas piping systems.

(8) Testing for leakage.

(i) Before appliances are connected, piping systems must stand a pressure of three ± 0.2 psi gauge for a period of not less than ten minutes without showing any drop in pressure. Pressure must be measured with a mercury manometer or slope gauge calibrated so as to be read in increments of not greater than one-tenth pound, or an equivalent device. The source of normal operating pressure must be isolated before the pressure tests are made. Before a test is begun, the temperature of the ambient air and of the piping must be approximately the same, and constant air temperature must be maintained throughout the test.

(iii) Where gas piping between transportable sections must be made on site, the installation instructions must contain provisions for onsite testing for leakage consistent with the provisions in paragraph (1)(8)(i) of this section.

§3280.807 Fixtures and appliances.

(g) In bathrooms, ceiling-mounted lighting fixtures and wall-mounted lighting fixtures must not be controlled by the same switch.

§3280.810 Electrical testing.

(b) Additional testing. Each manufactured home must be subjected to the following tests:

- (1) An electrical continuity test to assure that metallic parts are effectively bonded;
- (2) An operational test of all devices and utilization equipment, except water heaters, electric ranges, electric furnaces, dishwashers, clothes washers/dryers, and portable appliances, to demonstrate they are connected and in working order; and
- (3) Electrical polarity checks to determine that connections have been made in accordance with applicable provisions of these standards and Article 550.17 of NFPA 70-2005 (incorporated by reference, see §3280.4). Visual verification is an acceptable electrical polarity check.

Chapter 2

Laws

And Overview

- **Installer Overview**
Installer Certification
(RCW 43.22A and WAC 296-150I)
- **Installer Tags**
Certification and Renewal
Continuing Education
- **The HUD Code**
(Parts 3280, 3282, 3285, 3286 & 3288)
Data Plate and Label
- **Installation Code**
(WAC 296-150I)
Local Jurisdictions
Installation Requirements
Alterations
- **Home Manufacturers' Installation Manuals**
- **Who Does What**

INSTALLER OVERVIEW

*This chapter discusses each law, rule, or standard generally. We will identify the government entity that governs each of the laws and which laws take precedence. The chart located in the back of this section will provide a quick reference to “Who does what.” Specific portions of laws will be referred to many times throughout this manual. **It is your responsibility to know the laws and rules that apply to your profession.** Appendix A of this manual contains the Manufactured Home Installer Certification and Installation Laws, RCW 43.22A, RCW 43.22.440 and WAC 296-150I. Appendix B contains the Manufactured Home Alteration Laws, RCW 43.22.340 through 445 and WAC 296-150M.*

All manufactured homes are built in the factory to meet or exceed the federal construction standards, which are contained in 24 CFR Part 3280 of the HUD Code, also called the Manufactured Home Construction and Safety Standards (MHCSS 3280). (HUD is the acronym for U.S. Department of Housing and Urban Development.) All manufactured homes are built to one Federal Standard or Code, they can be shipped to and installed in any state. State and local jurisdictions are not allowed to regulate any aspect of home construction that is covered by the Federal Standard. This is called the federal preemption and is found in the HUD Code Part 3282, Section 11. Each state may write their own installation codes and were required to have them in statute by the year 2006.

In Washington State, the Legislature has given the Department of Labor and Industries (L&I), Factory Assembled Structures program the responsibility for writing the installation rules for manufactured homes and for training and certifying manufactured home installers.

L&I have taken the general approach of requiring the installation of manufactured homes to be in accordance with the home manufacturer’s setup or installation manual. The state installation code provides back-up instructions in case the manufacturer’s instructions are not specific, do not cover an item, or are not available.

L&I trains manufactured home installers according to the applicable federal, state, and local codes and practices.

TERMINOLOGY NOTE: RCW is the acronym for Revised Code of Washington. RCWs result when the state Legislature passes legislation which becomes a law. WAC is the acronym for Washington Administrative Code. WACs are the rules by which a government agency must administer the law.

RCW 43.22A.005 states: “The purpose of this chapter is to ensure that all manufactured and mobile homes are installed by a certified manufactured home installer in accordance with the state installation requirements, Chapter 296-150I WAC, in order to provide greater protections to consumers and make the warranty requirement of RCW 46.70.134 easier to achieve.” The warranty law, RCW 46.70.134 is reprinted on the following page.

RCW 46.70.134

Manufactured Home Installation - Warranty, State Installation Code

“Any retailer, manufacturer, or contractor who installs a manufactured home warrants that the manufactured home is installed in accordance with the State Installation code, Chapter 296-150I WAC. The warranty contained in this section may not be waived, limited, or modified. Any provision attempting to waive, limit, or modify the warranty contained in this section is void and unenforceable. This section does not apply when the manufactured home is installed by the purchaser of the home.”

**INSTALLER CERTIFICATION
(RCW 43.22A and WAC 296-150I)**

RCW 43.22A, entitled “Manufactured and Mobile Home Installation” is the law requiring education and certification of manufactured home installers. Section 220 of RCW 43.22A gives the Washington State Department of Labor and Industries authority to adopt rules to implement and enforce the RCW. Those rules are found in WAC 296-150I and further explain the requirements for certified manufactured home installers. Both the Certification RCW and WAC are included in Appendix A in the back of this manual.

The certification law, RCW 43.33A.120 passed in 1994, requires that after July 1, 1995, at least one certified manufactured home installer must be on site supervising whenever installation work is being performed. This means a certified manufactured home installer must be present for each phase of installation the entire time installation work is being performed. The certified installer is responsible for supervising all installation work being performed by all members of the installation crew. The certified installer must enter their 12-digit installer certification number on the Installer Certification Tag for each element of installation he/she is supervising. The law does not require one certified installer to be responsible for the entire installation job.

*NOTE: As of 1/31/2022, a new WAC definition has been added: ‘**Approved Homeowner**’ An approved homeowner means an individual person who owns a manufactured home and who also has passed the departments installer training class and test, prior to starting the work, with the intention of installing their home and residing in that home upon completion of the installation work. The approved homeowner is required to purchase an installer certification tag for their home. The approved homeowner is responsible for complying with the security, use, and reporting requirements of this chapter. A dealer or developer who temporarily owns the home while selling and installing it is not considered to be the homeowner.*

WAC 296-150I-0105 & 140

Business entities such as home dealerships and construction companies are not certified to install manufactured homes. The individual who attends the training and passes the certification exam becomes the certified installer. If an individual leaves a company, the certification goes with them. It is important that certified installers allow their certification number and certification tags to be used only on home installations for which they are present and supervising. If not, an installer could be responsible for a bad installation he/she didn't supervise. **Dealers' crews are not exempt from this certification law.**

NOTE: As a certified manufactured home installer, you must install homes in conformance with WAC 296-150I. Remember that the WAC generally requires installation in accordance with manufacturers' instructions.

RCW 43.22A.080, WAC 296-150I-0130, RCW 46.70.134

A key definition for "manufactured and mobile home installation" is found in RCW 43.22A-010. According to the RCW, it means all on-site work necessary for the installation of a manufactured home.

RCW 43.22A.010(6) "Manufactured or mobile home installation" means all on-site work necessary for the setting up and completion of a manufactured or mobile home, starting with the preparation of the building site through the final permit approval.

RCW 43.22A.020 Department Duties: The department shall perform all the consumer complaint and related functions of the state administrative agency that are required for purposes of complying with the regulations established by the federal department of housing and urban development for manufactured housing, including the preparation and submission of the state administrative plan. This includes manufacturer's defects, dealer and contractor issues that resulted during the transporting and installation of the home that could include transit damage and on-site damaged to the manufactured home.

RCW 43.22A.110 Local government installation application and permit requirements. Requires that a manufactured home installation application and permit shall be posted at the installation site and state either the name or registration number of the contractor or licensed manufactured home dealer or the certification identification number of the certified manufactured home installer supervising such installation. The law also states that the local enforcement agency may not issue final approval for the installation unless the form is posted.

RCW 43.22A.120 Certified installer required on-site -- Infraction -- Exceptions. After July 1, 1995, a mobile or manufactured home may not be installed without a certified manufactured home installer providing on-site supervision whenever installation work is being performed. The certified manufactured home installer is responsible for the reading, understanding, and following [of] the manufacturer's installation instructions and performance of noncertified workers engaged in the installation of the home. There shall be at least one certified manufactured home installer on the installation site whenever installation work is being performed. It also lists items that are not considered installation work. A certified installer need not be present when these functions are performed.

The chart below lists the requirements and exemptions for work requiring manufactured home installer certification.

Installation Work <u>Requiring</u> a Certified Manufactured Home Installer	
<ul style="list-style-type: none">• Construction of the foundation system, including building forms for concrete• (Note) the certified installer needs to verify and acknowledge the acceptability of the site before beginning any installation work• Setup and assembly• Installing the support piers	<ul style="list-style-type: none">• Installing earthquake resistant bracing systems• Connection to the foundation system and support piers• Installing skirting of any kind, decorative or load-bearing• Connections to the on-site water and sewer systems necessary for normal operation of the home• Installing anchors
Installation Work <u>Exempt</u> from Manufactured Home Certification	
<ul style="list-style-type: none">• Site preparation such as grading and excavation• Sewer and water connections outside of the building site• Painting and drywall finishing• Carpet & floor covering installation	<ul style="list-style-type: none">• Specialty trades responsible for constructing accessory structures such as garages, carports, and decks• Specialty work performed within the scope of their license by licensed plumbers or electricians• Heat pump or air conditioner installation or replacement*
<i>RCW 43.22A.010 and RCW 43.22A.120 and WAC 296-150I-0100</i>	

RCW 43.22A.120(9) contains an exemption for factory installation crews: Only the on-site supervisor is required to be certified when a manufacturer’s installation crew is performing installation work on a home sold by a manufacturer. The factory service crew may do electrical warranty repairs without a licensed electrician and electrical contractor present but the retailer service crew or independent service contractor hired by the manufacturer or retailer must not do any electrical work.

NOTE: Manufactured home installation work which falls within the scope of installation as set forth in RCW 43.22A.010(6) shall not be performed on a manufactured home without the on-site supervision of a certified manufactured home installer.

WAC 296-150I-0100

A local building inspector may stop work on an installation if a certified installer is not present. The permit to install the home is given with the understanding that a certified installer will be

present whenever any installation work is being performed. RCW 43.22A.110 allows a retailer's license number, a general contractor's registration number, or a certified installer's certification number to be used when obtaining the placement permit. Some local jurisdictions are requiring a copy of the installer's certificate to be on file, others request to see proof of certification at the home site or when the permit application is submitted.

NOTE: Installer certification does not replace the requirement for contractor registration, business license, etc. Installers working independently, i.e. installers, who are not employees of dealerships or contractors, must also be registered contractors and obtain all necessary business licenses. Contact the Washington Department of Labor and Industries for information on contractor registration and the Washington Department of Licensing for information on obtaining a master business license.

WAC 296-150I-0120

RCW 43.22A.130 Certified installer required on-site -- Infraction -- Notice.

An authorized representative of the department may issue a notice of infraction if the person supervising the manufactured home installation work fails to produce evidence of having a certificate issued by the department in accordance with this chapter. A notice of infraction issued under this chapter shall be personally served on or sent by certified mail to the person named in the notice by the authorized representative.

WAC 296-150I-0010 Authority, purpose, scope.

This chapter is authorized by chapter 43.22A RCW, Mobile and manufactured home installation, which requires the department to train and certify manufactured home installers and by chapter 43.22 RCW which authorizes the director of L&I to set installation standards for manufactured and mobile homes. For the purposes of this chapter references to manufactured homes include mobile homes.

WAC 296-150I-0105 New Section - Manufactured home installation—specialty work by licensed electricians and plumbers.

Specialty work performed within the scope of their licenses by licensed plumbers and electricians is exempt from the installer certification requirements of this chapter.

WAC 296-150I-0110 Manufactured home installation, Homeowner performing work on their own home—Exceptions.

(1) The owner of a manufactured home may install or perform installation work on his or her own home without obtaining certification from the department as a certified manufactured home installer if the home is intended for use as the homeowner's primary residence. For the installation of a manufactured home the homeowner must attend and pass an installer training class prior to starting the work.

(2) The installation work must be performed in compliance with this chapter and be permitted and inspected by the local enforcement agency.

(3) If the owner of a manufactured home hires any individual or business to assist the owner in the installation work, a certified installer is required to be on site supervising such work and must meet all the requirements of this chapter.

(4) For the purposes of this chapter, an "owner" of a manufactured home does not include a manufactured home dealer, distributor, park owner or manager, contractor, or developer who installs or performs installation work on a manufactured home intended for resale or rental.

Installer Responsibilities to the Consumer

WAC 296-150I-0120 requires installers who choose to obtain the placement or installation permit to ensure all inspections are completed for the work he/she performs.

WAC 296-150I-0130 Manufactured home installer—Responsibilities to the consumer.

A certified manufactured home installer shall:

- Verify the acceptability of the site before beginning any installation work.
- Ensure all phases of the installation work performed by the installer or crew being supervised are complete and in compliance with this chapter, Washington installation requirements;
- Notify the local enforcement agency upon completion of the installation work; and
- Correct all nonconforming aspects of the installation identified by the local enforcement agency or by an authorized representative of the department within thirty days of issuance of notice of the same.

Installer Tags and Reporting

In early 2003, new rules were adopted to implement an installation tracking system that issues serialized tags to certified installers and requires them to report information about a home installation. The new tag requirements took effect July 1, 2003. The rules that established the new requirements are contained in WAC 296-150I, Sections 140 through 170.

The Installer Certification Tag is a red metallic tag that can adhere directly to the home. The cost of a tag is found in WAC 296-150I-3000. Tags will be issued (sold) by L&I's Manufactured Home Installer Training and Certification Program and are available only to installers with active certification. 'Approved homeowner' performing work on their own home after completing the certification class and passing the test will be approved to purchase 'one' installer tag for use on their home. The complete WAC is available in Appendix A of this manual.

WAC 296-150I-0140 Manufactured home installation—Installer certification tags required.

Prior to installing or performing installation work on a manufactured home, certified manufactured home installers or the retailers by whom they are employed must obtain an "installer certification tag" from the department. The installer certification tag shall be in the form approved by the department. No manufactured home may be installed by a certified

installer without an installer certification tag affixed thereto. Only currently certified manufactured home installers will be issued installer certification tags.

Approved homeowners performing the installation work on their own manufactured home are required to purchase an installer certification tag for use on their home.

(1) Installer certification tags may only be purchased by a certified manufactured home installer, an approved homeowner or by a manufactured home retailer licensed by Washington State department of licensing.

(a) The certified manufactured home installer, approved homeowner or manufactured home retailer purchasing the installer certification tag is responsible for complying with the security, use, and reporting requirements of this chapter.

(b) Manufactured home retailers may purchase installer certification tags and issue them to certified manufactured home installers employed by the manufactured home retailer.

(2) In order to purchase installer certification tags, the certified manufactured home installer, approved homeowner or manufactured home retailer shall submit an application to the department on a form approved by the department. The application shall be accompanied by the appropriate installer certification tag fee as set forth in WAC 296-150I-3000.

(3) The department may issue a maximum of thirty certification tags to a certified manufactured home installer. A certified manufactured home installer may not have more than thirty installer certification tags issued at any one time for which the reporting requirements of this section have not been met.

(4) Installer certification tags cannot be transferred or assigned without the written approval of the department. Fees paid for installer certification tags are not refundable.

(a) If a certified manufactured home installer's certification is suspended, revoked, or expires, all unused installer certification tags assigned to the certified manufactured home installer must be returned to the department.

(b) If a certified manufactured home installer or manufactured home retailer ceases to do business, all unused installer certification tags must be returned to the department.

(c) If a manufactured home retailer changes ownership, unused installer certification tags may be transferred to the new ownership if the department approves the transfer following receipt of a written request for transfer from the manufactured home retailer.

(5) Issuance of installer certification tags may be denied if:

(a) The certified manufactured home installer's certification has been revoked or suspended pursuant to chapter 43.22A RCW;

(b) The certified manufactured home installer has failed to comply with the reporting requirements of this chapter;

(c) The department has evidence that the certified manufactured home installer has misused the installer certification tag by not complying with the requirements of this chapter;

(d) The certified manufactured home installer possesses installer certification tags in excess of the quantity authorized by subsection (3) of this section for which the reporting requirements of this chapter have not been met; or

(e) The certified manufactured home installer is not an active registered contractor or an employee of a manufactured home retailer or active registered contractor licensed in Washington.

When tags are issued to an installer, the tag number will be linked to the installer in a database. The installer is required to file a monthly report indicating the tags used by tag number and the type of installation work performed on the homes, as well as other information. **WAC 296-150I-0170 report due no later than the 15th day of each month following the month of installation work.** A certified installer is allowed up to 30 unreported tags issued at one time. As the use of the tags is reported, the installer may then purchase additional tags. If an installer's certification expires, the unused tags must be returned to the department.

WAC296-150I-0160 sets out the requirement for placement and removal of the Installer Certification Tag. The tag must be placed on the home upon completion of the installation work. The tags must be placed on the end of a home section directly above or below the HUD certification label or placed on the chassis main I beam directly adjacent to and visible from the crawl space access. The local enforcement agency may not issue final approval of a home installation until one or more installer certification tags have been affixed to the home indicating a certified installer performed all installation work. Certification tags may be removed only by the homeowner after the local enforcement agency has issued final approval.



Certification Period and Renewal Requirements

Upon successfully passing the certification exam, an individual will be issued a 12-digit installer certification number for a period of three years. **Certification must be renewed prior to the expiration date shown on the certificate and card.**

Approximately 45 days prior to your certification expiration date you will be mailed a renewal notice stating your expiration date, the cost of certification renewal and instructions for applying. The cost to renew certification for an additional three years is found in WAC 296-150I-3000. **If you fail to renew your certification by the expiration date, you will be required to reapply for installer training and certification and meet all requirements for certification.**

***REMINDER:** You are responsible for ensuring your certification is renewed on time. You will not receive a renewal notification, as well as other important information, if we do not have a current address for you. It is important to notify the Installer Program of a mailing address change.*

Continuing Education

WAC 296-150I-0060 sets out the requirements for continuing education. All installers will be required to take a 4-hour continuing education class within the three year period of their active certification date. The classes will be sponsored by the Installer Program and will be held at a variety of locations and dates throughout the year. Installers who are unable to attend a continuing education class may attend a regularly scheduled installer training class to receive continuing education credit. All installers will be mailed a reminder notice and class schedule before their certification expiration date. Review training schedule on line at:

<https://lni.wa.gov/licensing-permits/manufactured-modular-mobile-structures/installer-dealers/>

Compliance with RCW 43.22A

The Washington State Legislature authorized Labor & Industries to enforce the Installer Certification Law through the issuance of monetary penalties. The penalty allowed by RCW 43.22A.190 is up to \$1,000 per day, per installation site. L&I is authorized through the RCW to investigate and issue fines to uncertified installers and to retailers or manufacturers who fail to ensure a certified installer is supervising their installation work.

On January 1, 2018, Penalties under RCW 43.33A.190 The Department of Labor and Industries has adopted amendments to Chapter WAC 296-150I-0210, Manufactured Home Installer Training and Certification Program as a result of House Bill (HB) 1329 (Chapter 10, Laws of 2017). This bill replaces the mandatory penalty of \$1,000 for each infraction of manufactured home installation requirements with discretionary authority to issue warnings, and a monetary penalty of no more than \$250.00 for a first infraction and no more than \$1,000 for a second or subsequent infraction. The bill became effective on July 23, 2017.

RCW 43.22A.080 authorizes L&I to revoke a certificate of manufactured home installation if: 1) The holder obtained the certificate through error or fraud; 2) The holder is judged to be incompetent as a result of multiple infractions of the state installation code, or 3) The holder has violated a provision of RCW 43.22A or WAC 296-150I.

Labor & Industries continues to partner with local jurisdictions to improve manufactured home installation inspections as well as certification compliance. Local building jurisdictions are also helping by enforcing the use of the installer certification tag. A local jurisdiction may place a stop-work order on any installation that is not in accordance with the Installer Certification Law or violates the Washington Installation Code. Some local jurisdictions may have fines associated with the stop-work order.

Uncertified installers may be reported to the department at 1-800-705-1411 (Option 3).

THE HUD CODE (Parts 3280, 3282, 3285, 3286 & 3288)

Federal Manufactured Home Construction and Safety Standards

The HUD Code is the federal standard to which all manufactured homes are designed and built in the United States. The code took effect June 15, 1976 and MHCSS 3280 covers "all equipment and installations in the design, construction, transportation, fire safety, plumbing, heat-producing and electrical systems of manufactured homes..." Homes built before June 15, 1976, are generally referred to as mobile homes.

There are several HUD Codes that apply to site-built as well as manufactured homes. In this manual, whenever we use the term HUD Code, we mean the Manufactured Home Construction and Safety Standards, CFR 24 Parts 3280-3288 of the Code of Federal Regulations and designated as 24 CFR. HUD is the acronym for the U.S. Department of Housing and Urban Development.

The HUD Code is a performance, rather than prescriptive, standard. Other methods of construction are allowed if approved through the Alternative Construction and Site Completion process established by HUD. For more information on Alternative Construction and Site Completion in manufactured homes, contact the Factory Assembled Structures section of the Department of Labor and Industries at 800-705-1411, option 3.

A performance-based code, like many of the generalized codes, furnishes basic guidelines and provides goals rather than setting forth specific requirements. A prescriptive code, furnishes both specific requirements and the prescribed methods for reaching them.

A performance-based code is like having an address to which you are supposed to drive and a map of that city with the location marked. A prescriptive code is like having the address, a map of the entire area marked with your route and clearly written turn-by-turn directions. While manufactured homes are not built to the International Building or Residential Code or other regional building codes, Section 3280.4 of the HUD Code incorporates by reference a long list of code organizations. All the standards of those organizations are incorporated into the HUD Code "as though set forth in full." For example, included in the list are IAMPO, which publishes the Uniform Plumbing Code (UPC) and ICC, which publishes the International Mechanical Code (IMC). Therefore, the UPC and the IMC are considered by HUD to be part of the HUD Code. Incorporated codes apply only to the extent specific items are not covered in the HUD Code.

The HUD Code, CFR 24 Part 3280, is available on the Internet at:
<https://ecfr.io/Title-24/pt24.5.3280>

Data Plate and Label Requirements

Section 3280.5 of the HUD Code states the requirements for the data plate. The data plate is required to be located in a readily accessible and visible location. Most often it is located under the kitchen sink, other areas include near the electrical service panel, in an overhead utility room or kitchen cabinet or on a bedroom closet wall. The data plate contains structural information such as snow and wind loads, which will be used in designing the supports, footings, and anchors. The data plate also provides information such as the name of the manufacturer and the name of the Design Approval Primary Inspection Agency who approved the design of the home. Most manufacturers identify the HUD label numbers on this certificate.

Section 3280.11 of the HUD Code states the requirements for the Certification Label, a 2 inch x 4 inch aluminum tag attached to each home section. Manufactured homes are easily identified by the red label placed at the end of each section of the home. In Washington State other labels are used for a variety of factory-assembled structures such as IBC modular housing and commercial coaches. *This manual applies only to red-label HUD code homes and older factory-assembled mobile homes.* Installer certification is not required for installing portable classrooms or IBC modular housing.

NOTE: HUD certification labels are often lost or discarded when a home's siding is replaced. Notify the homeowner of the importance in retaining the labels for resale and refinancing.

Other HUD Code Requirements

The HUD Code frequently identifies requirements that must be met on site and states that the manufacturer must give written instructions to the on-site installer. For example, Section 306(b) describes what the manufacturer's instructions must provide for a system of anchoring the home. The HUD Code is an important reference.

A companion regulation, HUD Part 3282, contains manufactured home procedural and enforcement regulations. A copy is available at: <https://ecfr.io/Title-24/pt24.5.3282> Section 11 of this Part, entitled Preemption and Reciprocity, is important to state and local jurisdictions. Section 11(a) states:

"No State manufactured home standard regarding manufactured home construction and safety which covers aspects of the manufactured home governed by the Federal standards shall be established or continue in effect with respect to manufactured homes subject to the Federal standards and these regulations unless it is identical to the Federal standards." Requirements for what local jurisdictions may and may not regulate are listed later in this chapter under "Requirements for Local Jurisdictions."

FEDERAL PREEMPTION

Most manufactured home manuals identify Federal Preemption by stating: “This home was engineered, constructed and inspected in conformance with the Federal Manufactured Home Construction and Safety Standards of the US Department Of Housing and Urban Development (24 CFR Part 3280, commonly referred to as the “HUD Code”) in effect on the date of construction. These Standards set forth minimum requirements for the design and construction of manufactured homes to be used as dwellings.

Individual states, counties and cities shall have no authority to establish standards regarding the construction or safety of a manufactured home. A metal certification label is affixed to each section of the home to certify that it has been constructed and inspected to comply with these Standards. The design plans and in-plant construction of all homes are inspected by independent third party agencies to assure compliance with the Standards.

The installation of the home and any alterations made to the home shall conform to the requirements of the Federal Manufactured Home Construction and Safety Standards and the HUD Model Manufactured Home Installation Standards. These installation instructions are minimum requirements. Applicable local or state laws may have more stringent installation requirements than outlined in this manual and must be followed. Consult with the local enforcement agency having jurisdiction (LEA) for regulations that may require licenses and/or permits or which may affect procedures described in this manual.”

INSTALLATION CODE (WAC 296-150I)

The federal government does not fully regulate installation of manufactured homes and leaves most installation rules up to the various states. In Washington, the Department of Labor and Industries (L&I) has the responsibility for writing rules for the installation of manufactured homes. RCW 43.22.440 directs Labor & Industries to write uniform standards for the installation of manufactured homes. Those installation standards are set forth in WAC 296-150I, Sections 0300 through 0370, and is referred to as the Washington Installation Code throughout this manual. Labor & Industries reviews the WAC annually and updates it as required. Key sections of the Washington Installation Code are described in this chapter. A complete copy of both RCW 43.22.440 and WAC 296-150I are located in Appendix A of this manual.

Requirements for Local Jurisdictions

RCW 43.22.440 requires that the rules regarding the installation of manufactured homes shall be enforced and fees charged by the counties and cities in the same manner as the State Building Code is enforced for site-built homes.

Inspections - WAC 296-150I-0120 states: “If a certified installer obtains the manufactured home installation or placement permit from the local enforcement agency, the certified installer shall ensure that all required installation inspections, relative to the work performed by the certified installer, are completed. Installer certification requirements do not eliminate any requirements of chapter 18.27 RCW to become a registered contractor.”

” WAC 296-150I-0370 states: “All manufactured home installations must be inspected and approved by the local enforcement agency.”

Access to Installation Instructions – WAC 296-150I-0380 requires:

- 1) The installation instructions shall be located between the I-beam and the bottom board within five feet of the main electrical feeder when the skirting has not been installed.
- 2) When the skirting has been installed, the installation instructions shall be located between the I-beam and the bottom board within five feet of the access opening.
- 3) Instructions must be returned to such location when the inspection is completed.

The instructions should be placed in a plastic bag to help keep moisture out. Be sure to notify the homeowner and the building inspector of the location of the instructions and the requirement for placement under the home.

Local Installation Requirements - WAC 296-150I-0300 allows local jurisdictions to adopt additional installation requirements only for those installation situations not covered by federal standards.

The WAC imposes the following limitations on local jurisdictions:

- 1) Local jurisdictions may not dictate the design and construction of a home’s foundation when it is built according to either the manufacturer’s installation instructions or a design created by an engineer or architect licensed in Washington State; and
- 2) Local jurisdictions may not prescribe anchoring methods.

See the following lists for examples of what can and cannot be regulated by local jurisdictions.

Examples of construction aspects covered by the federal standard, which therefore shall not be regulated by states or local governments, include:

- Snow loads to which the home is built
- Windstorm protection (home construction only)
- Smoke alarms
- Plumbing and electrical systems
- Installation instructions for shipped-loose plumbing and electrical items.

NOTE: The Washington Installation Code, WAC 296-150I-0300, allows local jurisdictions to impose their requirements for snow loads on manufactured homes as long as all structures within their jurisdiction are required to comply with the same standard and provided those installing the manufactured home are given options to satisfy that standard. Such an option would include allowing a free-standing Ramada to be constructed over the manufactured home to protect it from snow.

Examples of construction aspects not covered by the federal standard, which therefore may be regulated by states or local governments, include:

- Flood damage protection
- Requirement for earthquake protection
- Frost line depth
- Soil bearing capacity
- Noise control
- Automatic sprinkler systems for fire protection
- Snow load requirements (*as long as all structures are required to meet requirements and as long as options are given. See note on previous page.*)

Local jurisdictions may not impose the requirements of the International Building Code on the construction of a manufactured home. However, in Washington, site-built structures (auxiliary structures) such as self-supporting carports, awnings, decks and steps must conform to the IBC and any applicable local codes. Those structures must be permitted and inspected by the local enforcement agency. There may be a fee for this separate building permit.

It is important to contact the local jurisdiction prior to placement of the home to determine if any additional installation requirements must be met.

Testing Verification – WAC 296-150I-0310 requires the testing of water lines, waste lines, gas lines and electrical systems to be performed per the manufacturer’s installation instructions. Where a manufacturer requires testing of a system, it is the responsibility of the local jurisdiction to verify that the tests have been performed and passed. Except where a city has assumed electrical inspection responsibilities, the responsibility for electrical connections and testing lies with the Department of Labor and Industries Electrical Program.

Disputes Concerning Installation Requirements – WAC 296-150I-0400 allows disputes between any person, business, or local enforcement agency concerning an installation requirement of the WAC or HUD Model Code CFR 24 Part 3285 to be submitted to the Factory Assembled Structures (FAS) advisory board. The board may provide an opinion on the requirement. For information on the Factory Assembled Structures advisory board, contact the Department of Labor and Industries at 1-800-705-1411 (Option 3).

Installation Requirements

WAC 296-150I, Section 0310, requires manufactured homes to be installed according to the manufacturer's installation instructions. The WAC further provides that specific instructions from an engineer or architect may be used when the home manufacturer's instructions do not address an aspect of installation. Where an aspect of installation is not covered by either the installation manual or the instructions of a licensed engineer or architect, the installation shall comply with the requirements of WAC 296-150I-0310. Those requirements are discussed later in this chapter. **If the home manufacturer recommends an aspect of installation and the installation WAC requires it, you must follow the requirements of the WAC.**

Installation Instructions

New Homes – New manufactured homes must be installed according to the home manufacturer's installation manual. If the home manufacturer's instructions are unclear or do not address an aspect of installation, installers may request specific instructions from the home manufacturer or may use specific instructions from a professional engineer or architect licensed in Washington State.

Relocated Homes – For relocated homes where the home manufacturer's installation instructions are not available, the home may be installed according to the specific instructions of an engineer or architect licensed in Washington State or according to the HUD Model Code CFR 24 Part 3285. The installation *must also* comply with the requirements of WAC 296-150I-0310 (1)(c) through (m) WAC296-150I-0380. When the manufacturers' original installation instructions are not available for a secondary installation, the installer shall provide an affidavit in lieu of the instruction manual that the home is installed to the provision of this chapter.

Specific Instructions from an Engineer or Architect – The WAC allows installers to use the specific instructions of an engineer or architect licensed in Washington State when an aspect of installation is not covered in the manufacturer's installation manual. Examples of such situations would include a home being installed over a basement (if the manufacturer's instructions don't address it) and a home installed on a site where specific soil bearing capacity is not addressed by the manufacturer's installation instructions.

Specific Installation Requirements of WAC 296-150I

Anchoring – WAC 296-150I-0310(1)(c) requires all manufactured homes in Washington State to be permanently anchored. Homes must be anchored according to the manufacturer’s installation instructions or according to the design of a professional engineer or architect licensed in Washington State. The anchoring requirement does not apply to temporary sets on dealer lots.

Skirting – WAC 296-150I-0310(1)(d) requires a manufactured home to have skirting around its entire perimeter. Skirting must be vented and allow access to the under floor area of the home. Skirting installation and venting must be performed per the home manufacturer’s installation instructions. If the installation instructions are unavailable or not specific, skirting installation, venting, and access must meet the requirements set forth in WAC 296-150I-0310 (1)(d), Sections i through iii. Those requirements are available in Appendix A.

Site Preparation – WAC 296-150I-0310(1)(e) requires a manufactured home site to be prepared per the home manufacturer’s installation instructions or HUD Model Code CFR 24 Part 3285. Manufactured home installer shall verify the acceptability of the site preparation before beginning any installation work.

Heat Duct Crossover - WAC 296-150I-0310(1)(g) requires heat duct crossovers to be installed per the home manufacturer’s installation instructions or HUD Model Code CFR 24 Part 3285, or if the home manufacturer’s installation instructions are not available, the heat duct crossover may be installed according to the instructions in the WAC. Those instructions are as follows:

“Heat duct crossovers must be supported above the ground by strapping or blocking. They must be installed to avoid standing water. Also, they must be installed to prevent compression, sharp bends and to minimize stress at the connections.”

Dryer Vents - WAC 296-150I-0310(1)(h) requires dryer vents to exhaust to the exterior side of the wall or skirting. Dryer ducts outside the manufactured home shall comply with the dryer manufacturer’s specifications or shall be made of metal with smooth interior surfaces.

Hot Water Tank Pressure Relief Line - WAC 296-150I-0310(1)(i) requires the water heater pressure relief line to exhaust to the exterior side of the exterior wall or skirting and exhaust downward. The end of the pipe must be at least six inches and no more than two feet above the ground. All homes manufactured after June 2006 are required to be equipped with a water heater pan, the relief line for the pan must terminate outside the skirting and must not be interconnected with the pressure relief line discharging from the home’s water heater.

Water Piping Freeze Protection – WAC 296-150I-0310(1)(l) requires water piping to be protected against freezing per the home manufacturer’s installation instructions or by use of a heat tape listed for use with manufactured homes and installed per the heat tape manufacturer’s installation instructions.

Systems Testing - WAC 296-150I-0310(1)(m) requires the testing of water lines, waste lines, gas lines and electrical systems to be completed if the testing is required by the home manufacturer. Testing is to be performed per the home manufacturer's instructions and verified by the local jurisdictions. The individual who installs or connects a system is responsible for testing it.

Vapor Retarder - WAC 296-150I-0310(1)(n) requires a ground cover to be installed under all manufactured homes. The ground vapor retarder must be a minimum of six-mil black polyethylene sheeting or its equivalent.

Ground Clearance - WAC 296-150I-0310(1)(o) requires clearances under the manufactured home to be maintained at a minimum of eighteen inches beneath at least seventy-five percent of the lowest member of the main frame and the ground or footing. No more than twenty-five percent of the lowest member of the main frame shall be less than eighteen inches above the ground or footing. In no case shall clearance be less than twelve inches under the home.

Condensation Lines - WAC 296-150I-0310(1)(p) requires heat pump and air conditioning condensation lines to be extended to the exterior of the manufactured home.

Alterations

In addition to the requirements for manufactured home installations, WAC 296-150M in Sections 296-150M-0300 through 0410 contains the requirements for manufactured home alterations. Manufactured home alterations require an alteration permit and inspection by the Department of Labor and Industries. Alterations are addressed in Chapter 9 of this manual. If you have questions regarding alterations, you should contact your local L&I field office. A list of L&I field offices is located in Appendix D of this manual.

L&I defines “alteration” as the replacement, addition, modification or removal of any piece of equipment or installation that affects the construction, planning considerations and fire safety, or the plumbing, mechanical and electrical systems. Refer to Appendix B, WAC 296-150M-0302, for examples of alterations that do and do not require a permit and inspection.

Some examples of alterations that require a permit and inspection are: Installing a wood or pellet stove, changes to the plumbing systems of the home*, installing a heat pump or air conditioner, structural changes, and on-site structures that are not self-supporting or use one or more of the systems of the manufactured home.

** Changes to the plumbing systems of the home must be performed by a certified plumber.*

24 CFR Part 3285 Model Manufactured Home Installation Standards

For relocated homes, WAC 296-150I-0310(2)(b) states that if the manufacturer's installation instructions are unavailable you may use [24 CFR Part 3285 Model Manufactured Home Installation Standards] or the instructions of a professional engineer or architect licensed in Washington State.

NOTE: WAC 296-150I-0380 when the manufacturer's installation instructions are not available for a secondary installation, the installer shall provide an affidavit in lieu of the instruction manual, that the home is installed to the provisions of this chapter.

The HUD Model Code CFR Part 3285 provides installation procedures not specific to any manufacturer that when completed complies with HUD Installation Standards. The Model Installation Standards provide minimum requirements for the installation of manufactured homes. The Model Code 24 CFR Part 3285, provides specific methods for performing a specific operation or assembly, when completed will be deemed to comply with these Model Installation Standards. However, work associated with the completion of hinged roofs and eaves in 3285.801 and other work done on-site and not specifically identified in this part as close-up is considered construction and assembly and is subject to the requirements of the Manufactured Home Construction and Safety Standards (24 CFR part 3280) and the Manufactured Home Construction and Safety Standards (24 CFR part 3282).

Model Code 3285 Table of Contents

Subpart A – General	Subpart G – Duck work and Plumbing & Fuel Supply Systems
Subpart B – Pre-Installation Considerations	Subpart H – Electrical Systems & Equipment
Subpart C – Site Preparation	Subpart I – Exterior and Interior Close-Up
Subpart D – Foundations	Subpart J – Optional Information for Manufacturer's Installation Instructions
Subpart E – Anchorage against Wind	
Subpart F – Optional Features	

MANUFACTURERS' INSTALLATION MANUALS

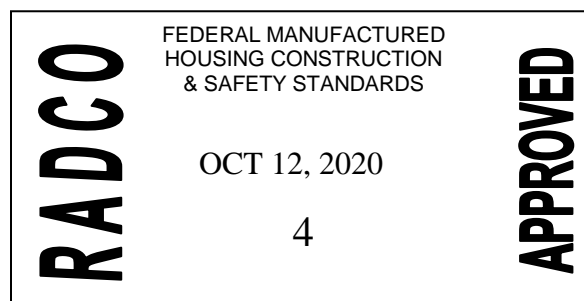
The primary guide to installing a home is the home manufacturer's installation instructions. Installation manuals for home brands most commonly installed in Washington State were used to develop this course.

As a general rule in these installation manuals, the words "shall" and "must" refer to requirements, and the words "should" and "may" refer to recommendations. You must always follow the manufacturer's requirements. In the case of a manufacturer's recommendation, the recommendation should be followed. However, in cases such as ground clearance, it may be necessary to exceed the home manufacturer's minimum recommendation due to size of the heating crossover duct. Remember the basic principle: a recommendation is something you should follow unless you have a good reason for not following it.

NOTE: When a manufacturer's installation instructions provide a "recommendation" and the Washington Installation Code provides a "requirement" for the same aspect of installation, you must follow the requirements of the WAC. For example, many manufacturers simply recommend skirting; however, the Washington Installation Code requires skirting on all homes.

Manufacturers' installation manuals average about 100 to 130 pages in length. The information contained varies in content and organization. A manual may be self-contained or may be accompanied by supplements. The manuals cover installation in a wide area, in most cases throughout the United States. Therefore, the manuals do not discuss state and local laws. Some of the illustrations in this manual are taken from the Model Manufactured Home Installation Manual. See WAC 296-150I-0380 for the requirements for placement of the home manufacturer's installation instructions.

- Certain pages of the Manufacturer's Installation Manual will display the seal of a registered engineer. Federal guidelines only require the seal from one state to be displayed, but the details apply to all states.



Manufacturer's installation manuals go through the process of being approved by a Design Approval Primary Inspection Agency (DAPIA). DAPIAs are HUD-approved agencies whose responsibilities lie in approving home designs, installation manuals, and the engineering drawings they contain. The DAPIA approves engineering designs according to their compliance with the federal standard. You may see drawings stamped with an engineering seal from any state. As long as out-of-state engineering designs are incorporated into the manual or its supplements and the manual and its supplements have been approved by the DAPIA, they are acceptable in Washington State. **If the manual has been shipped with the home, the assumption is that it has gone through the DAPIA approval process.* The sample below is similar to what you might find stamped in a manual or its supplements.

SUPER GOOD CENTS, NATURAL CHOICE AND ENERGY STAR HOMES

Super Good Cents, Natural Choice, and Energy Star homes are energy-efficient, and built under the Northwest Energy Efficient Manufactured Homes Program (NEEM). NEEM is a voluntary program involving Pacific Northwest regional manufacturers, retailers, associations, state energy offices and utilities. Many utilities provide financial incentives to purchasers of these homes.

Super Good Cents, Natural Choice, and Energy Star homes must be installed according to the NEEM set-up specifications. Where these specifications exceed the requirements of the home manufacturer, the NEEM standards must be followed. Those specifications are usually found in the manufacturers' set-up manuals or should be shipped with the home. The NEEM set-up specifications are included in this manual as Appendix C. For more information on the Super Good Cents, Natural Choice, and Energy Star programs, contact (888) 355-6277.

Three features combine to make a home that uses very little energy to heat and cool, and one that is comfortable and healthy:

- Low heat transfer through the exterior shell
- Very tight air sealing
- Controlled, quiet and energy efficient whole-house ventilation

You can determine a Super Good Cents, Natural Choice, and Energy Star home by a label near the electric panel. Some have a brass medallion on the outside of the home next to the front door.

If you have questions regarding installation requirements for Super Good Cents homes, you may contact the Washington State University Energy Extension Program at (360) 956-2000 or contact your local utility. For information on the web go to the following web site:

WSU Energy Program - <http://www.energy.wsu.edu/>

NOTE: A zoning bill was passed in 2004, became effective in 2005. The statute says jurisdictions "may" make the thermal equivalency requirements for manufactured homes to meet

the WSEC. This provision must be adopted in their zoning code. The measure is codified in: (See Appendix D for RCW requirements)

RCW 35.21.684; RCW 35A.21.312 & RCW 36.01.225

OTHER CODES

There are other codes that may affect manufactured home installations. These codes apply when none of the codes specific to manufactured home installation address an issue. Examples of when they may apply include requirements for clothes dryer duct materials, load-bearing skirting support, and construction of auxiliary structures. The codes are:

- The International Building Code (IBC)
- The International Mechanical Code (IMC)
- Washington State Energy Code
- The Uniform Plumbing Code (UPC)
- The International Residential Code (IRC)
- The National Electrical Code

These codes are the law for site-built construction in Washington State, as well as in most of the western part of the United States. All six codes apply to auxiliary structures. (See Chapter 9). The local building jurisdiction is the main enforcement authority for these codes; however, in cases such as electrical connections and alterations, the Department of Labor and Industries is the enforcement authority.

Certification Labels in Washington State	
Red	Manufactured Home/Mobile Home Installer Certification Tag <i>Issued by L&I</i>
Red	Manufactured/Mobile Home Alteration Insignia <i>Issued by L&I</i>
Red	Manufactured Home HUD Certification Label
Gold	ICC Modular
Black	Commercial Coach
Blue	Recreational Park Trailer
Silver	Temporary Worker Housing
Black/ Green	Vendor Unit
Blue	Recreational Vehicle

Manufactured Home Installations - *Who does what?*

U.S. Department of Housing and Urban Development

All manufactured homes must be built in the factory to the Federal Standards,
HUD Code, Part 24 CFR 3280

Washington State

Department of Labor & Industries (L&I)

Factory Assembled Structures

- Writes MH Installation Code, WAC 296-150I
- Provides technical information on manufactured home requirements
- Permits and inspects MH alterations
- Trains and certifies manufactured home installers as required by RCW43.22A and WAC296-150I
- Issues and tracks installer certification tags
- Enforces RCW43.22A
- Provides technical information regarding certification and installation
- Works with local enforcement agencies to enhance MH installations and inspections
- Inspects electrical*
* L&I Electrical Program has agreements with several jurisdictions to perform electrical inspections)

Local Enforcement Agencies

- Issue permits
- Inspect manufactured home site preparation/installations
- Approve materials used in manufactured home installation
- May adopt requirements for installation situations not covered by federal standards
- May enforce snow load requirements as long as all structures within the jurisdiction are required to comply and as long as homeowners are given options in satisfying those requirements
- Ensure installer certification tag is posted at home site

Chapter 3

Permits

Site Preparation

Placement

- **Installation Permits**
- **Location and Layout**
Flood Areas
- **Site Preparation**
- **Ground Vapor Retarder**
- **Handling on Site**
- **Transit Damage**
- **Safety**
- **Permits and Preparations Checklist**

INSTALLATION PERMITS

Installation permits are required for all manufactured homes being installed in Washington State. The local jurisdiction issues the installation permit, determines the permit fees, and inspects the manufactured home installation. A local jurisdiction may require a foundation plan and/or a site plan to be submitted with the permit application. Submitting a foundation plan at this time allows the building department to carefully consider the plan, require changes, and approve the plan before work is completed. It also avoids misunderstandings and streamlines the inspection process later on.

NOTE: The permitting and inspection process differs in every local jurisdiction. Each may have their own specific set of requirements for placement of manufactured or mobile homes in their jurisdiction. It is important to talk to the jurisdiction's permit desk to determine their specific requirements prior to finalizing site placement and foundation plans.

WAC 296-150I-0360 states: “(1) A dealer, owner or agent must not deliver a manufactured home to its site without verifying that an installation permit has been obtained; (2) Manufactured home installation work shall not be performed until a permit for such work has been issued by the local enforcement agency; and (3) Any permit fees set by the local enforcement agency must be paid in full and included with the permit application.”

RCW 43.22A.110 states: “Any local government manufactured or mobile home installation application and permit shall state either the name and registration number of the contractor or licensed manufactured home dealer or the certification identification number of the certified manufactured home installer supervising such installation.”

Other Permits

The customer usually wants a home that is completely and legally installed and ready to be lived in. Often, an installer is performing only part of the work, with other trades or specialties (like electricians) doing the rest. A number of different permits may be required. Exactly which ones depend upon the specific home and the jurisdiction where it is being installed.

Make sure the homeowner is aware of requirements for other permits and inspections such as electrical, plumbing, septic, auxiliary structures and the need for a final inspection before occupying the home. Alterations to the home will require a permit and inspection from the Department of Labor and Industries (L&I). See “Auxiliary Structures and Alterations” in Chapter 9 of this manual. See the Preparations and Permits Checklist at the back of this section.

LOCATION AND LAYOUT

The home and auxiliary structures must be placed in accord with local zoning ordinances and restrictive covenants of the community. This includes setbacks from property lines and distance from other structures, both existing and planned. A drawing should be made showing lot lines, location of proposed manufactured home and other structures. Make sure someone has planned for carports, garages and driveways. The local jurisdiction can provide local requirements.

Be aware of the location of all utilities including water and sewer lines, septic system, well, electric lines and meter base, gas lines, etc. Be especially careful of buried utilities before digging or excavating. NEC 550.32 Service Equipment - the electric disconnect must be within 30 feet of the home.

Chapter 9 of this manual defines auxiliary structures and alterations. A homeowner planning an attached carport may not be aware whether they will have an auxiliary structure to be inspected by local authorities or an alteration to be inspected by Labor & Industries. Talk with the homeowner before beginning the work so you understand what they need and can identify any potential problems before they occur.

Flood Areas

Placement of homes in a flood plain should be avoided if possible. If you are required to install a home in a flood plain, the jurisdiction should be able to provide information of the most recent base flood elevation. Select the highest practical location on the property for the home site. This may reduce the height you have to set the home above the original ground elevation.

WAC 296-150I-0340, allows local jurisdictions to adopt installation requirements to protect manufactured homes from flooding in areas the jurisdiction recognizes as a flood plain. A flood plain is the area that is covered by water in a flood that has a one-percent chance of occurring in any year, also called a 100-year flood. The elevation of such a flood is called the base flood elevation (BFE).

The local jurisdiction will have specific requirements for homes being placed in a flood plain. Those requirements will include placement of the home above the base flood elevation and special crawl-space venting requirements. Check with the local jurisdiction for their requirements before making plans to site the home. They should be able to provide you with the base flood elevation or tell you where you can find it.

NOTE: If the home is set in a flood plain, the insurance company will require an elevation certificate by a licensed engineer or land surveyor. Without this certificate, insurance premiums can be excessive.

Informational Resources

The Federal Emergency Management Agency (FEMA) web site contains publications relating to siting of a manufactured home in flood plains and hazardous areas. The web site address is www.fema.gov

SITE PREPARATION

WAC 296-150I-0310(e) requires manufactured home sites to be prepared per the home manufacturer's installation manual or per 24 CFR MHCSS 3285. The home manufacturer's installation manual will require you to grade the home properly and slope it to prevent water from collecting or flowing under the home. The following site preparation practices are incorporated into most manufacturers' installation manuals and should be followed as good practice.

Site preparation is an important part of manufactured home installation. Except for building the forms for concrete, the certification RCW does not include site preparation as an element of installation requiring installer certification. While a contractor does not need to be a certified installer to prepare the site, he or she must comply with any applicable installation codes or instructions relating to site preparation. All site work should be done under consultation with the local building department.

WAC 296-150I-0130 Manufactured home installer responsibilities to the consumer. A certified manufactured home installer shall: Verify the acceptability of the site preparation before beginning any installation work.

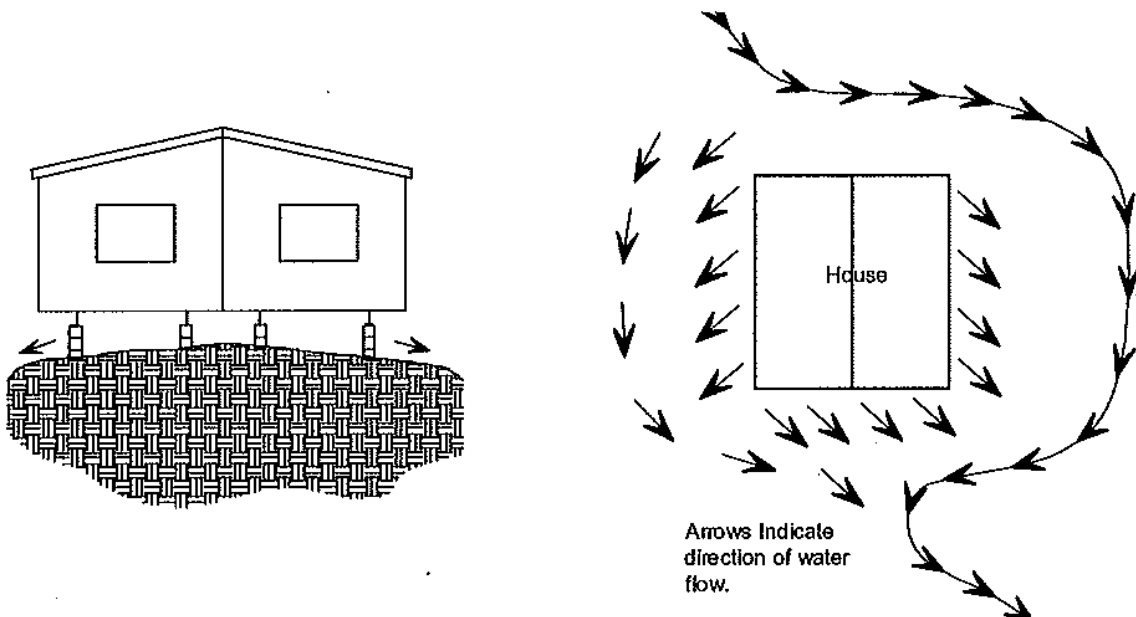
Do not install a home on a site that has not been properly prepared. Site preparation may not be your responsibility as a certified installer, but you could be liable for damages if you install a home on a site that has not been properly prepared. Notify the Retailer and the homeowner of problems needing to be corrected before the home can be installed.

The elements of good site preparation include:

- Proper base – fill material must be of uniform thickness and compacted to 90 percent of its maximum relative density. *The local jurisdiction may require compaction testing for verification of the 90% compaction requirement.*
- Level site – if site is sloping, level the area where the home will be placed.
- Proper grading – slope should be at least 1/2 inch per foot for at least five feet in all directions. (Ten feet is preferred.)
- Adequate drainage – ensure surface runoff diverts around and away from the home, not under the home.
- Vegetation removal – remove trash and vegetation under the home site.

IT IS IMPORTANT TO GRADE THE GROUND SO THAT WATER WILL RUN AWAY FROM THE HOME. A common installation problem is improper grading of the home site that causes water to collect under the home. The slope should be at least 1/2 inch per foot for at least five feet and preferably ten feet in all directions away from the home. Slightly crown the area under the home to prevent water from collecting there. See the illustration on the follow page. Grading the site after the home is set can be difficult, time consuming, and expensive.

- If the home is set in a pit, provide a drainage system to divert water away from the underside of the home.
- Drainage from sloping sites must be diverted to flow around the home.



Fill - Fill must be of uniform thickness and compacted to 90 percent of its maximum relative density. Level the site before adding fill. Do not place footings on fill that has not been compacted. Fill must be added in layers of equal thickness. Contact the local building jurisdiction to determine how the soil must be prepared and the design values for bearing capacity to be used. *The local jurisdiction may require compaction testing for verification of the 90% compaction requirement.*

Concrete - Concrete foundations, slabs, or runners should be poured several weeks before the home arrives on site. Make sure there is adequate time for the concrete to cure before setting the home. If anchors are to be cast in the concrete footings, set them in the concrete when it is poured. A less preferred method is to set them later by drilling holes in the concrete and using expansion bolts. Epoxy can also be used, but use high-quality epoxy. Follow the equipment manufacturer's instructions for specific equipment being used.

NOTE: A certified manufactured home installer must supervise the building of the entire foundation system. See RCW 43.22A in Appendix A of this manual.

Site Prep Inspection - The site needs to be inspected before the home is delivered. Check for proper site preparation, layout, and access for delivery, including overhead branches and wires. Check with the property owner for the best route to the home site. Make sure the hitch is on the correct end of each section for placement, or that an extra hitch is added as necessary for this purpose.

NOTE: If rain gutters are to be put on the home, install them as soon as the home has been blocked. If the home is installed during inclement weather, runoff from the roof can create a muddy mess around and under the home unless the water is diverted away from the home.

GROUND VAPOR RETARDER

Washington Administrative Code - WAC 296-150I-0310(1)(m)

- Requires a vapor retarder, ground cover to be installed under all homes. The vapor retarder covering the ground must be a minimum of six-mil black polyethylene sheeting or its equivalent.

§MHCSS 3285.204 Vapor Retarded Control.

- (a) *Vapor retarder.* If the space under the home is to be enclosed with skirting or other materials, a vapor retarder must be installed to cover the ground under the home, unless the home is installed in an arid region with dry soil conditions.
- (b) *Vapor retarder material.* A minimum of six-mil polyethylene sheeting or its equivalent must be used.
- (c) *Proper installation.* (1) The entire area under the home must be covered with the vapor retarder, as noted in §3285.204(a), except for areas under open porches, decks, and recessed entries. Joints in the vapor retarder must be overlapped at least 12 inches.
- (2) The vapor retarder may be placed directly beneath footings, or otherwise installed around or over footings placed at grade, and around anchors or other obstructions.
- (3) Any voids or tears in the vapor retarder must be repaired. At least one repair method must be provided in the manufacturer's installation instructions.

Manufacturers Installation Manuals:

- Identify in their respective manuals that a ground moisture retarder of a minimum six-mil thick polyethylene sheeting or equivalent must be installed covering the ground under the home. Moisture retarders are not required in arid regions (less than 15 inches of rainfall annually) with dry soil conditions. If on-grade (surface) footings are used, install the ground moisture retarder prior to placing the footings, or install it around the footings after all other work under the home is complete.

The purpose of the ground cover is to reduce the amount of moisture coming up from the ground. Moisture from the ground can rot wooden parts of the home. It can get trapped under siding and cause warping and eventual failure of the siding. Some problems with moisture condensation under roofs are caused by inadequate ground cover. In a typical installation, place the ground retarder over footings and under support piers. Sealing the ground retarder seams is not critical since it is intended to block water vapor from coming up from the ground. Overlap the pieces at least 12 inches. If the skirting will not be installed immediately, prevent the plastic from

blowing in the wind by placing rocks or bricks on the seams to hold the ground cover down. Be sure to cover all the ground, but do not lap the plastic up onto wood that is not pressure treated. Cover the ground and run the ground cover only to the inside edge of the skirting. Do not extend the ground cover out under the skirting as it can allow water to get trapped on top of the ground cover and get into the crawl space.

If the home is pit set, it is not necessary to run the ground cover up onto the inside of the skirting.

In the case of an open porch where water can penetrate the floor, no ground cover should be used. The water must be allowed to soak into the ground and not collect under the home. See the requirements and illustration for skirting open porches in Chapter 8.

If water has accumulated on top of the ground cover, it is acceptable to punch a few small holes to allow the water to drain into the soil. Be sure the holes are sealed after the water has drained out.

HANDLING ON SITE

Home sections have to be treated very carefully. They must be moved very slowly and carefully. The frame may bend permanently if lifted with a crane attached to one point along the home. Jacking must be done evenly to avoid putting undue forces on the I-beams. Some manufacturers require that you use a six-inch-long steel plate between the top of the jack and the bottom of the I-beam. If allowed to sit stressed for a long time, the main I-beams may take a permanent bend. Follow the home manufacturer's instructions for handling the home on site and get advice from an experienced installer if you are uncertain.

TRANSIT DAMAGE

Upon delivery of the home, check the home for transit damage. The Department of Labor and Industries (L&I) requires that transit damage be reported to the retailer. The retailer is then required to notify L&I. If there is no retailer involved, report damage directly to the Installer/SAA Program at 1-800-705-1411, Option 3.

WAC 296-150I-0410 What are the requirements if a home is damaged prior to, or during installation? Manufactured homes that are damaged during transportation or being installed will require a permit and inspection(s) by Washington State Department of Labor and Industries. An exception to this would be if the new home is taken back to the factory and repaired at the manufacturer's facility. Damaged homes returned to the factory would be under the IPIA inspection process, to assure the home has been brought back into compliance with the federal standards.

“New” manufactured homes that have never been occupied that have been damaged in transit or at site when being installed and are repaired at a location other than the manufacturer's facility shall require a permit with inspections from Labor and Industries. The repair and inspections shall be performed to (1) plans approved by the manufacturer's DAPIA or (2) plans approved by an engineer or architect licensed in Washington and the plans have been approved by Labor and Industries, Factory Assembled Structures plan review.

NOTE: “New” manufactured homes may not be sold until the home is brought back into compliance with the federal Part 3280, Manufactured Home Construction and Safety Standards. Failure to bring the home into compliance is a violation of the federal standards, Part 3282.

“Used” manufactured homes that have been previously occupied and have been damaged during transportation or being installed shall require a permit with inspections from Labor and Industries. The repair and inspections shall be performed to (1) plans approved by the manufacturer's DAPIA or (2) plans approved by an engineer or architect licensed in Washington and the plans have been approved by Labor and Industries, Factory Assembled Structures plan review.

NOTE: “Used” manufactured homes may not be sold until the home is brought back into compliance with RCW 43.22 and the rules adopted thereto in WAC 296-150M. These rules have adopted the federal standards as the code to be followed when repairing transit damage to used manufactured and mobile homes.

SAFETY

At all times, think of safety when setting the home. When taking the home off the truck, and before anyone gets under the home, block under the I-beams so the home cannot possibly fall if the jack stand fails. Never trust a jack stand. This is particularly important with metal piers because they can fail if tilted so that the weight shifts to one or two legs. Wood 2 x 6 blocks have split, causing the jack stand to go into the ground. Warm asphalt can allow jacks to sink into the ground.

Consider leaving the wheels and axles attached to the frame until the home is blocked. This will give extra protection in case the jacks or piers give way before the home is completely blocked.

You or your employer should be familiar with the DOSH, Division of Occupational Safety and Health, regulations. DOSH regulations contain information such as ladder safety and details about safety harness requirements. For more information on DOSH safety regulations, contact your regional L&I office or access on line at www.lni.wa.gov.

Roof Safety

According to WAC 296-155, employers are required to provide and enforce the use of “fall protection” for employees in construction, alteration, repair, maintenance (including painting and decorating), demolition workplaces, and material handling. There are several methods allowed in the WAC to provide fall protection, including guardrails, safety harnesses, warning lines, safety monitors, safety nets, and catch platforms. As an employer or general contractor, it is your responsibility to develop and implement a fall-protection plan. Contact your local Department of Labor and Industries office for more information and a current copy of WAC 296-155.

WAC 296-155-876 covers safety standards for the use of ladders. Some of the more important provisions are as follows: Ladders must be in good condition and rated for the working loads imposed. Follow instructions provided by the ladder manufacturer. The ladder side rails shall extend at least three feet above the roof surface. The angle shall be such that the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length (distance along the ladder from the foot to top support). Always face the ladder when climbing up or down. While climbing, do not hold tools or materials that interfere with the free use of both hands.

See L&I DOSH Construction Checklist F418-055-000 – 02-2018

<https://lni.wa.gov/safety-health/>

<https://lni.wa.gov/forms-publications/F416-132-000.pdf>

<https://lni.wa.gov/safety-health/preventing-injuries-illnesses/create-a-safety-program/>

All employers in Washington are required to provide a safe workplace for their employees. Whether you're a large or small employer, finding and fixing hazards helps you create that safe workplace. Finding and fixing workplace hazards reduces the risk for injuries and illness, which decreases direct and indirect costs to your business. It is also the foundation for your required safety programs, starting with an [Accident Prevention Program \(APP\)](#).

You can use the information here to help you find and fix hazards on your own. We also provide no-cost, professional [safety and health consultants](#) if you need more help.

Finding and preventing workplace hazards is better than reacting to an injury caused by them. Businesses in Washington must provide a safe workplace for their employees. A safe workplace starts with identifying how workers could get hurt. Be sure to include [machinery](#), [chemical](#), [biological](#), [sprains & strains](#), and other types of hazards. This important first step will help you create your required [Accident Prevention Program \(APP\)](#). Depending on where your business is at – from a new start up to an established business – you can use these tools to help identify where hazards are found your workplace:

- [Workplace Hazard Basics](#) is a self-paced interactive tool that shows you how to recognize and categorize workplace hazards.
- Use these documents to guide you through the hazard identification process and help you document your hazards in preparation for creating your APP and other safety programs.
- [Workplace Hazard Categories and Examples](#)
- [Workplace Hazards & Solutions Worksheet](#)
- [Job Hazard Analysis](#) - this form and instructions help you document hazards in preparation for creating your APP and other safety programs.

PERMITS AND PREPARATIONS CHECKLIST

Certificate of Movement (*From county assessor's office. Check with county for cost. Taxes must be current for in-county move, must be paid one year ahead for out of county move.*)

Who obtains it? _____

Who attaches it to the home before movement? _____

Grading Permit

Who obtains it? _____

Who pays for it? _____

Who does the work? _____

Who calls for inspections? _____

Building/Placement Permit

Who does drawings and application? _____

Who obtains it? _____

Who pays for it? _____

Who does the work? _____

Who calls for inspections? _____

Electrical Permit

Who obtains it? _____

Who pays for it? _____

Who does the work? _____

Who calls for inspections? _____

Mechanical/Permit

 (*For gas hookup or installation of propane tank, etc.*)

Who obtains it? _____

Who pays for it? _____

Who does the work? _____

Who calls for inspections? _____

Alteration Permit (*For on-site installation of heat-pump, air-conditioner, or wood stove, and for any work that affects the structural or mechanical systems of the home, an alteration permit and inspection is required from the Department of Labor and Industries. See the list of alterations in Appendix B, Pages B-13 through B-16.*)

Who obtains it? _____

Who pays for it? _____

Who does the work? _____

Who calls for inspections? _____

Chapter 4

Foundation Design and Construction

- **Foundation Requirements**
Crawl Space Height Leveling
- **Foundation Design**
- **Foundation Materials**
Earthquake and Full Foundation Systems
- **Foundation Construction**
- **Soil Bearing Capacity**
- **Snow Loads**
- **Frost Heave**
- **Footings**
- **Support Piers**
- **Ridge Beam Supports**
- **Load Bearing Perimeters**

FOUNDATION REQUIREMENTS

The Washington Installation Code, WAC 296-150I-0310, requires manufactured homes to be installed according to one of the following:

- The home manufacturer's installation instructions;
- The specifications of an engineer or architect licensed in Washington State; or
- 24 CFR MHCSS 3285 Model Code for Manufactured Housing for Secondary installations for relocated homes when the manufacturer's installation instructions are not available.

The installation code further states: Local jurisdictions may not dictate foundation design and construction which is built according to either the manufacturer's installation instructions or a design created by an engineer or architect licensed in Washington State.

Specific instructions from an engineer or architect licensed in Washington State may be required in situations such as: 1) a manufactured home is installed over a basement and the manufacturer's instructions do not address this application; 2) a manufactured home is installed on a site where the specific soil bearing capacity is not addressed in the manufacturer's instructions; or 3) a manufactured home is installed on a hillside and pier height will exceed 67 inches.

There are no federal or state requirements for earthquake bracing of manufactured homes in Washington State. WAC 296-150I allows local jurisdictions to adopt installation requirements to protect homes from earthquakes. Some jurisdictions are now requiring earthquake bracing. Check with the jurisdiction prior to installing the foundation.

- 24 CFR MHCSS 3285 Model Code for Manufactured Housing for relocated manufactured homes installations when the original manufacturer's installation manual is unavailable. See WAC 296-150I-0310(2) and Appendix C Model Code for installation.

Crawl Space Height

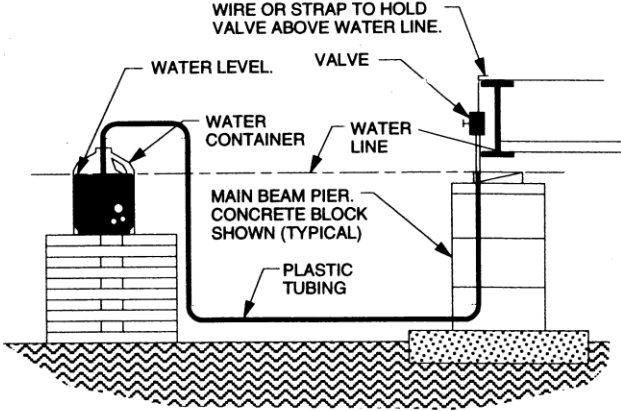
WAC 296-150I-0310 (1)(o) specifies a minimum crawl space height of 18 inches between the I-beams and the ground or footing for at least 75 percent of the home's under-floor area, with a minimum of 12 inches anywhere. If the home manufacturer does not give a minimum crawl space height, you must follow the WAC.

When determining under floor clearance, consideration must be given for the heating crossover duct, other utility connections, and for general access under the home. If the home is pit-set, the pit needs to be deep enough for proper clearance from the bottom of the pit to the I-beams.

Leveling

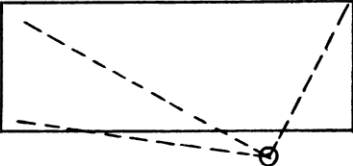
A carpenter's level, four or six feet long, is acceptable for rough leveling of the home. For final leveling many manufacturers recommend using a water level as shown below. Electronic laser levels and digital levels are becoming more available and work well.

Water Level



Materials to Make a Water Level

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



PLACE AT ANY POINT AROUND HOME

- Unroll tubing: Position level where it is to be used. Take care to avoid kinks in it, step on it, or lay anything on it.
- Check for air bubbles: To remove any; lower valve below bottom of container and open. Close valve when they are out.
- Container location: Located so valve can reach all areas of home. Build up container so water line in valve end of tubing is at the predetermined height support devices will be set.
- Level of support device: Secure valve above determined height and open. Adjust device as needed. Close valve and move to next support device.
- NOTE: Level all support devices before lowering home.

Water Levels

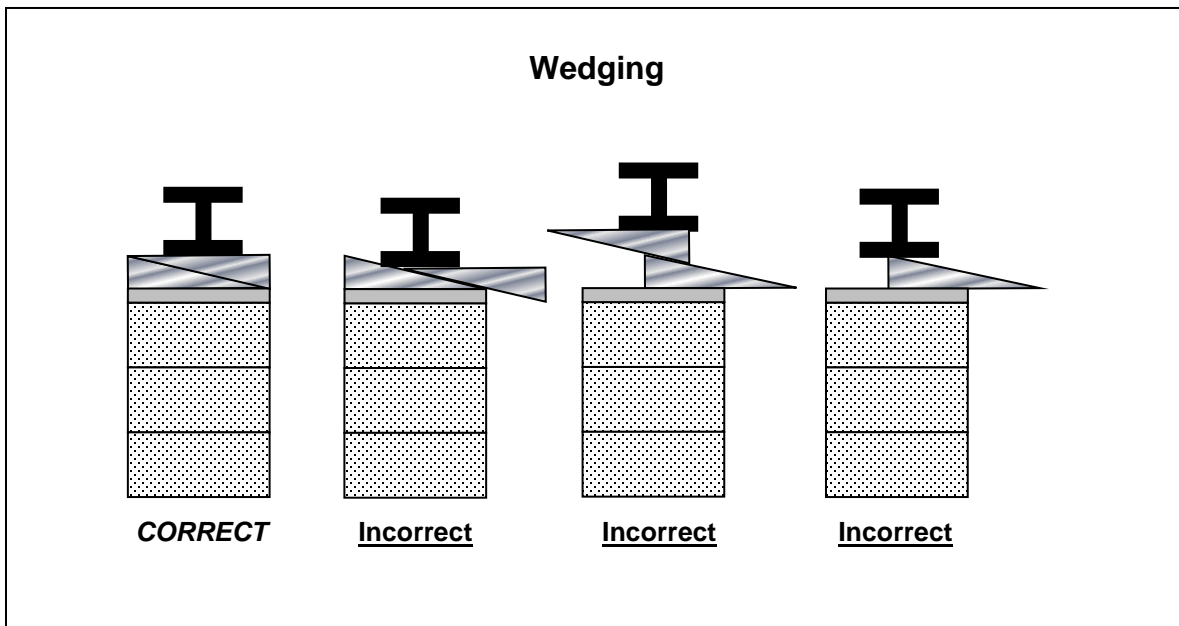
Water levels work well for leveling homes because they are accurate over large distances. Set the open container in place and move the tube to various locations. The water level must have a reservoir at the fixed end. Levels made of a clear hose without a reservoir are unstable because of changes in volume with temperature changes.

Most manufacturers recommend leveling the home from front to rear and side to side. Once the outer home is level, you should check the level of the inside floors. Use a spirit or carpenter's level to ensure that:

- There is a level transition from one section to another.
- The floors do not slope off or bow anywhere in the home.

If any of these problems do exist, adjust the piers to provide a level interior surface. Common complaints voiced by homeowners are uneven floor levels at the marriage line and sloping or bowed floors. If the problems cannot be corrected by adjusting the piers, a manufacturing defect could exist. If the home is new, report the problem to the retailer or the home manufacturer. For relocated homes, make every effort to correct the problems through pier adjustment and notify the homeowner of anything that cannot be corrected.

When metal stands are used, the stand can be adjusted for final leveling of the home. For concrete blocks, wood shims and wedges are used for final leveling. It is important that wood wedges are installed correctly to avoid placing excessive loads on one area of the pier. In the illustration below, wedges have been installed correctly in the first pier. The installation of the wedges in the other three pier blocks is incorrect.



Some of the home manufacturers do not give a leveling tolerance in their installation manuals. Your job is to do the best you can and make the home as level as you can. Over the 60-foot length of a home section, the difference in elevation from the bottom of one end of an I-beam to the other should be one-half inch or less.

Once you are certain the home is level, do not readjust the level to correct for out-of-square windows and doors. See Chapter 9 for adjustment of windows and doors.

FOUNDATION DESIGN

The foundation design process needs to be completed for each home you install and should be done in the office before the home is moved to the site. The process will be quicker if you have previously installed a home of the same design; however, you must always check for changes in the manufacturer's requirements and ensure the structural design will work on the new site. In this chapter examples of home manufacturers' installation instructions will be provided and you will learn how to use them.

In the design process you will need to know which of the home manufacturer's specific instructions will apply to the type of foundation you are installing. The installation manual or its supplements will contain tables and diagrams to determine the spacing, location and minimum capacity of the piers and the size of footing those piers will require. To use those tables you will need the following information:

- The roof load (live load or snow load) to which the home was designed. This information can be found on the home's data plate.
- The soil bearing capacity for the home site. This information is available from the local jurisdiction or can be obtained from a soils report.
- The home size specifications. This is the floor width of each section. Some manufacturer's instructions will also require knowing the eave length.

NOTE: Local jurisdictions may impose their requirements for frost depth. Know the requirements for the home site prior to designing the home's foundation. See frost heave on page 4-9.

WAC 296-150I-0300 (2)

In the design process you will need to consider such things as whether load-bearing perimeter skirting will be used to fill requirements for perimeter supports. Concrete runners and slabs must be sized correctly to the home's measurements. Foundation design for pit-set homes must consider things such as site drainage so water doesn't accumulate under the home, condensate drain placement, and sloping requirements for plumbing.

When working with the home manufacturer's installation manual, highlight the tables and diagrams that apply to the specific home you will be installing. Doing this allows for quick reference and indicates to the building inspector which instructions he or she will be using for inspection.

FOUNDATION MATERIALS

Manufactured home foundations can be constructed from a variety of materials. The basics of the foundation require supports being placed at specific locations under the home and spaced to provide adequate support to the structure of the home. The supports are generally piers that are made of hollow-core concrete blocks, metal stands, or some other prefabricated product. The piers sit on a footing. Depending on what the home manufacturer allows, footings can be made of precast concrete, pressure-treated lumber, poured-in-place concrete runners or slabs, or a prefabricated footing product. Concrete footings must have a smooth and level surface to prevent cracking. Specially designed foundations such as a full basement will require specific instructions from the home manufacturer or an engineer or architect licensed in Washington State.

No Washington State agency is authorized to implement a system to evaluate and approve manufactured piers and footings for use in manufactured home installation. Products are tested and listed (not approved) by testing laboratories. The local jurisdiction has authority to approve products manufactured for use in installation. Approval can be based on a product's listing or engineering data and the installation instructions provided by the equipment manufacturer. Be prepared to provide all documentation to the local enforcement agency for approval.

Standard concrete blocks, either hollow core (ASTM C90) or solid (ASTM C145), have a standard accepted working strength of about 8,000 pounds. Concrete blocks must be placed straight and level ensuring that the hollow cores are vertical. Unless the manufacturer's instructions have different requirements, the main beam blocks must be placed perpendicular to the I-beam. Most manufacturers and 24 CFR MHCSS 3285.Model Code set the maximum height of a single stack of pier blocks at 36 inches; and for piers 37 to 67 inches, a double block pier with the blocks interlocked is acceptable.

Standard metal piers are rated at about 6,000 pounds. (Older stands may be less.) Metal piers have the manufacturer, model number, testing laboratory, and rated capacity stamped on them. The stamped working load is the amount the pier can hold for calculation or design purposes. The ultimate breaking strength is much higher. Metal pier stands are lighter than concrete blocks, and they are adjustable. The pier manufacturers specify how far the threaded rod may extend past the top of the pier. The thread rod is usually extended to a maximum of two inches, but check the manufacturer's instructions to be sure. Do not over extend the thread rod.

NOTE: Two piers placed correctly next to each other double the pier's rated capacity.

Earthquake and Full Foundation Systems

New support systems are being developed to perform under various extreme conditions such as high winds, earthquakes, and floods. Earthquake-resistant bracing systems or engineered full foundation systems may be installed when stamped by a licensed Washington engineer. It is important to submit documentation for approval prior to installation.

FOUNDATION CONSTRUCTION

Prefabricated installation products, earthquake-resistant bracing systems, and full foundation systems must be installed according to: 1) the home manufacturer's installation instructions if they address that specific piece of equipment, or 2) the equipment manufacturer's instructions.

Home manufacturers' installation instructions require supports at specific locations under I-beams, exterior sidewalls, and marriage lines. Point supports are required at specific locations such as under roof support columns along marriage lines and on each side of major openings in exterior walls. The home manufacturer's installation instructions, or Model Code 24 CFR Part 3283 for relocated homes, will indicate where to place supports. Point supports may also be required under heavy items such as wood or pellet stoves.

Foundation design and construction will require knowing 1) the soil-bearing capacity of the home site; 2) the snow load for which the home was built; and 3) frost-depth requirements set by the local jurisdiction.

If it is impractical to place the piers exactly at the calculated spacing, most manufacturers will give a maximum distance the spacing can deviate for certain piers. Refer to the manufacturer's installation manual for their exact specifications. Ridge beam column supports are always placed directly under the columns or within manufacturers specific tolerances.

SOIL BEARING CAPACITY

Soil bearing capacity is the ability of the soil to support a load without sinking. The unit of measurement is pounds per square foot (PSF). You will need to determine the soil bearing capacity of the home site prior to constructing the foundation. There is no official state standard for soils in Washington. Contact the local jurisdiction for information on soil bearing capacity. If the soil bearing capacity is unknown, generally the value of 1,000 PSF must be used.

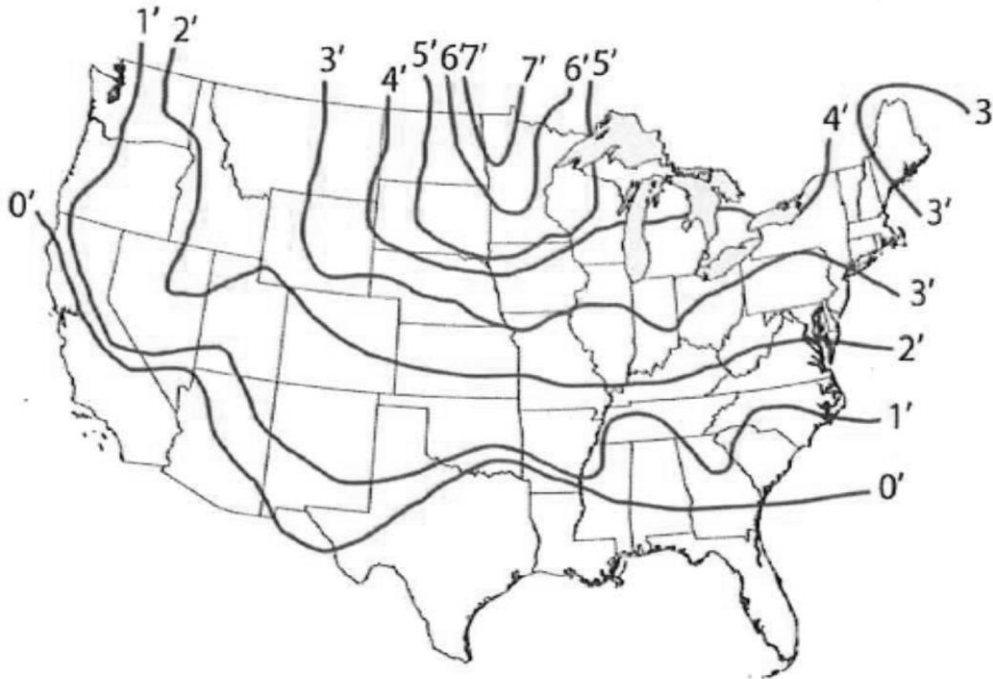
Soil bearing capacity may be determined through a soils test performed by an engineer or soil testing company approved by the local jurisdiction or with the use of a pocket penetrometer. Follow the instructions for the pocket penetrometer carefully. Tests need to be performed at several locations on the home site. Pocket penetrometers cannot be used in frozen soil or in soil that is too wet or too dry.

The table below is similar to what appears in many manufacturers' installation manuals. This table will give you an idea of the standard allowable pressure for certain types of soil.

Table 3.1: General Description of Soils	
Soil Type (1)	Allowable Pressure (lbs. per sq. ft.) (2)
Sedimentary rock	4,000
Sandy gravel or gravel	2,000
Sand, silty sand, clayey sand, silty gravel and clayey gravel	1,500
Clay, sandy clay, silty clay, or clayey silt	1,000
Unconsolidated fill, peat or organic clays	Special Analysis Required
1- Based on the Unified Classification System	
2- No allowance made for overburden pressure, embedment depth, water table height, or settlement problems	
NOTE: This table to be used only when none of the following is available:	
<ul style="list-style-type: none"> a. Soils investigation and analysis of the site. b. Compliance with the local building code. c. Competent opinion by a local engineer or code official. 	

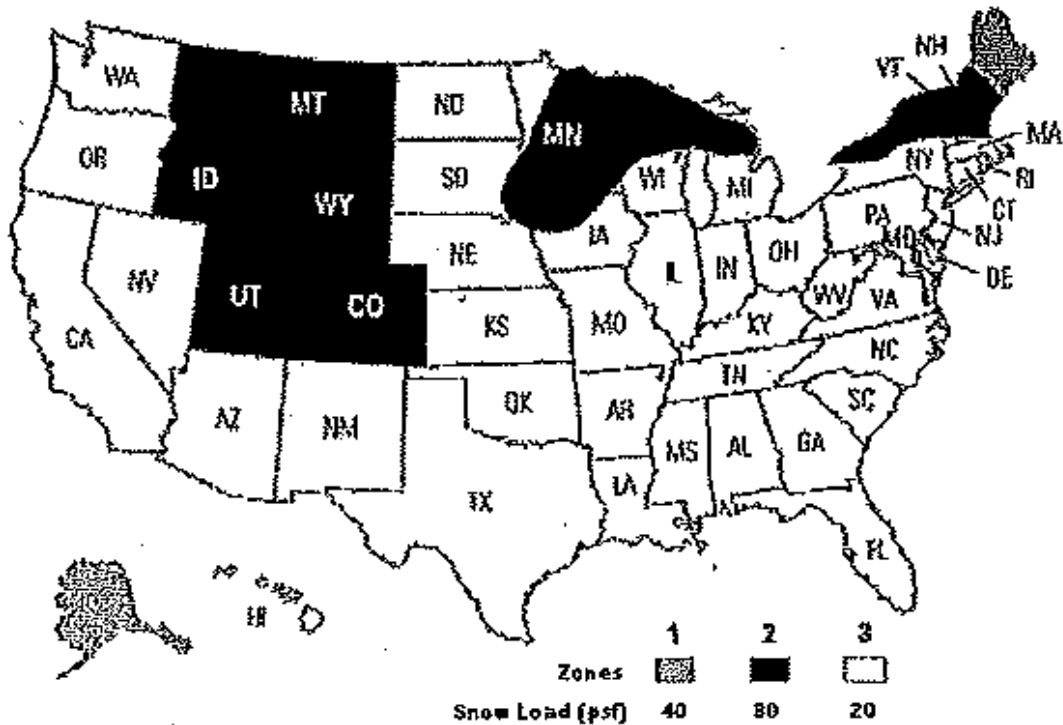
Frost Line

In Climates subject to ground freezing, consult the Local Authority Having Jurisdiction, a registered engineer, or registered architect to determine the depth of the frost line.



SNOW LOADS

The HUD Code in Section 305 divides the United States into three snow load regions for purposes of home construction, each with a specified design roof load in pounds per square foot (PSF). The entire state of Washington is placed in the South Zone, 20 PSF. This means that homes constructed for placement in Washington State must be constructed with a minimum design roof load of 20 PSF. However, many areas in Washington have roof snow loads much higher than 20 PSF. Actual roof snow loads can range from less than 20 PSF in low elevations to over 700 PSF at high elevations in the Cascades.



WAC 296-150I-0300(2) allows local jurisdictions to impose their requirements for snow loads according to the following:

- All structures within the jurisdiction must be required to comply with the same standard.
- Installers/homeowners must be given options in satisfying that standard.

Example: Construction of a free-standing Ramada over the manufactured home.

For homes being placed in a high-snow area, it is advisable to order the home with a higher snow load. However, unless the local jurisdiction goes through the formal procedure of requesting and receiving a higher official snow load from HUD, the local jurisdiction may not require the manufactured home to be built with a higher snow load. They may require installers to erect a Ramada over the home, the homeowner to implement a snow removal plan, or some other option for meeting the snow load requirements. The jurisdiction should approve the option prior to home placement.

The data plate in the home contains the actual roof snow load information for which the home was designed and built. Size the footings and supports using the snow load information on the data plate unless the home manufacturer's instructions set out different requirements.

FROST HEAVE

Frost heave is the lifting and settling action of wet soil as it freezes and thaws. Certain types of soils heave more than others. The uneven rising and falling of footings can cause serious problems to a home.

The Washington Installation Code, WAC 296-150I-0300(2), allows local jurisdictions to determine the frost depth in their areas. Therefore, the local jurisdiction may require footings for manufactured homes to be placed below the local frost depth and may approve or deny methods and materials that are not specifically addressed by the installation instructions or the instructions of a Washington engineer or architect.

Follow the home manufacturer's installation instructions addressing frost heave. If the instructions are unclear, you may request specific instructions from the manufacturer or you may use the specific instructions of an engineer or architect licensed in Washington.

HUD Model Code 24 CFR Part 3285.312 Footings. Identifies materials approved for footings to be used for relocated homes when the manufacturer's installation instructions are unavailable, requires footings to be placed below the frost line and gives alternatives such as precast concrete pads, poured in place six-inch pads, slabs, or ribbons with at least 28-day compressive strength of 3,000 pounds per square inch. Pressure treated wood footings. ABS footing pads. Conventional footings and monolithic slab systems. An insulated foundations is permitted above the frost line, when all relevant site-specific conditions, including soil characteristics, site preparation, ventilation, and insulative properties of the under floor enclosure, are considered, and the foundation is designed by a registered professional engineer or registered architect. Refer to 3285.312 Footings for additional information. Contact the local building jurisdiction to determine the local frost depth. If you are using a new method for meeting frost-depth requirements, discuss your foundation plan with the local jurisdiction prior to installation to avoid problems.

FOOTINGS

Footings can be continuous, such as under a foundation or basement wall; they can be pads, each holding one support pier; or they can be concrete runners or full slabs that carry weight from more than one support pier. Most of the examples in this manual use individual footing pads; however, the information on effective footing area given in this section also may be applied to runners and full slabs. Continuous foundations and basements will require specific instructions from the home manufacturer or instructions from an engineer or architect licensed in Washington State.

To properly size and space footings, you will need to consider the load carrying capacity of the piers and the soil bearing capacity. The tables in the manufacturers' installation manuals address footing size and spacing differently. Later in this chapter we will provide examples similar to what are found in several home manufacturers' installation manuals.

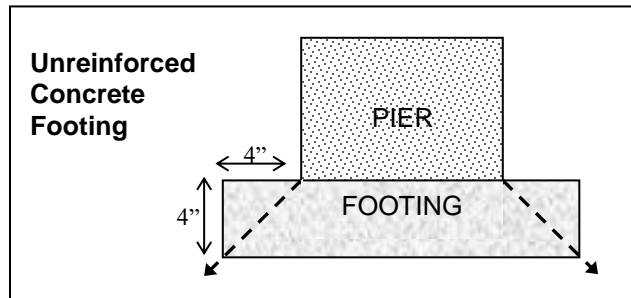
Footings must be sized to effectively transfer the weight on the support pier to the ground it is sitting on. The bottom of the footing pad must be large enough to spread the weight so that the pressure on the ground is less than the bearing capacity of the soil. Soils with higher bearing capacities require smaller footings to hold the weight on the pier.

Effective Footing Area

The area of the footing pad that is capable of supporting the pier load is called “the effective footing area.” The actual size of the footing may be larger than the effective footing area; however, the footings should not be so large that they crack. See the diagrams on pages 4-11 and 4-12.

To determine the effective footing area of a footing pad, you must consider how the weight is transferred from the support pier to the ground. As the example on the following page shows, weight is transferred from the base of the support pier through the footing at a 45-degree angle. When using a footing pad larger than the effective footing area, the same principle of depth equals ledge would apply. The ledge of the effective footing area will always equal the depth of the footing regardless of the actual length of the footing ledge. The illustrations on page 4-11 and 4-12 demonstrate with dotted lines how the effective footing area stays within that 45-degree angle. The remainder of the footing beyond the dotted line is not supporting the pier weight. This diagram shows a footing where the actual ledge and depth of the footing are equal, so the entire bottom of the footing pad is the effective footing area.

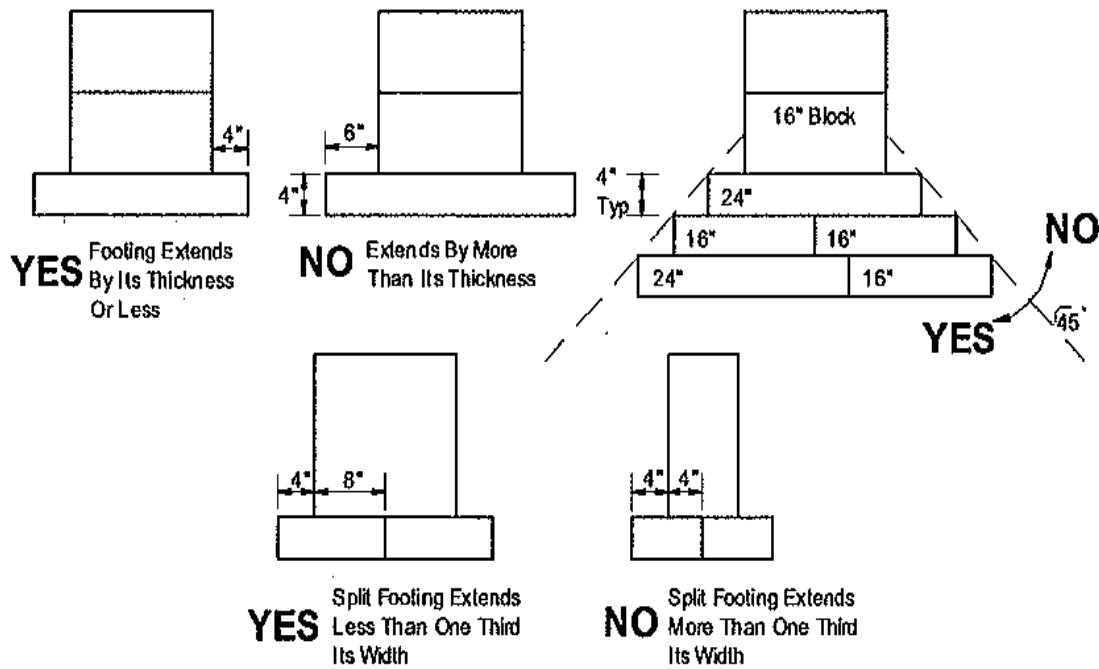
The dotted lines indicate how the weight is transferred at a 45-degree angle



The following illustrations are examples of how footing pads can be stacked to increase the effective footing area in contact with the ground. The diagrams indicate the effective footing area of the pad. The pad configurations in the examples are constructed from either 8" x 16" or 16" x 16" concrete footing pads and all are 4" thick.

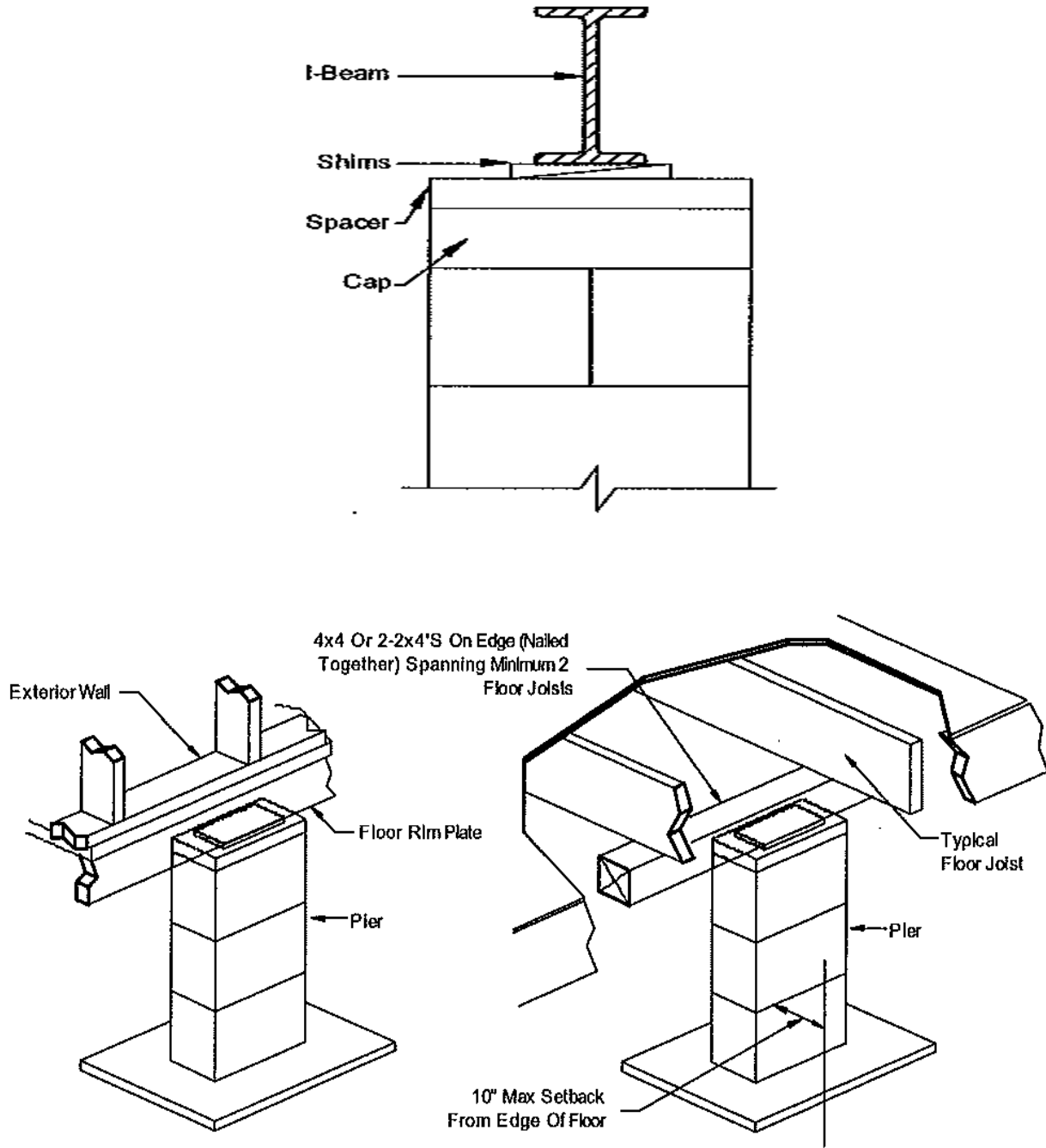
- Design each footing at least slightly larger than the base of the pier it supports.

- To keep footings directly under I-beams and other support points, size them slightly larger than the minimum required area to allow slight adjustment of the pier location during home installation.
- Design footings with a footing extension (projected beyond the base of the pier) no greater than the footing thickness.
- The footing sizes shown are for square pads and are based on the surface area (square inches) Design non-square footings such that the area and depth is equal to or greater than the area and depth of the square footing, and the distance from the edge of the pier to the edge of the footing is not more than the thickness of the footing.

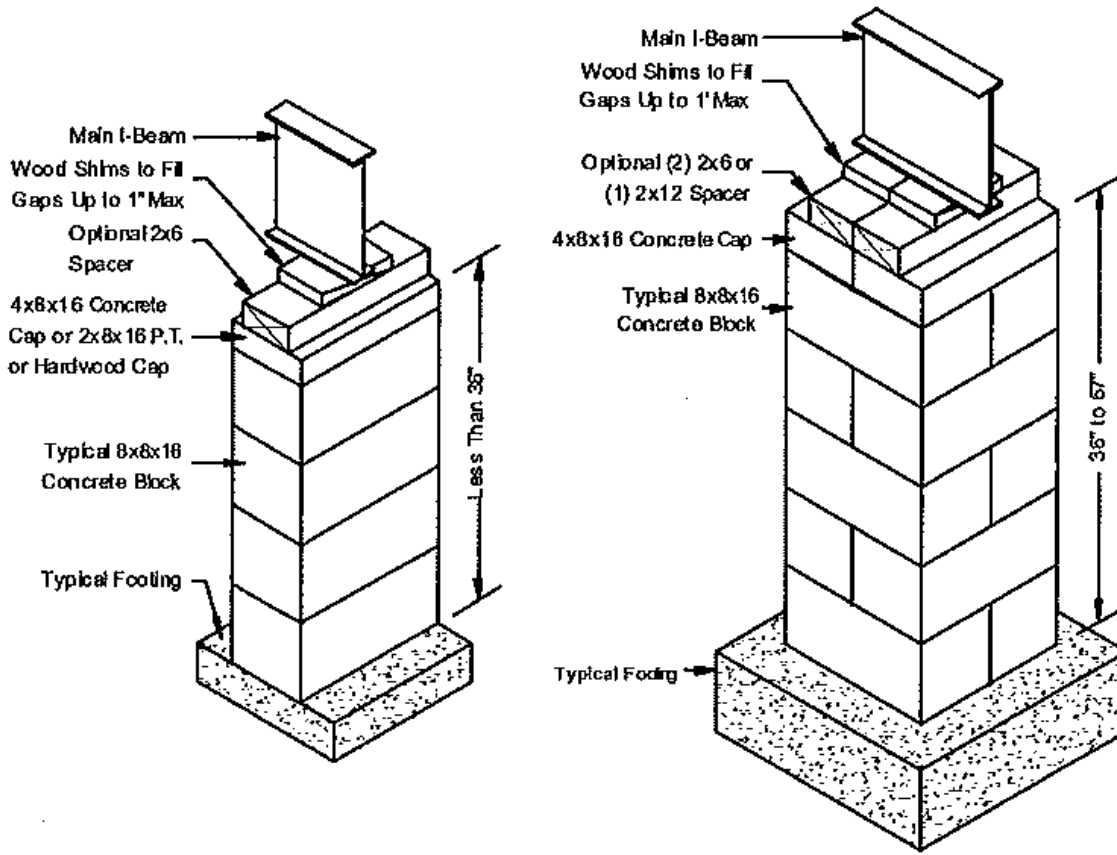


Install Footings

Maintain the distance between adjacent piers to within 10% of the tabulated spacing and so the average distance between any adjacent spans is equal to or less than the tabulated spacing. Whenever possible, place point load supports directly under the required locations. If plumbing, electrical, mechanical equipment interferes, place supports no more than 6 inches (or what is allowed in the manufacturer's installation manual) in either direction of the support point. Recess perimeter blocking supports and perimeter point load supports no more than 10 inches from the edge of the floor with added support.



The footing configuration need not be square; however it must meet the requirement for footing size in square inches.



The table below gives footing capacities for common pad configurations such as the ones on the previous two pages.

Footing Capacity for Common Pad Configurations

Effective Footing Area, sq. in.	Footing Capacity, lbs, for Soil Bearing Capacity, psf			
	1,000 psf	1,500 psf	2,000 psf	2,500 psf
256	1,780	2,670	3,560	6,670
384	2,670	4,000	5,330	6,670
576	4,000	6,000	8,000	10,000*
768	5,330	8,000	10,700*	13,300*

*** The maximum strength of a single stack of blocks is 8,000 lbs**

The allowable pier weight for a given footing size can be calculated as shown below.

You must first convert square inches to square feet.
There are 144 inches in one square foot

$$\begin{aligned} \text{Footing Size (square inches)} \div 144 &= \text{Footing Size (square foot)} \\ \text{Footing Size (square inches)} \times \text{Soil Bearing Capacity} &= \text{Allowable weight} \end{aligned}$$

EXAMPLE: For a required footing size of 576 square inches to be placed on 1500 PSF soil, the calculation for allowable weight would be:

$$\begin{aligned} 576 \text{ square inches} \div 144 \text{ sq. in.} &= 4 \text{ square feet} \\ 4 \text{ square feet} \times 1500 \text{ PSF} &= 6000 \text{ Pounds allowable weight} \end{aligned}$$

The required effective footing area for a minimum pier capacity can be calculated as shown below.

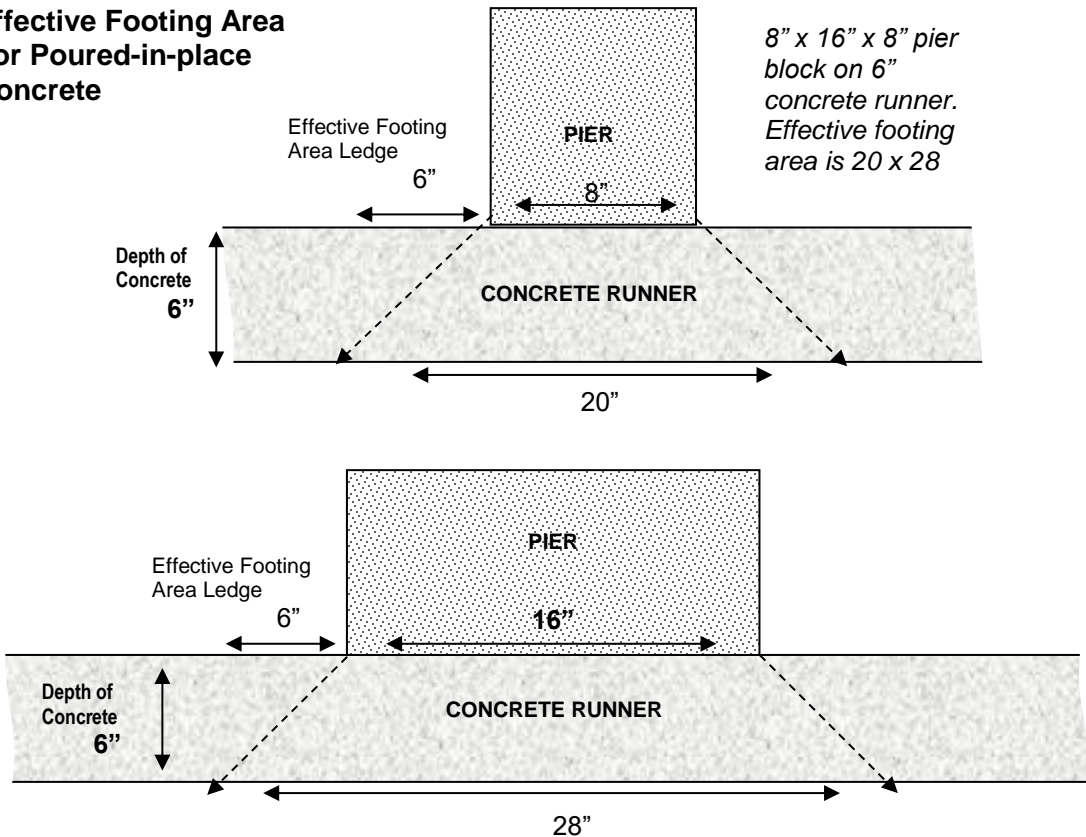
EXAMPLE: If the pier will be supporting 3000 pounds on 1500 PSF soil, the required footing area is 288 square inches or a 17 x 17 minimum footing.

$$\begin{aligned} 3000 \text{ Pounds} \div 1500 \text{ PSF} &= 2 \\ 2 \text{ square feet} \times 144 \text{ square inches} &= 288 \text{ required footing area} \end{aligned}$$

Poured-in-place Concrete Pads, Runners, and Full Slabs

The 45-degree rule for effective footing area applies to poured-in-place concrete pads, runners and full slabs. The depth of the concrete determines the ledge for effective footing area. See the examples on the following page.

Effective Footing Area For Poured-in-place Concrete



The following table gives the effective footing area and pier capacities for unreinforced poured-in-place concrete.

SINGLE-STACKED BLOCK PIER 8" x 16" x 8"				
Footing Depth	Effective Footing Area Length x Width	Effective Footing Area Square Inches	Footing Weight Capacity	
			1500 psf soil	2000 psf soil
4"	16" x 24"	384	4,000	5,330
6"	20" x 28"	560	5,830	7,780
8"	24" x 32"	768	8,000	*
DOUBLE- STACKED BLOCK PIER 16" x 16" x 8"				
4"	24" x 24"	576	6,000	8,000
6"	28" x 28"	784	8,160	10,890
8"	32" x 32"	1,024	10,670	14,220
<i>* Exceeds 8,000 pounds – use double stacked blocks.</i>				

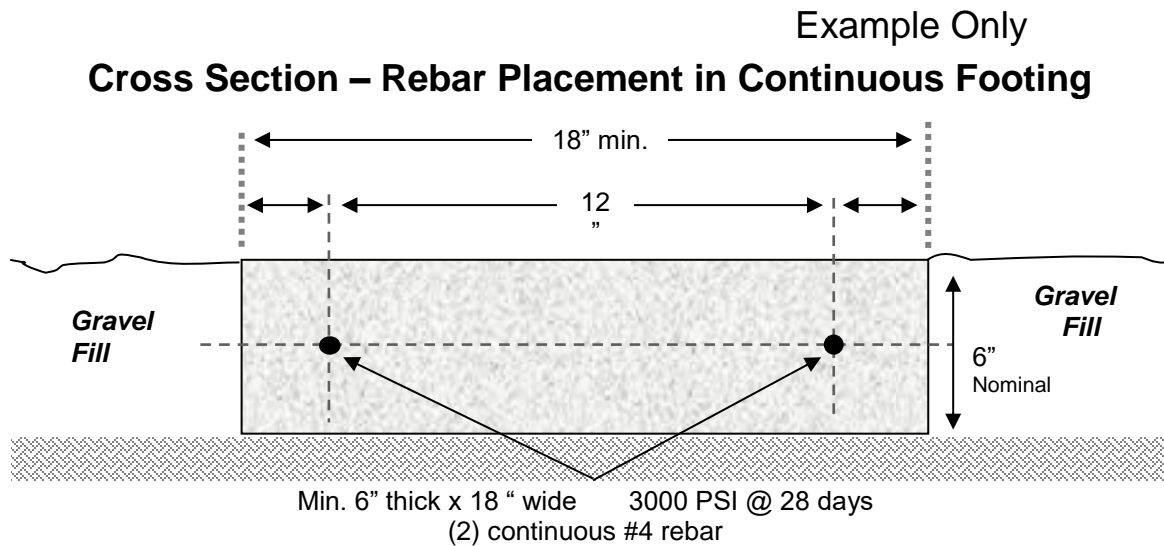
When the depth of a concrete runner or slab does not provide sufficient effective footing area for the weight to be supported, placing pre-poured concrete pads on top of the slab increases the effective footing area.

The table below gives examples of how effective footing area is increased by placing pre-poured concrete pads on a 3 1/2-inch cement slab or runner.

EFFECTIVE FOOTING AREA FOR PAD CONFIGURATIONS ON TOP OF 3 1/2-INCH CONCRETE			
8" X 16" X 8" pier block sitting on the following pad configurations		Effective Footing Area Inches x Inches	Effective Footing Area Square Inches
2 pads	8" x 16" x 4"	23" x 23"	529
1 pad	16" x 16" x 4"	23" x 23"	529
3 pads	8" x 16" x 4"	23" x 31"	713
2 pads	16" x 16" x 4"	23" x 31"	713
1 pad sitting on 4 pads	16" x 16" x 4" 16" x 16" x 4"	31" x 31"	961
1 pad sitting on 6 pads	16" x 16" x 4" 8" x 16" x 4"	31" x 31"	961
1 pad sitting on 2 pads sitting on 4 pads	16" x 16" x 4" 16" x 16" x 4" 16" x 16" x 4"	31" x 39"	1,209

Reinforced Concrete

If the home manufacturer or an engineer or architect has given specifications for reinforced concrete runners or slabs, follow those specifications. The specifications should include size and placement of the rebar, and required cover. If exact specifications have not been provided, the local building inspector will enforce standard practice with guidance from the building code in effect. The following illustration shows a typical requirement for rebar placement in a concrete runner.



SUPPORT PIERS

The home manufacturer's installation manual will require you to place support piers at various locations under the home. The main beam or I-beam support is usually the main support for the home. Perimeter support along the sides of the home is generally not required for homes with a 20 PSF roof; however, the manufacturer may require perimeter supports on each side of openings such as doorways and windows regardless of roof load. Support piers will also be required at ridge beam columns on multi-section homes. Each manufacturer may have a different name for the pier locations. You will commonly see the support pier locations referred to as:

- I-beam, main beam or chassis support.
- Ridge beam, mating line, or center line support.
- Perimeter support.

Throughout this section we will refer to those support locations as main beam support, ridge beam support, and perimeter support.

Standard Pier Capacities

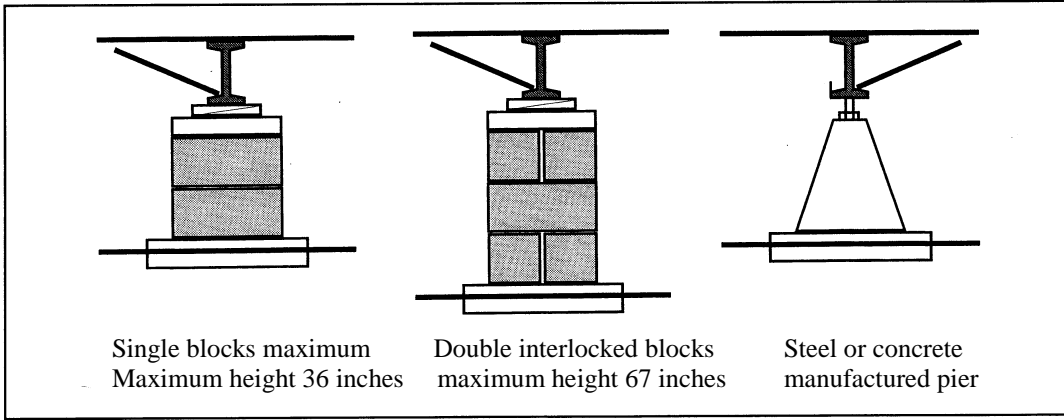
Single Stack – 8,000 lbs. maximum capacity – up to 36"

Double Stack – 16,000 lbs. maximum capacity – over 36" to 67"

Metal Pier – 6,000 lbs. maximum capacity – rating stamped on stand.

Pier capacities must be equal to or greater than the footing capacity. For example, a single stack of blocks will hold weight up to 8,000 pounds. However, if the footing will hold only 5,000 pounds, the weight on the pier may not exceed the maximum capacity of the footing.

Following are several examples of pier diagrams similar to what you will find in home manufacturers' installation manuals.



Structural Loads

Supports under the home must be able to hold the downward weight due to the sum of dead, live, and snow loads while keeping the home straight and level.

Dead load – weight of the structure of the home

Snow load – design load of the home's roof

Floor live load – weight of people, furnishings, etc. – generally taken as 40 PSF

The tables and diagrams in the manufacturer's installation instructions have calculated minimum pier capacities using the sum of those three loads.

Main Beam Supports

The primary support under a manufactured home is normally under the main chassis members or I-beams. The weight of the home will be distributed to support piers spaced at regular intervals. The maximum allowable spacing between main beam supports is limited by the strength of the beam. Some manufacturers will determine the maximum distance between supports based on I-beam height. Some calculate this to be: one-foot maximum pier spacing for each inch in height of the I-beam.

The strength of the piers and capacity of the footings will play a part in pier spacing. The following example is based on a 14' x 56' home supported only on the I-beams, 784 square foot. The total weight, including home dead load, floor live load, and roof snow load is 74,500. Dividing the weight of the home by the length of the home gives us the total weight per foot, 1,330 pounds per foot.

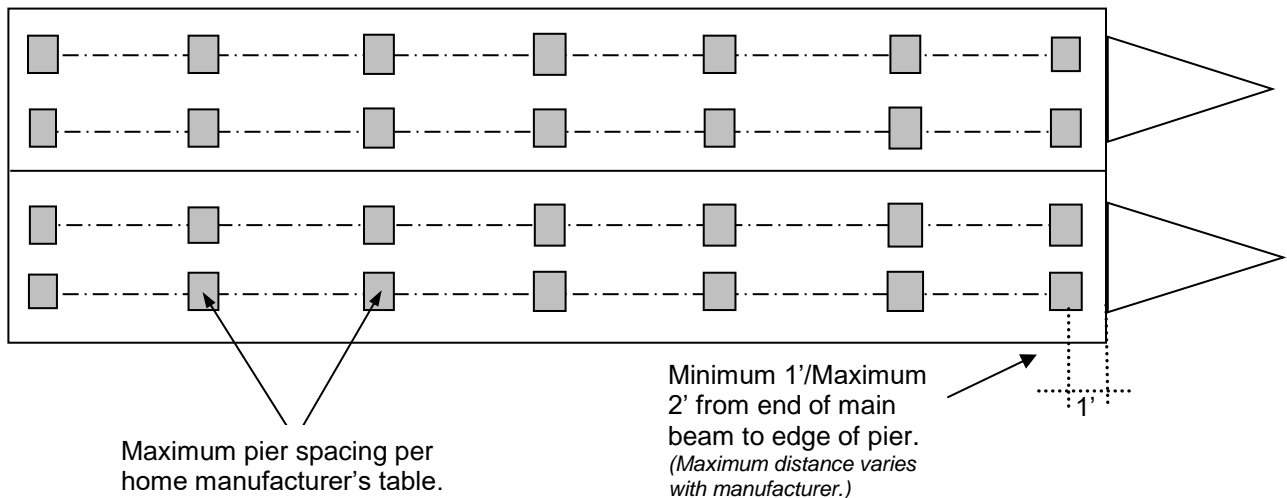
EXAMPLE: I-Beam Support Loads	
Support Spacing, feet	Load on Each Support, pounds
4	2,660
6	3,990
8	5,320
10	6,650
12	7,980
14	9,310

In the previous example, metal piers with a weight limit of 6000 pounds could be placed up to four feet apart. Concrete blocks with an 8,000-pound rating could be placed up to six feet apart.

The home manufacturer's installation manual will give you diagrams and tables to use in determining footing size, pier load, and spacing for the particular home you are setting up. They will also state the maximum distance from the ends of the main beams to the outermost support piers. The maximum distance may measure from the edge of the pier or the centerline of the pier depending on the manufacturer.

As we've stated previously, it is important to read all of the instructions carefully. Important information such as the maximum distance from the end wall may be contained in either a narrative or in a diagram such as the one below. This diagram is similar to what might be found in a home manufacturer's installation manual.

Main Beam Blocking



24 CFR 3285.310 Pier location and spacing. The location and spacing of piers depends upon the dimensions of the home, the live and dead loads, the type of construction (single-or multi-section). I-beam size, soil bearing capacity, footing size, and such other factors as the location of doors or other openings. Piers supporting the frame must be no more than 24” inches from both ends.

Perimeter Supports

The term perimeter support generally refers to the support under the long side walls of the home and to supports under either side of large openings, such as windows and doors, in the exterior wall of the home. The manufacturer sets the requirement for when and where perimeter supports are required. Generally they are required under the long side walls of most homes and on either side of large openings in the exterior walls of the home, such as large doors and windows.

24 CFR 3285.307 Perimeter support piers.

- (a) Piers required at mate-line supports, perimeter piers, and piers at exterior wall openings are permitted to be constructed of single open-cell or closed-cell concrete blocks, with nominal dimensions of 8”x8”x16” inches, to a maximum height of 54 inches, when the design capacity of the block is not exceeded.
- (b) Piers used for perimeter support must be installed with the long dimension parallel to the perimeter rail.

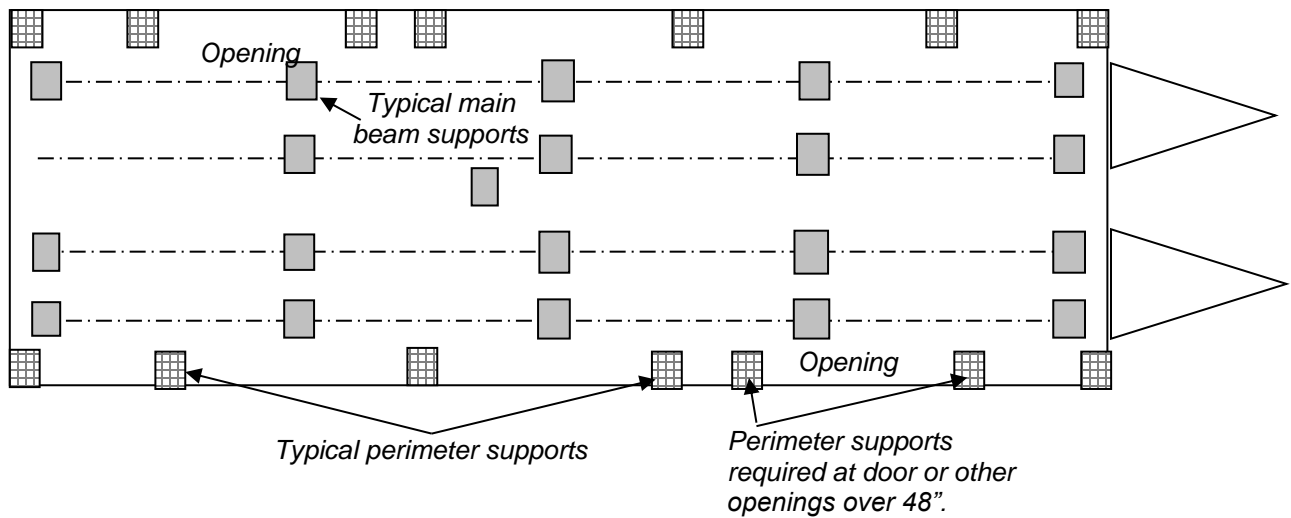
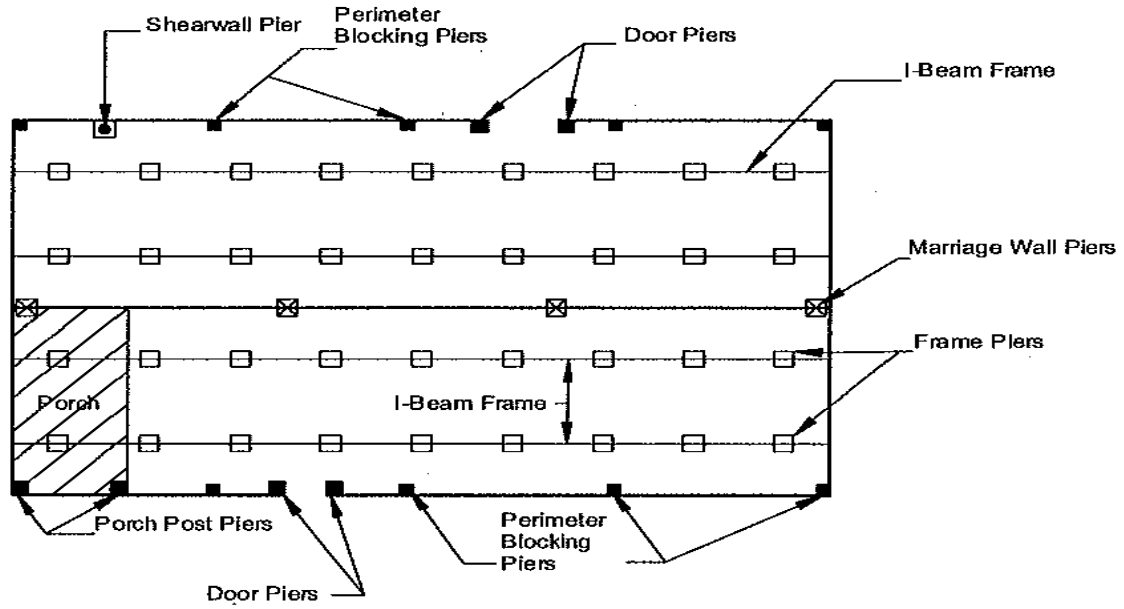
When determining when and where perimeter supports are required, remember to consider these two questions.

- 1) Do the manufacturer’s installation instructions require perimeter supports under the long side walls of the home based on the home’s roof design load?
- 2) Do the manufacturer’s installation instructions require perimeter supports under large openings in the exterior walls of the home such as windows and doors?

The following diagram is similar to what you will find in some manufacturers’ installation instructions. The diagram indicates generally how perimeter piers will be placed.

Example Only Refer to manufacturer’s installation manual for perimeter support requirements.

Chapter 4 - Foundation Design and Construction



RIDGE BEAM SUPPORTS

Ridge beam supports, also called centerline or marriage line supports, are used to support ridge beam columns and load-bearing walls along the marriage line. As demonstrated in the illustration on the previous page, the supports along the marriage line must support 50 percent of the roof's load. Because of this, the loads on the ridge beam column supports can be the largest point loads in the home.

Ridge beam column supports are required on either side of large openings in the marriage line. Since the support is carrying the roof load from two home sections, the weight on the support is doubled. Depending upon the span between columns, the minimum pier capacity and required footing area can be quite large. Supports must be properly placed under each ridge beam column to transfer the heavy point loads to the footings without cantilevering the floor members. It is important to follow the home manufacturer's instructions regarding how large ridge beam supports need to be and where they are required. Some manufacturers will have the requirements for ridge beam column supports in supplements to the installation manual or in floor plans shipped with home.

Supports under a load-bearing wall at the marriage line differ from the supports under ridge beam columns. Marriage line supports are in essence the same as perimeter supports. The requirement for these supports varies by manufacturer. Generally, if perimeter supports are required, supports will be required under load-bearing walls at the marriage line. As with ridge beam column supports, the weight on marriage line supports is double because they carry the load from two home sections. Check the home manufacturer's instructions carefully to see if marriage line supports are required for the home you are installing. A wall along the marriage line may be a partition wall with columns in it and not a load-bearing wall.

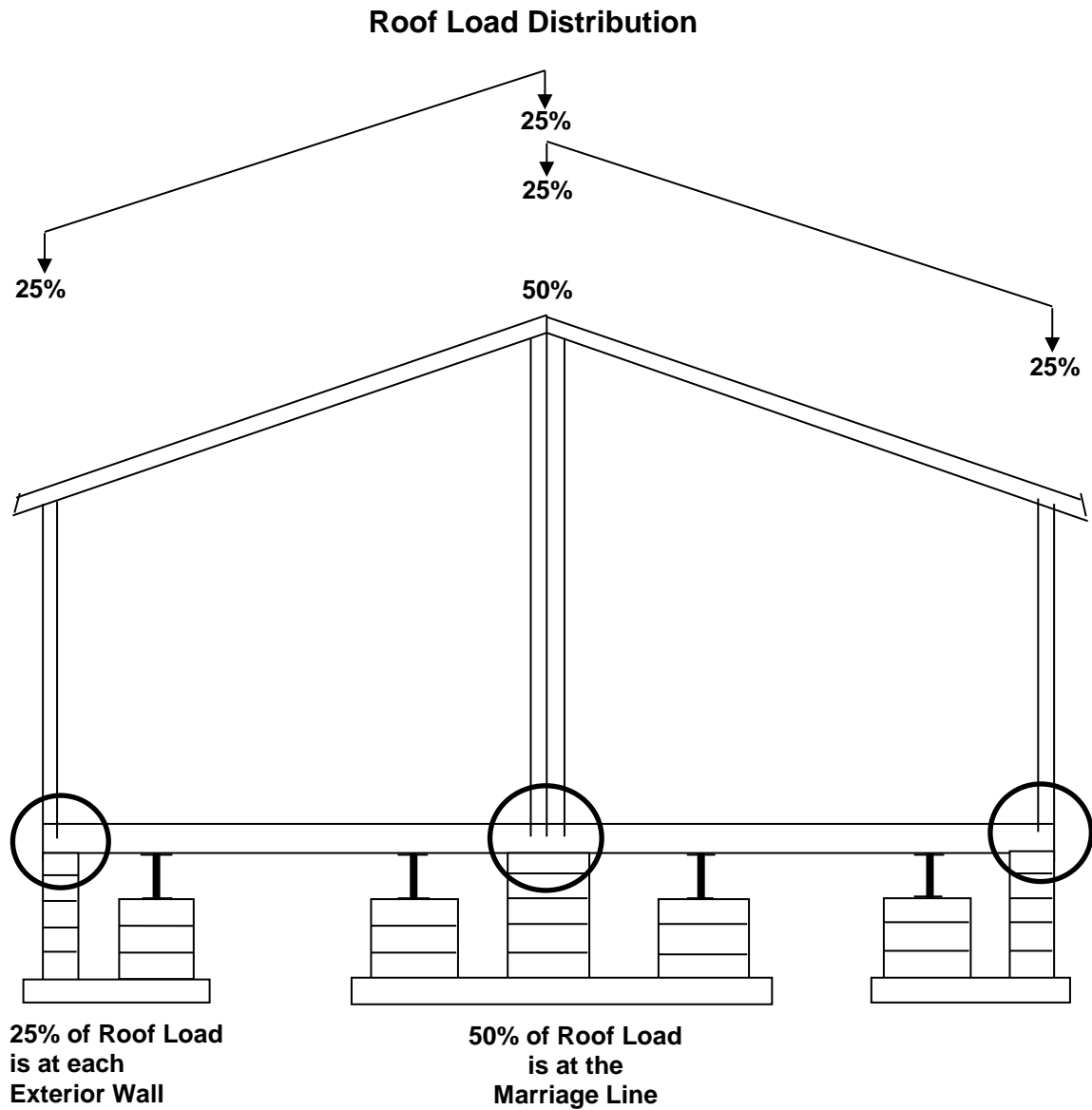
The tables for pier capacity and footing sizes at marriage lines are similar to other support tables except they use column span as a basis rather than spacing between supports. "Span" refers to the distance between two major columns or posts.

"Tributary span" is the standard structural term for spans. Home manufacturers commonly use this term for sizing ridge beam column supports. Tributary span for a column includes only that column's share of the load. As shown in the illustration below, tributary span stretches half way to the next column on either side.

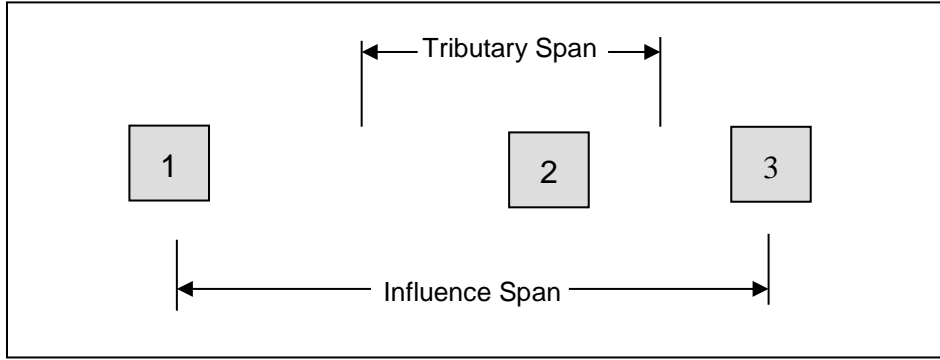
"Influence span" is another term that may be used. Influence span extends all the way to the adjacent columns on each side. See the illustration page 4-24.

NOTE: Be sure to follow the manufacturer's instructions for placing perimeter supports below the frost line in areas subject to freezing.

The diagram below shows how the load of the roof is distributed to the support piers.



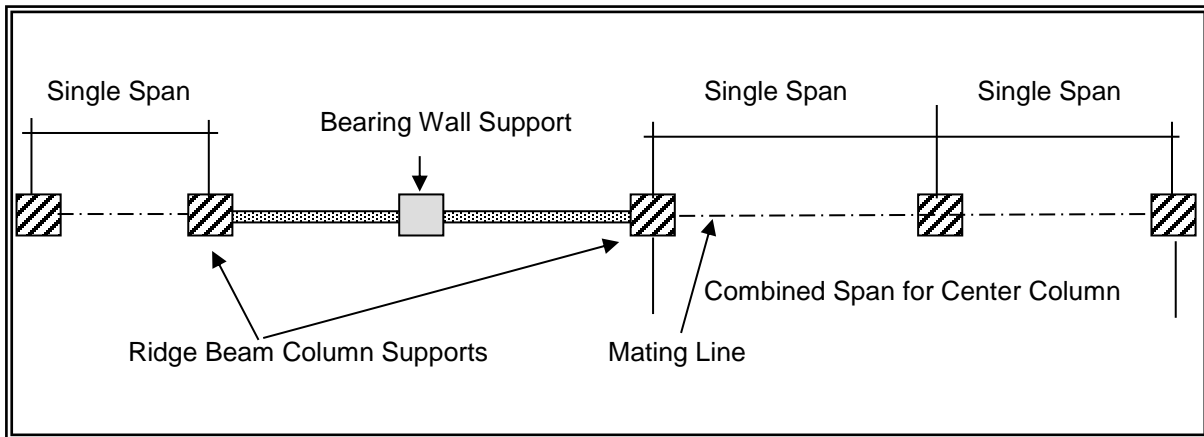
As you see from the load distribution diagram above, 25 percent of the roof load is distributed to the long side walls of the home. This is the reason perimeter supports are required for higher roof design loads. The other 50 percent of the roof load is distributed to the marriage line of the home.



Ridge beam column supports are different for each floor plan because the spans are in different locations and are different widths. Depending on the width of the span, the support and footing under each ridge beam column will vary.

Some manufacturers give a blocking diagram for each home model separate from the installation manual. The diagram gives the location of each ridge beam support point and the weight it needs to support. Other manufacturers will tag or mark the required support locations on the home itself.

When a column lies between two openings, the span for that center column is the sum of the two single spans on either side of the center column. See the example below.



Special Supports

Depending on the design of the home and the particular manufacturer, special supports will be required for things such as porch columns, home sections with transverse roof designs, pop-out floors, and outset fireplaces.

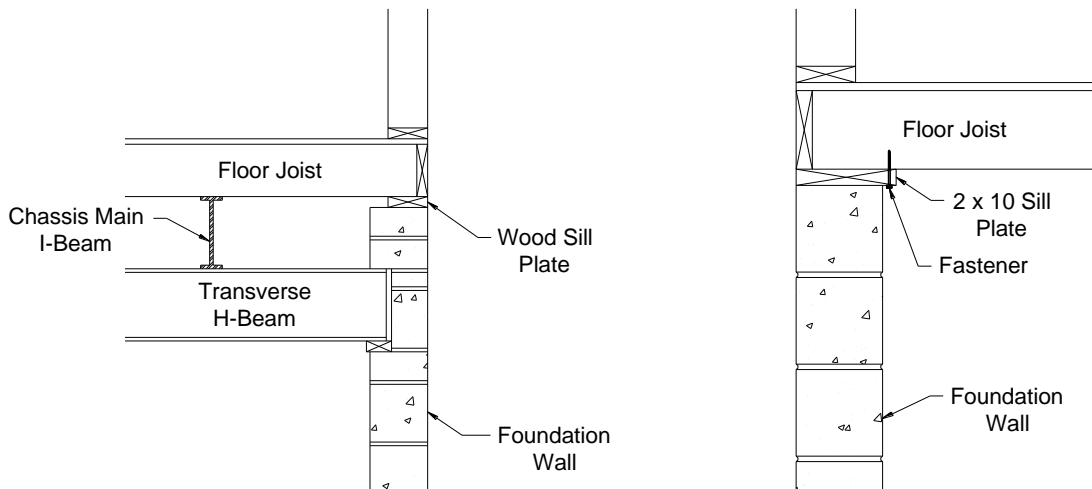
Model Code 24 CFR MHCSS 3285 and many manufacturers require placing supports under heavy items such as wood stoves, pianos, and waterbeds.

24 CFR 3285 Typical Mate Line Column Pier and Mating Wall Support When Perimeter Blocking is required. NOTE 6 in areas where the open span is greater than 10 foot, intermediate piers and footings must be placed at maximum 10 foot on-center.

Follow the manufacturer's installation instructions for footing size and pier capacity.

Load Bearing Perimeter Foundations

When homes are designed and constructed to use the perimeter foundation supports to support the homes outside walls and if the manufacturer has not provided the engineered design it is then the responsibility of the retailer and/or home owner to provide a design approved by an engineer or architect, licensed in Washington. The approved design must comply with the Local Authority Having Jurisdiction regulations for foundation design, waterproofing, and drainage. Some manufacturers may include in their manuals details for load bearing perimeter foundations.



Chapter 5

Structural Connections

- **Joining Sections**
- **Floor Connections**
- **Wall Connections**
- **Roof Connections**
- **Roof Close-Up**
 - Hinge Roofs**
 - Roof Ventilation**
 - Triple Section Roofs**
 - Tag Unit Roofs**
- **Alternate Construction**
- **On-Site Completion**
- **MHCSS 3282 Subpart M**

JOINING SECTIONS

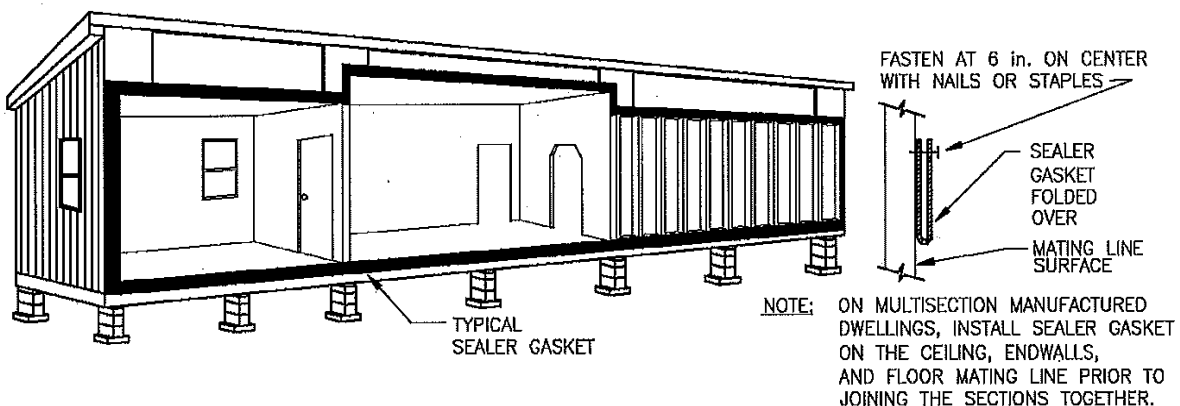
Manufacturers' instructions are usually very clear about how to join home sections. The instructions for each manufacturer vary. It is important to follow the instructions for the particular home you are setting.

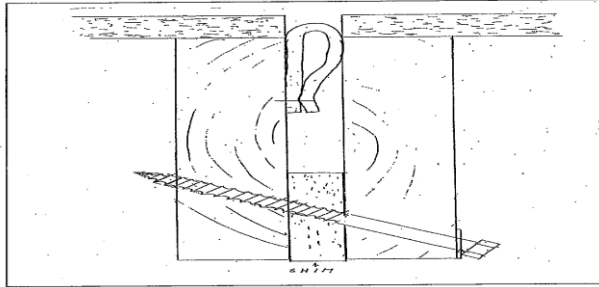
Prior to joining the sections, remove protective shipping and close-up material. Next, position sections as close together as possible in the final location. Take care to avoid overstressing structural members when sliding the sections together.

For multi-section homes, the ceiling, end walls, and floor must be sealed with a non-porous gasket material. The home manufacturer will list the acceptable products in their installation instructions. Closed-cell foam such as sill sealer is commonly used. Many manufacturers will allow non-porous caulking, polyurethane foam, or a marriage line insulator. Non-porous caulking must be capable of compressing and stretching. Do not use carpet pad or fiberglass for sealing the home sections. See the drawing below showing the floor rim joists sealed with sill sealer.

Shimming

Most home manufacturers will require gaps in the marriage line to be shimmed with wood. The instructions will also give the maximum gap width. If the installation instructions are unclear, call the home manufacturer for clarification. A good rule of thumb is to shim gaps over 1/4 inch, up to a maximum of 3/4 inch. Ask for DAPIA instructions from the manufacturer for how to proceed when separation between sections exceed 3/4" inches.





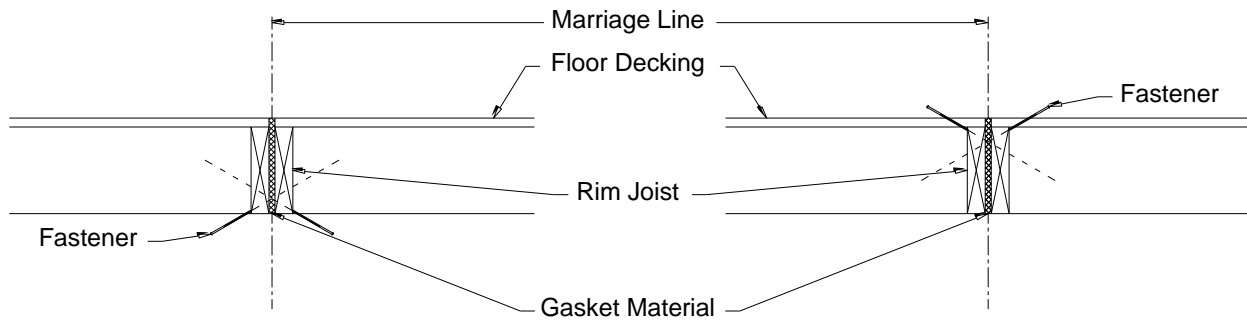
FLOOR CONNECTIONS

Method 1: Make floor structural connections according to the fastener specifications in the manufacturer’s installation manual. General spacing requirements are on center, both sides of marriage line. Fasteners on each side of marriage line shall be staggered and offset by twice the spacing distance. After fasteners are installed repair any tears or holes in the bottom board.

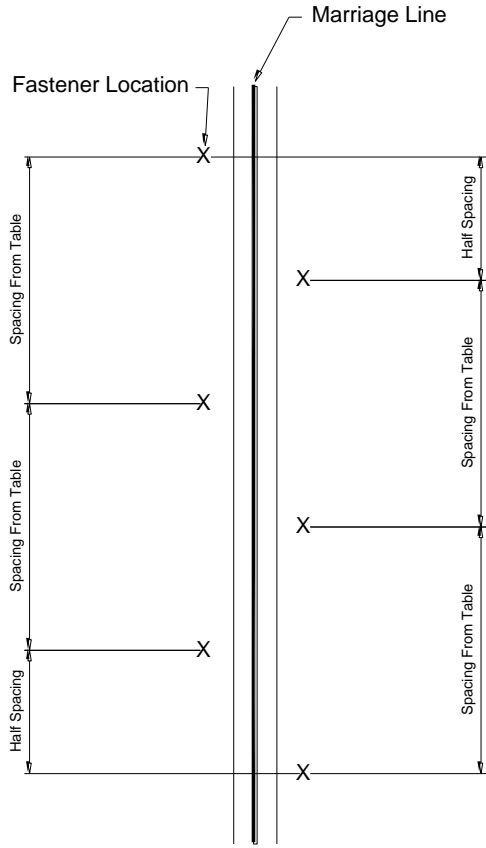
Example of Floor Fastening

Fastener		Spacing		
Type	Size	Wind Zone I	Wind Zone II	Wind Zone III
Lag screw with washer	5/16" x 4-1/2"	36 in.	20 in.	16 in.
Wood screw	#8 x 4" *	32 in.	16 in.	16 in.

* Increase fastener lengths by 3 inches for double rim joists.

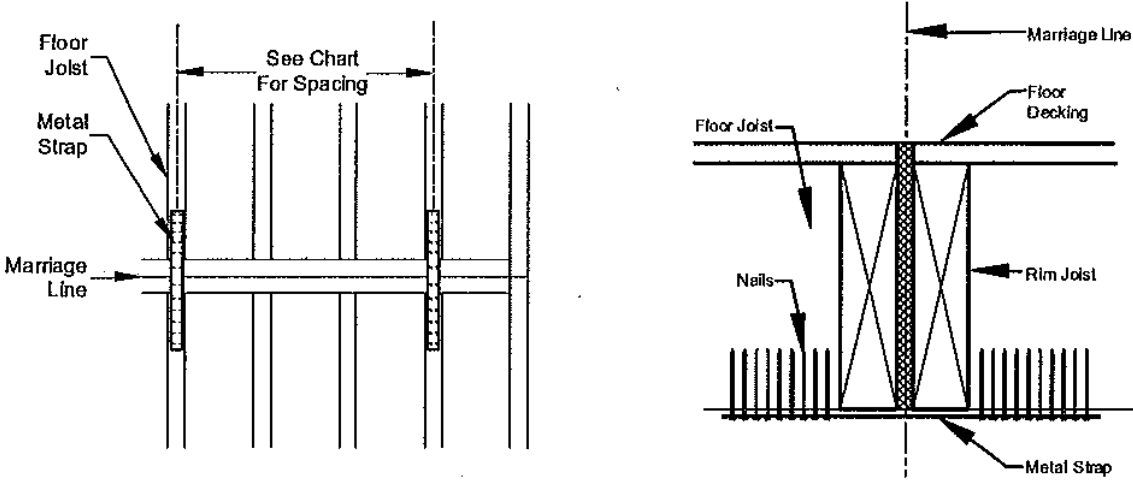


Chapter 5 – Structural Connections



Stagger fasteners on either side of marriage line and offset them by half the spacing distance.

Fastener Type	Size	Number
Galvanized Staples – 16 ga.	7/16" x 1" penetration	12 each side
Roofing Nails	1-1/2" long	9 each side

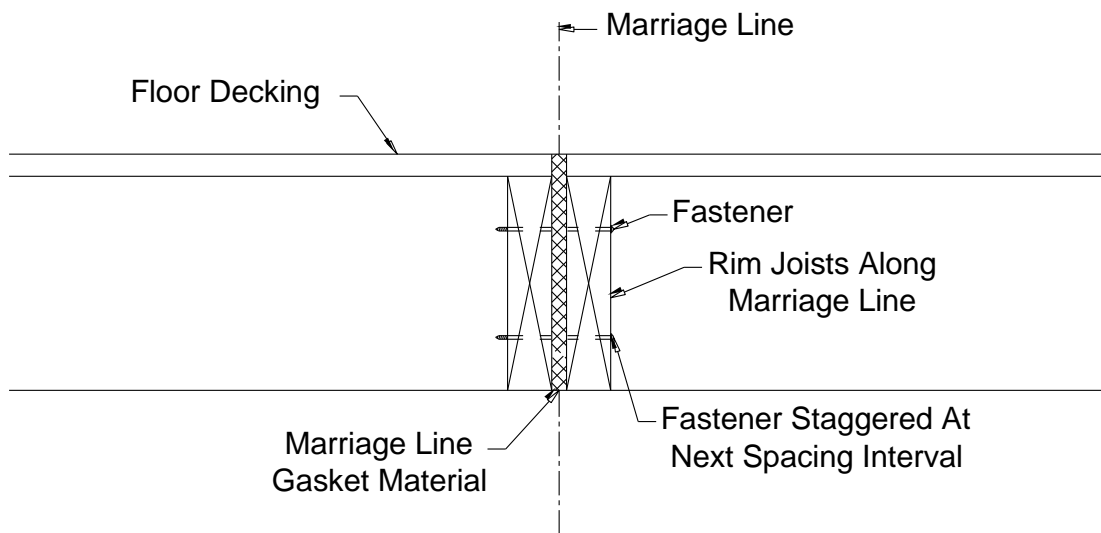


Install additional fasteners as indicated, making sure to repair any openings in the bottom board with tape specially made for that purpose (may be provided).

- Install two additional fasteners at each end of the home at approximately a 45 degree angle (± 5 degrees) from horizontal.
- If the home has a through-the-rim crossover duct, install one additional fastener at each side of the duct opening.
- Except where marriage walls exist on both sides of the marriage line, insert 16d nails eight inches on center, staggered from above across the marriage line into opposing rim joist.
- Patch bottom board with adhesive spray, mastic, and/or combination with bottom board tape for a more secure and durable connection.

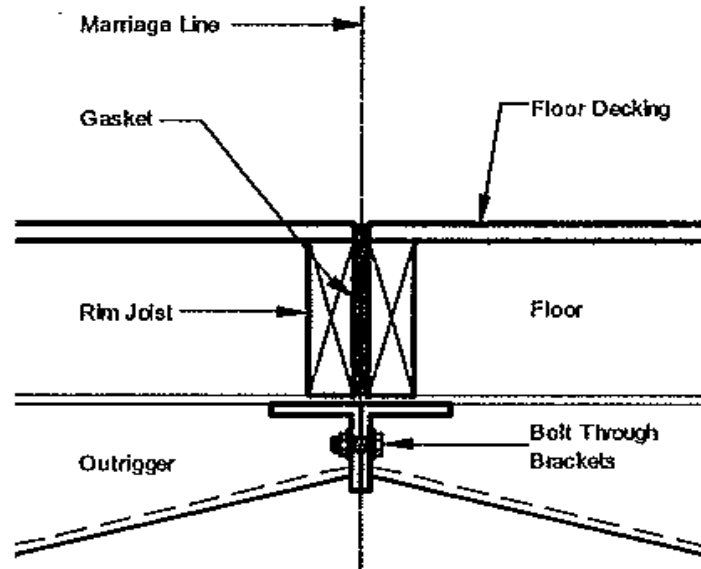
Method 2: Install horizontal fasteners through rim joist.

Insert 5/16" x 3" lag screws spaced per manufacturer's installation instructions (Most manufacturer's manuals require lags spaced 18" inches on center for wind zone 1). After installation of fasteners, repair tears or holes in the bottom board using tape specially made for that purpose.



Method 3: Install bolts through brackets at ends of frame outriggers.

This method is available only if the brackets have been provided by the manufacturer. Insert 1/2" bolts, washers and nuts at each outrigger connection bracket. Repair tears or holes in the bottom board after installation of fasteners using tape specially made for that purpose.



WALL CONNECTIONS

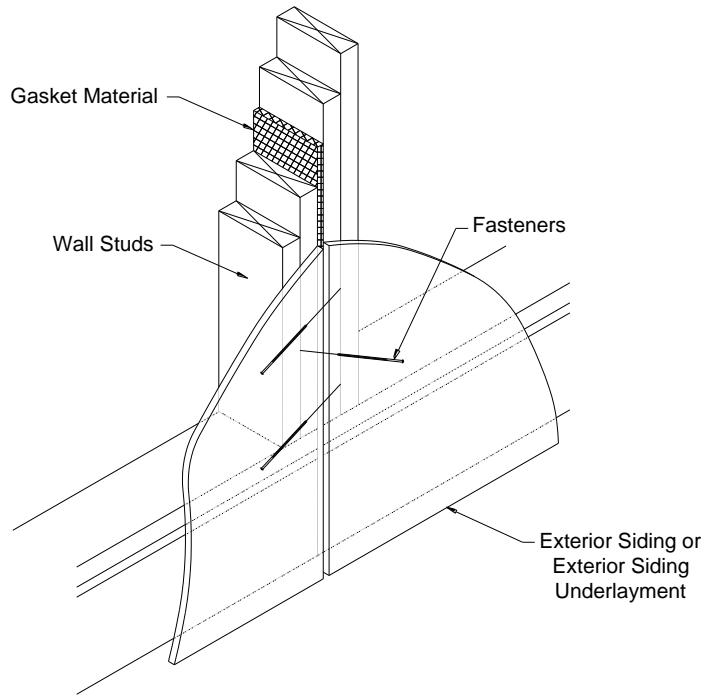
Make wall structural connections according to the appropriate method described in the manufacturer’s installation manual. Make connections by installing fasteners from inside the end wall according to the fastener specifications and spacing requirements. Re-install the exterior wall sheathing panels after wall have been fastened. If the exterior wall panel is part of a shear wall panel fasten and attach per the manufacturer’s installation manual for shear walls.

Once the home is secured along the marriage line floor and roof, secure end walls, interior doorways, and marriage line partitions according to the appropriate method described by the manufacturer.

Manufacturer’s examples:

Method 1: Install toed fasteners through sheathing

Toe fasteners through sheathing from the exterior at an approximately 45 degree angle (+/- 5 degrees) according to the fastener specification and spacing requirements.

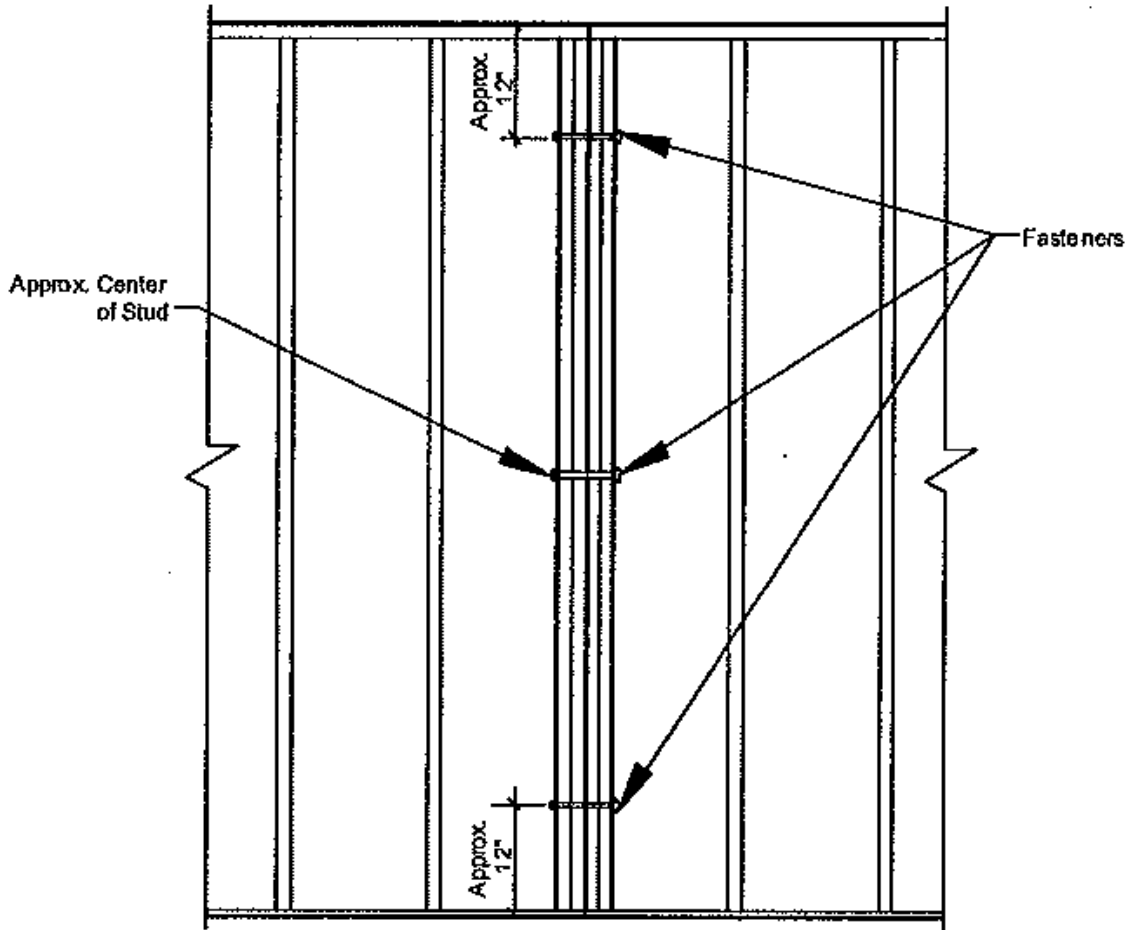


Fastener Type	Size	Spacing
Lag screw with washer	5/16" x 5"	12 in. o.c.
Wood screw	#8 x 3"	8 in. o.c.
Nail	16d	8 in. o.c.

Method 2: Install bolts or lags through end stud framing.

Remove exterior sheathing along the marriage line at end walls and install fasteners directly through the framing according to the fastener specifications and spacing requirements.

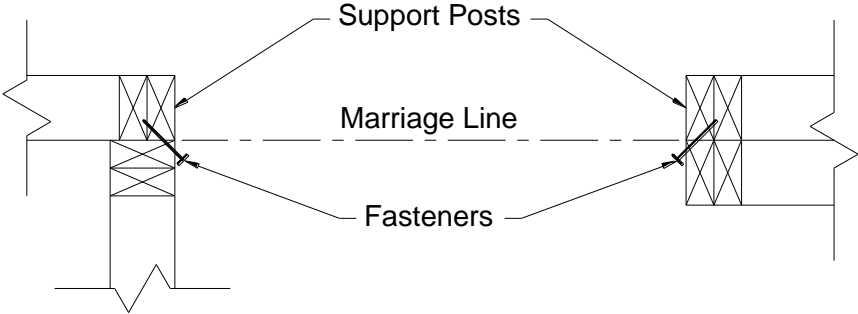
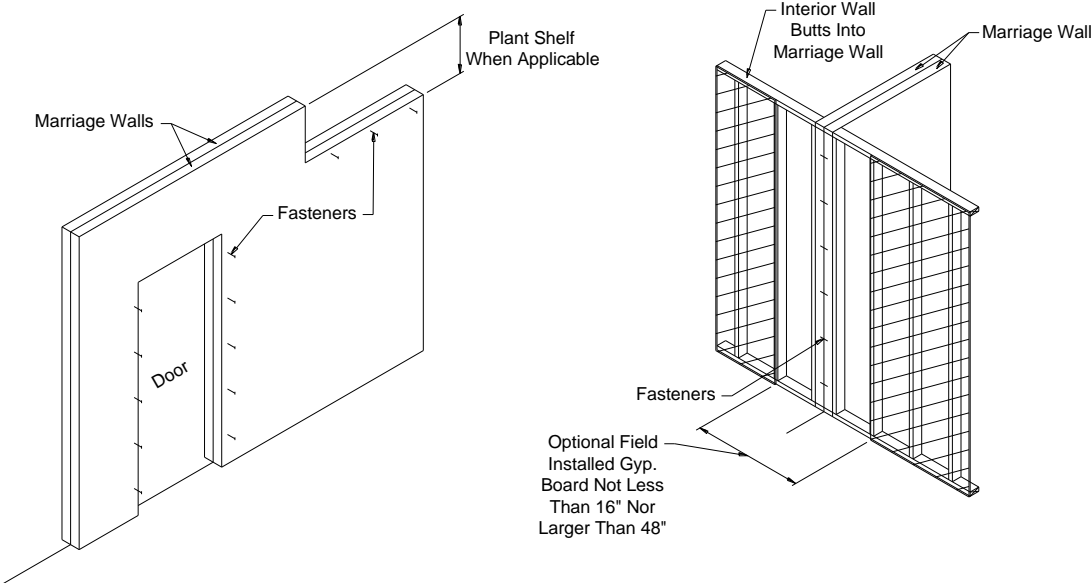
After end wall fasteners are installed, re-install the exterior sheathing using minimum 15ga x 7/16" x 1-1/2" staples or 6d nails; spaced 2-1/2 inches on center along all horizontal and vertical framing members. [If the exterior panel removed is a shear wall panel, replace it using fastener spacing as originally installed by the manufacturer.]



Fastener Type	Size	Location
Lag screw with washer	5/16" x 5"	Top, center, bottom
Bolt and nut with washers both sides	3/8" x 7" or 1/2" x 7"	Top, center, bottom (pre-drill holes)

MARRIAGE WALL COLUMNS, OPENINGS AND INTERIOR PARTITIONS

Make connections inside the home along the marriage walls by installing fasteners according to the manufacturer’s specifications and spacing requirements. Example toe screw 2 x 4 or 2 x 6 studs; through-screws 2 x 3 studs.

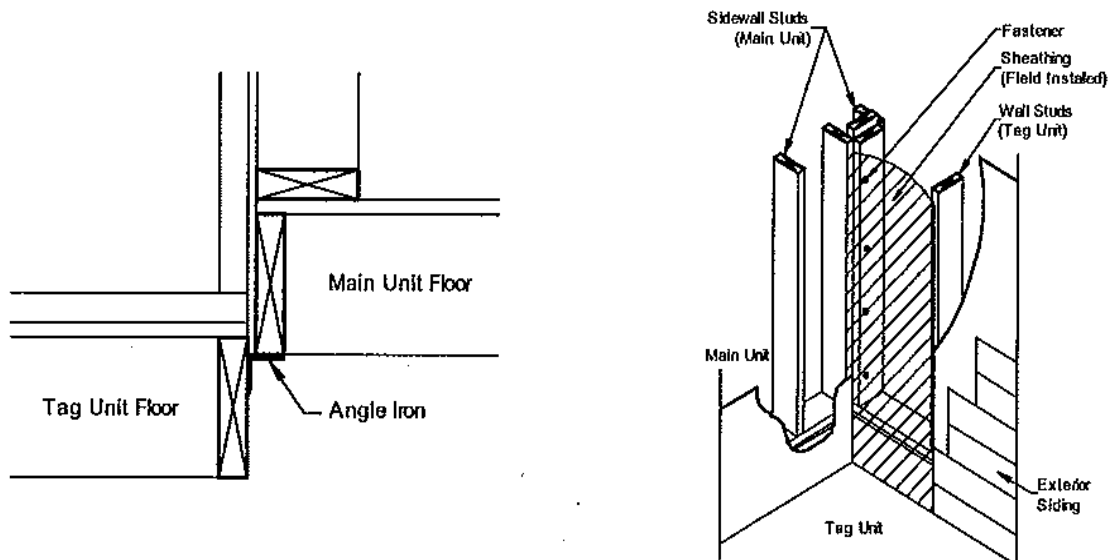


Typical marriage wall connection specifications is #8 x 4” wood screw located 16 inches on center

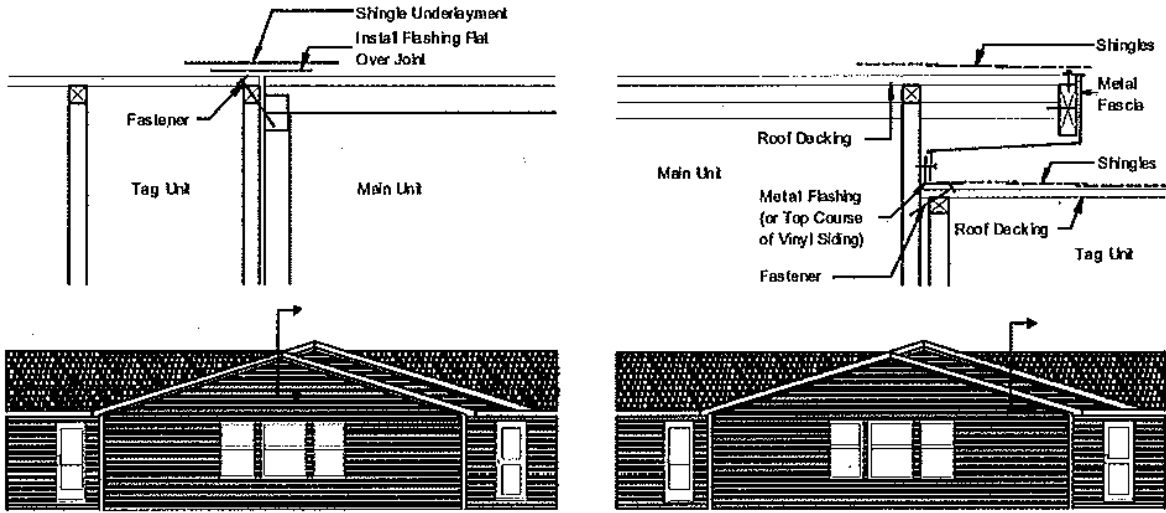
ATTACHING TAG UNITS

After the main unit has been set on its foundation, install all tag units according to the manufacturer's installation instructions. Most follow these procedures:

1. **Position and block the tag.** Position the tag unit as close to the main unit as possible at its intended location. Use a hitch jack to obtain approximate leveling and install pier supports according to home's manual. Determine whether the tag and main unit floors are designed to line up flush or are offset by a step and adjust the tag pier heights accordingly.
2. **Level the unit.** Using a water level verify that the piers are level. The elevation of all points along the lower flange of the I-beam should be no more than 3/8 inches from the desired height and should not deviate more than 3/4 inches overall.
3. **Connect floors.** If the floor of the tag unit is level with main unit floor, connect the floors together. If the floors are offset, use the connection detail shown, fastening the angle iron to the tag unit with minimum 5/16" x 3" lag screws or #8 x 3" wood screws. Match fastener spacing and quantity to that used for the connection of the angle iron to the main unit.
4. **Connect walls.** Secure the tag unit walls to the main unit sidewall using #8 x 4" screws at 12 inches on center. The sheathing shown in the detail may not be included by the manufacturer. If included, the sheathing over the last stud bay was tacked in place at the factory for easy removal at the site. Once the wall connections are complete, re-install the sheathing and complete the siding installation.



5. **Connect roofs.** Connect the tag unit roof to the main unit roof using #10 x 5" screws or 3/8" x 6" lags screws, toe screwed at each main unit vertical structural member (stud or truss) location.



Manufacturer’s Installation Manuals may also identify that all fastener’s manufactured from steel wire exposed to weather shall be zinc coated with hot-dipped galvanized zinc, mechanically deposited zinc or electrodeposited Zinc. Fasteners manufactured from aluminum alloy wire or other non-ferrous alloys exposed to the weather do not require protective coatings.

ROOF CONNECTIONS

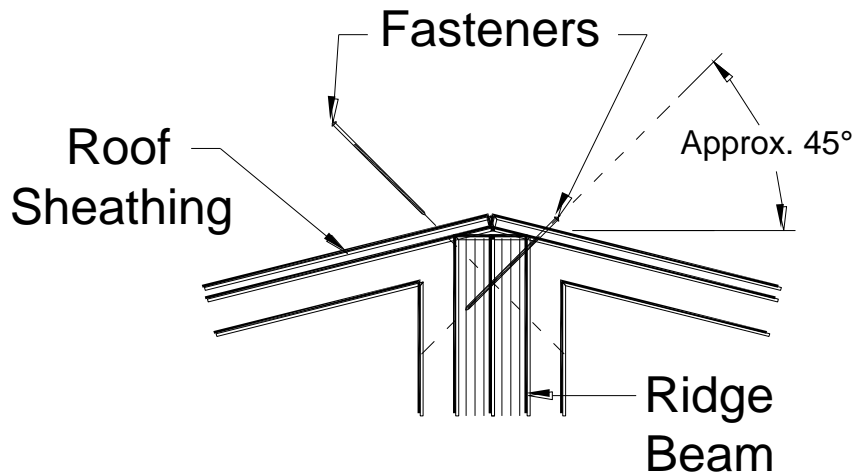
NOTE: Some homes have a roof beam made of structural plywood that runs vertically the length of the home on each side of the marriage line between the ceiling and the roof ridge. When the home sections are joined, this sometimes leaves a three-inch wide un-insulated area the length of the home. If necessary, add a fiberglass batt to fill the empty space.

Follow the manufacturer’s instructions for appropriate connection methods and materials. The manufacturer will usually provide options for making ridge beam connections. They may require bolts, lag screws, or galvanized straps to connect the ridge beam together. When ridge beam column support posts are located on only one side of the centerline, the manufacturer will require a lag screw or bolt cluster. ***Pre-drill pilot holes for all bolts and lag screws. Lag screws must completely penetrate the beam or joist.***

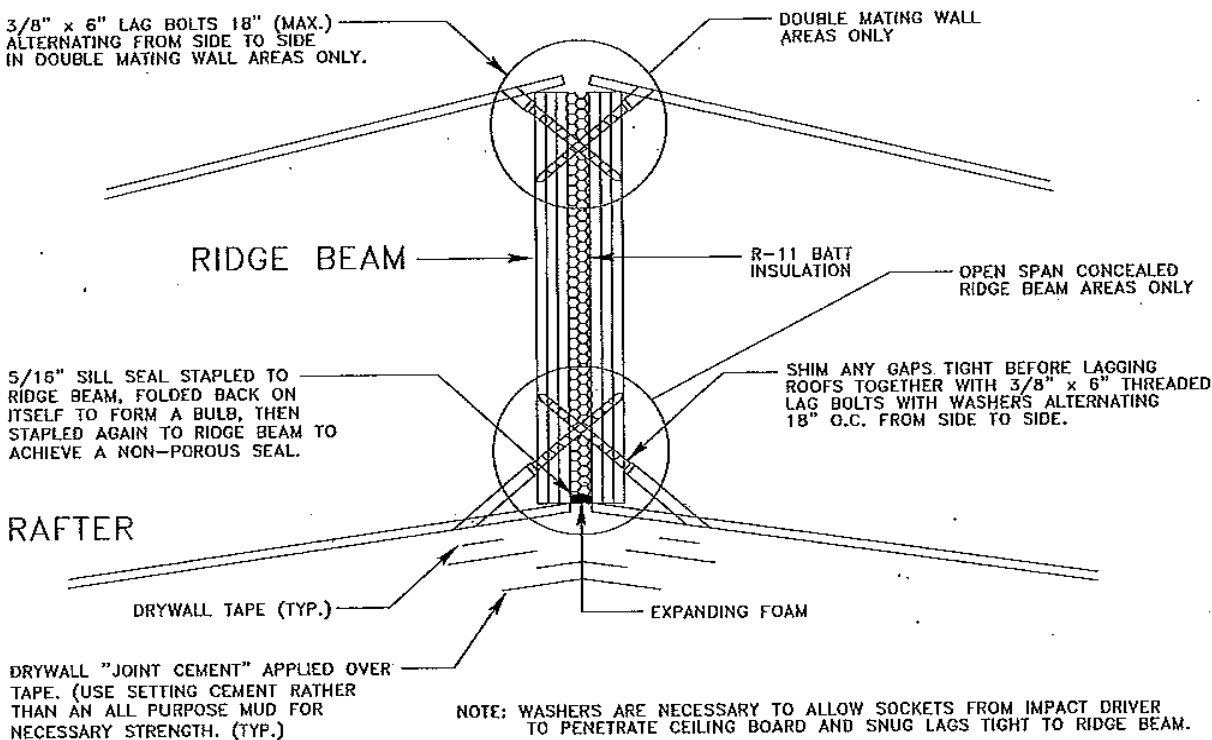
Typical methods used by manufacturers.

Method 1: Install toed fasteners through roof sheathing

Install the fasteners through the roof deck into the ridge beams at an approximately 45 degree angle (+/- 5 degrees) from horizontal according to the fastener spacing and specifications. Stagger fasteners on each side of marriage line and offset them by half the spacing distance. Spacing indicated is on-center, both sides of ridge. Make sure fasteners penetrate the ridge beam/rail by a minimum of 1-1/2 inches both sides of ridge.



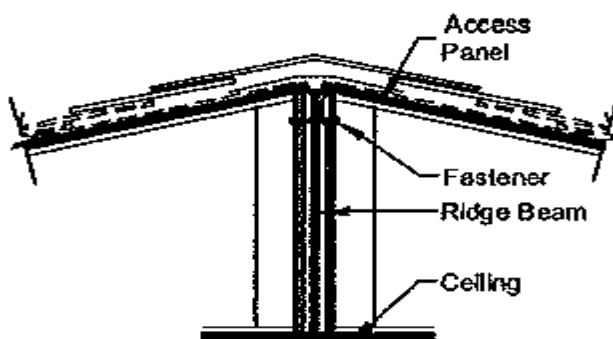
Fastener		Spacing
Type	Size	
Lag screw with washer	5/16" x 6"	28 in.
Wood screw	#10 x 5"	24 in.



Method 2: Install fasteners through ridge beam

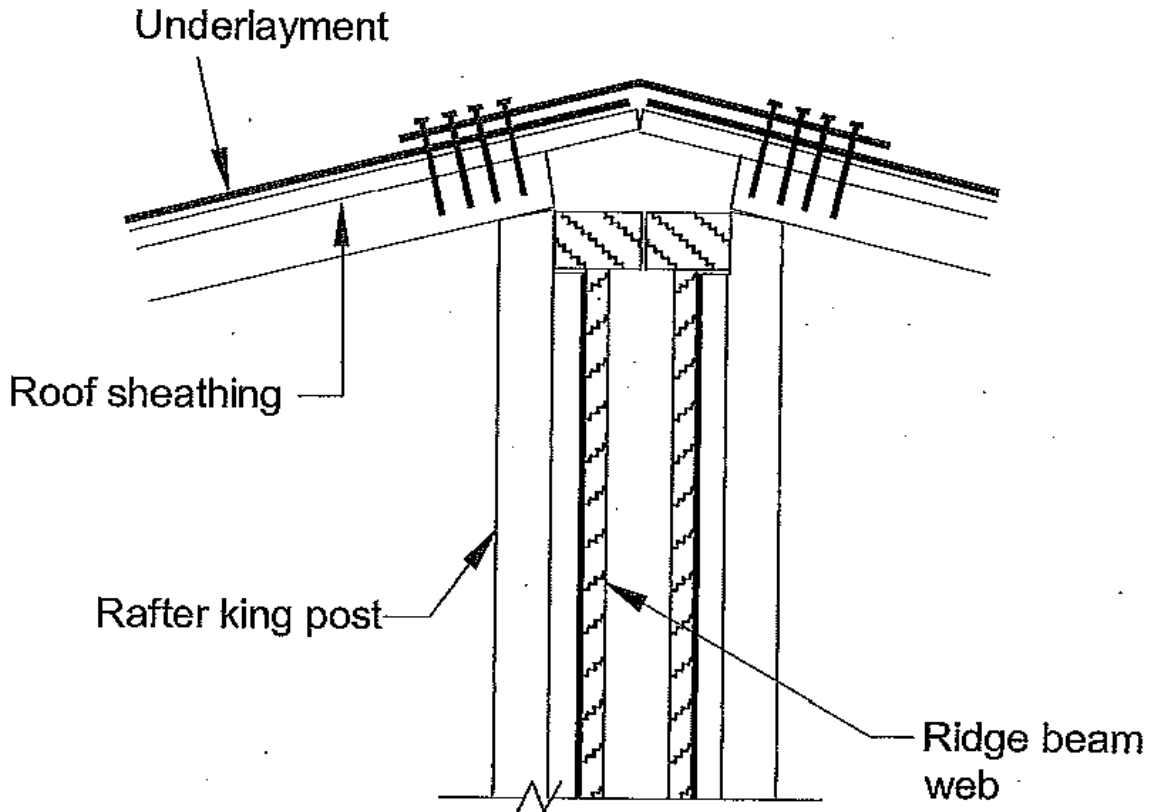
Make the roof connection by fastening the ridge beams according to the fastener spacing and specifications provided by the manufacturer.

1. Access the ridge beam through access panels in the roof sheathing.
2. If using bolts, place them in holes pre-drilled in the ridge beam (one bolt is required for each and every hole) or according to the fastening schedule provided by the home manufacturer as an addendum to the manual. If bolt holes are not provided, pre-drill according to the fastening schedule and no closer than two inches from top or bottom edge of beam. If using lags instead of bolts, install at a maximum offset of 45 degrees (+/- 5 degrees) from horizontal and a minimum of two inches from top or bottom of beam.
3. Replace roof sheathing access panels using minimum 15ga x 7/16" x 1-1/2" staples or 6d nails spaced six inches on center on all sides of the panel where supporting structural members are present.



Method 3: Install straps over roof sheathing

If the home is built with a TJI ridge beam at the peak of the roof, straps must be used to secure the roof sections together rather than lag bolts. The straps will already be installed at the factory. If the straps were not installed or if they are damaged or a sold lot model install per the manufacturer's installation manual.

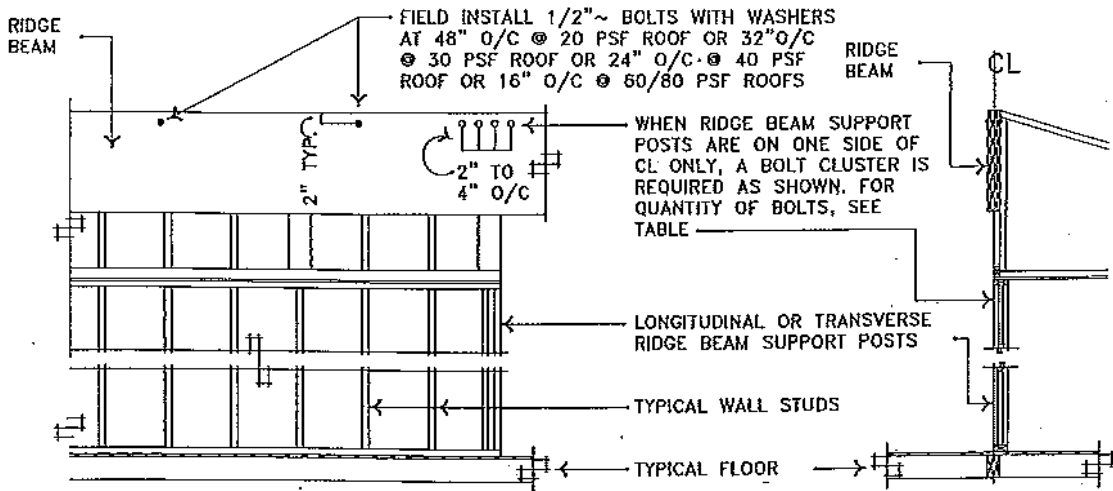


Fastener		Number (each end of strap)		
Type	Size	Wind Zone I	Wind Zone II	Wind Zone III
Straps	1-1/2" wide x 26 guage	48 in.	24 in.	16 in.
Staples	7/16" (or 1") x 1-1/2" x 16 ga.	6 each	6 each	4 each
Nails	0.082" x 1-1/2"	9 each	9 each	7 each

ROOF CONNECTION – LAG SCREW CLUSTER MAXIMUM SPAN ADJACENT SPAN

NOTE: Some manufacturer’s tables will address size of lags and bolts to be used when ridge beam support posts are on one side of centerline. Spacing in cluster to be 2” – 4” on-center.

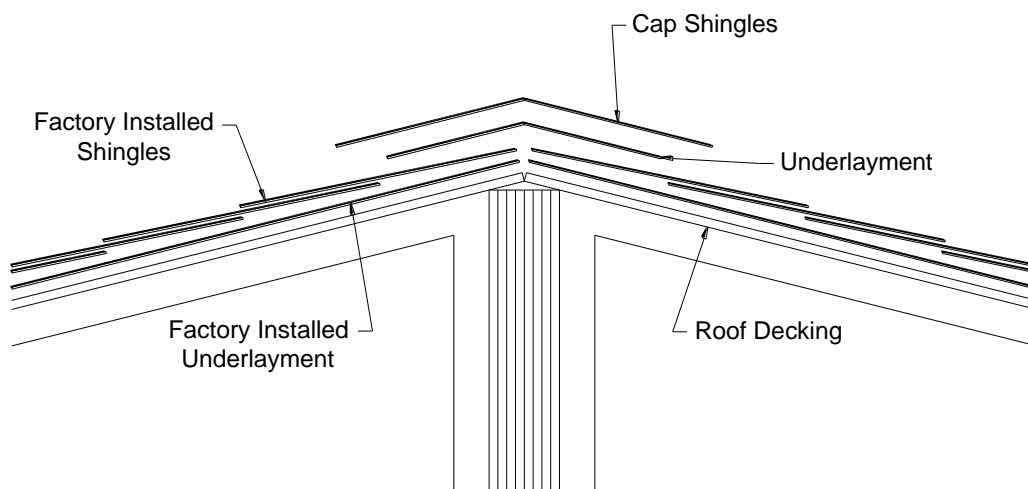
Example 20 PSF and 30 PSF roof loads generally identify 3/8” x 5” lags to be used. When roof loads identify 40 PSF and higher roof loads some manufacturers may require that 1/2” bolts with washers and nuts be used.



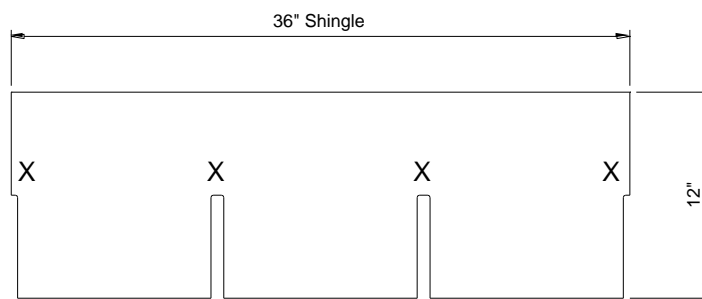
ROOF CLOSE UP

It is important to ensure that any roofing materials and the ridge cap are installed correctly to prevent water damage to the home. All staples from protective transit covering must be removed and sealed with the appropriate product. Any loose or damaged shingles must be repaired.

For multi-section homes, the first step in completing the exterior is sealing the roof along the ridge line. For homes with asphalt shingles, follow the procedures below. For homes with metal or other roofing materials, follow the instructions that come with the roofing materials or provided as a supplement to the manual.

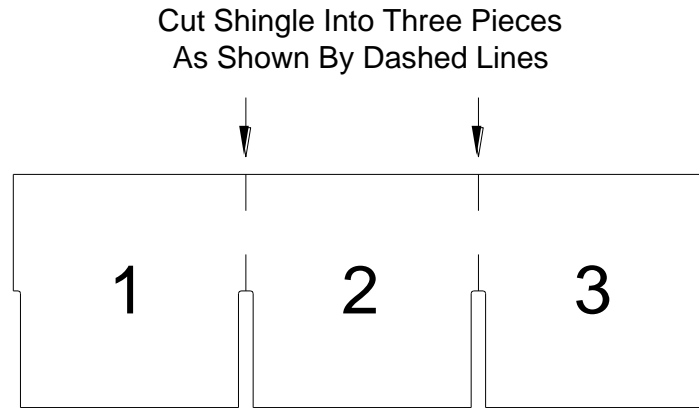


1. Install underlayment. (When sheathing at the ridge is installed on site). Make sure the roof sheathing is already installed. Install 15# felt or equivalent continuously along the length of the ridge, covering all exposed sheathing and overlapping sheathing joints by at least five inches on each side.
2. Install shingles. If shingles have been left off at the ridge line for site installation, install them now using 1" x 1" x 16 gauge galvanized staples or 12 gauge 1-1/4" long, 3/8" diameter head roof nails. For Wind Zone 1, fasten at 5/8 inch above each tab cutout slot and one at each end of the shingle one inch in from the edge (four fasteners for a three-tab shingle, six fasteners for high wind areas).



X = Fastener Locations

3. Install underlayment. Install 15# felt or equivalent underlayment that is at least 10 inches wide continuously along the ridge.
4. Install shingle cap. Starting at the opposite end of the home from the prevailing wind, install ridge cap shingles provided by the manufacturer or use 12" x 12" shingles.

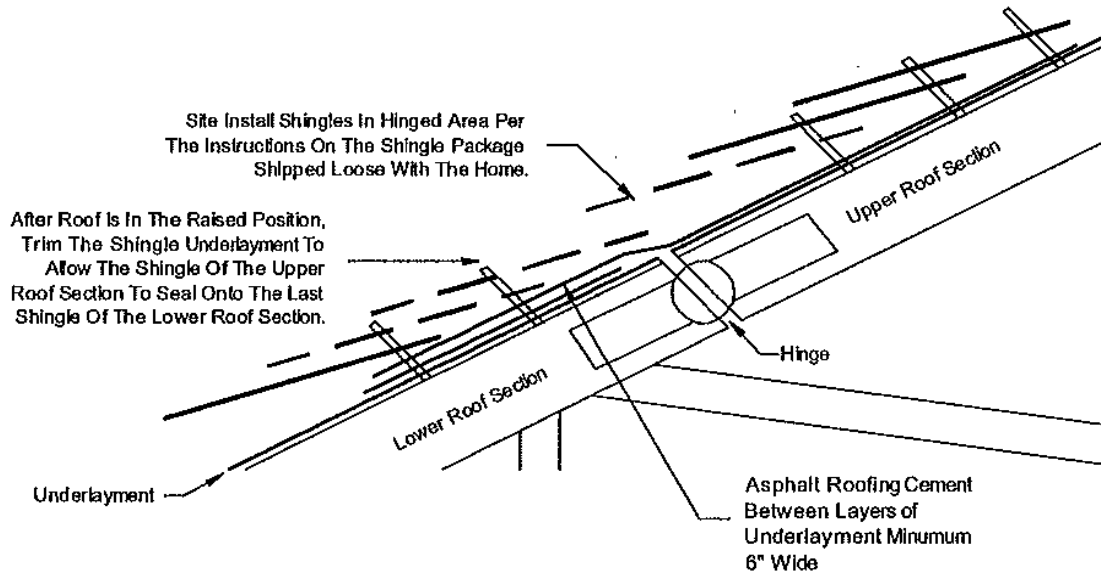


HINGE ROOF CLOSE-UP

For homes with hinged roofs, complete roofing underlayment and shingles along the hinge line as follows:

1. **Install underlayment.** Attach the underlayment to the roof deck with a minimum of six-inch wide strip of cement. If necessary, trim the underlayment to allow the lowest shingle above the hinge of the roof to seal to the topmost shingle on the lowest portion of the roof.
2. **Install shingles.** Install missing shingles according to the shingle manufacturer's instructions

NOTE: (Most manufacturers will have an Appendix in their Installation Manual for hinge roofs)



ROOF VENTILATION

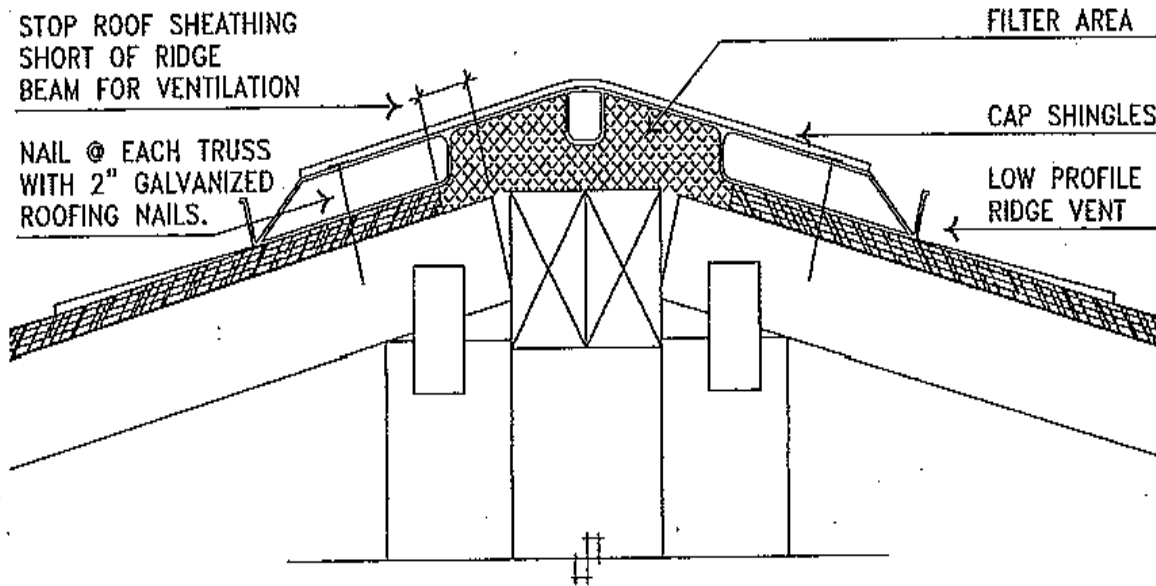
HUD MHCSS 3280.504(c) Roof Ventilation

Attic and roof cavities shall be vented in accordance with one of the following:

- (1) A minimum free ventilation area of not less than $1/300$ of the attic or roof cavity floor area. At least 50% of the required free ventilation area shall be provided by ventilators located in the upper portion of the space to be ventilated. At least 40% shall be provided by eave, soffit or low gable vents. The location and spacing of the vent openings and ventilators shall provide cross ventilation to the entire attic or roof cavity space. A clear air passage space having a minimum height of 1 inch shall be provided between the top of the insulation and the roof sheathing or roof covering. Baffles or other means shall be provided where needed to ensure the 1 inch height of the clear air passage space is maintained.
- (2) A mechanical attic or roof ventilation system may be installed instead of providing the free ventilation area when the mechanical system provides a minimum air change rate of 0.02 cubic feet per minute per square foot of attic area.
- (3) WAC 296-150I-0310(1)(q) Roof ridge cap or ridge vent must be installed as required by the manufacturer's installation instructions.

Ridge Vent. For proper alignment – pre-nail through ridge vent holes at ends of each section. The felt paper underlayment should be folded back onto the roof decking and trimmed along the edge of the roof decking at the peak so that it does not obstruct the opening at the mate line. When using standard flat 3-tab shingles, caulking is not required under the flange of the ridge vent. Prior to applying vent to dimensional or architectural shingles on new construction, caulk between low areas of shingle and flange of vent. Before flashing vent, make sure filter is secured

between shingles and flange of vent. When installing vent in cold weather, leave a 1/8” gap between sections to allow for warm weather expansion.

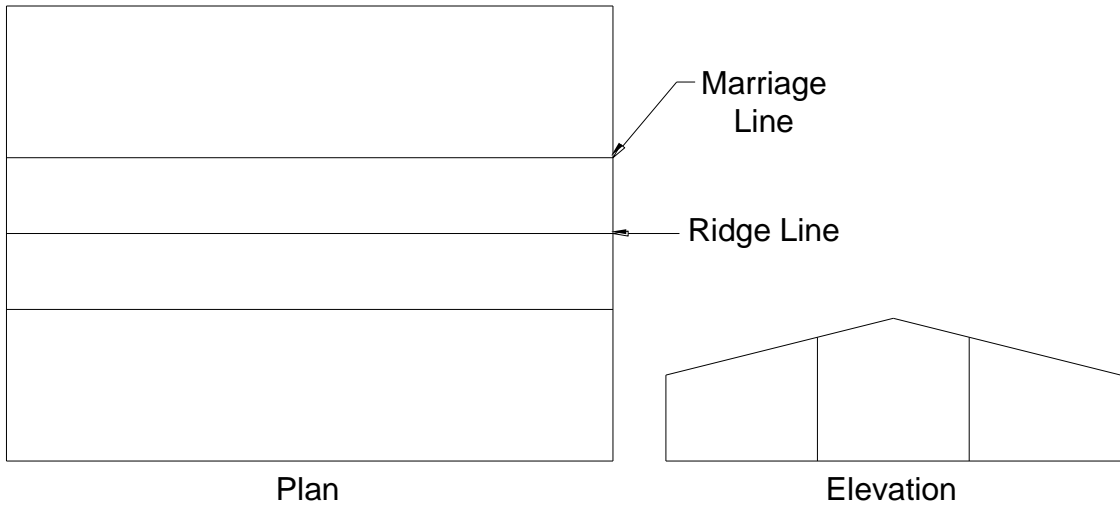
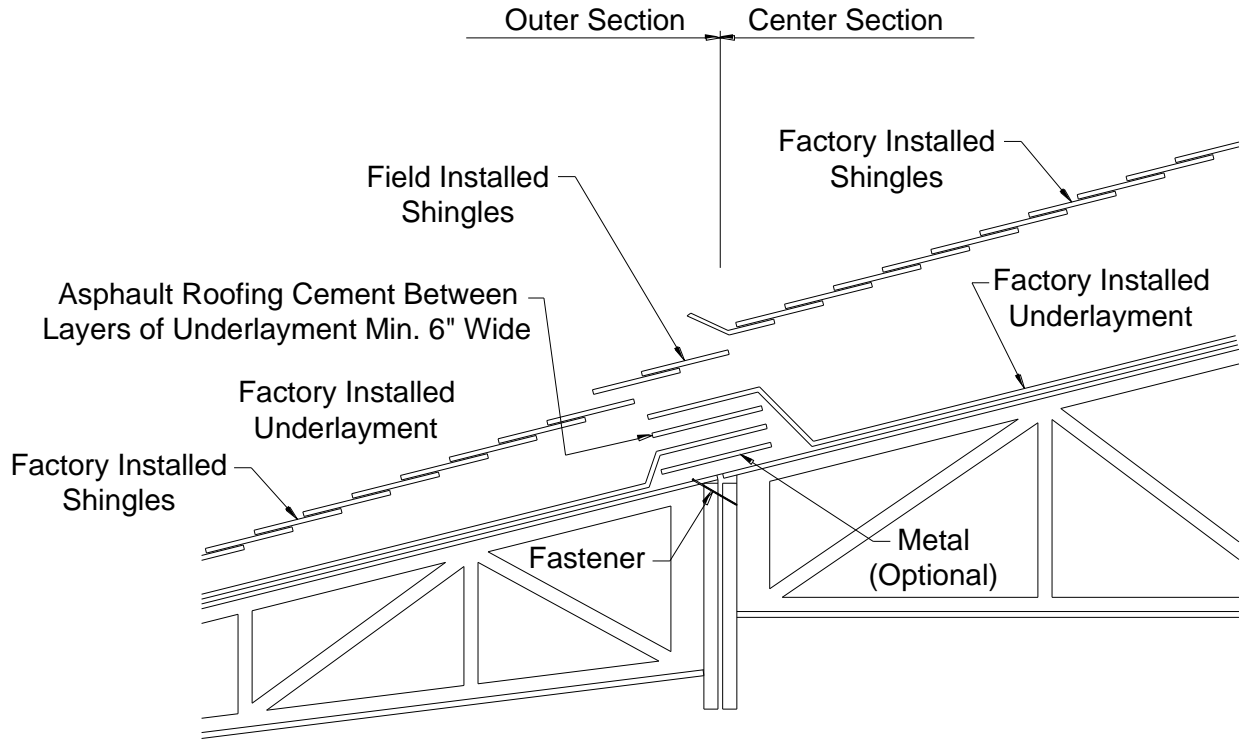


TRIPLE SECTION HOMES

For triple-section homes where roof lines run parallel to each other on adjacent units follow the manufacturer’s instructions according to one of the following methods based on the construction of the home.

Method 1: Manufacturer-installed sheathing

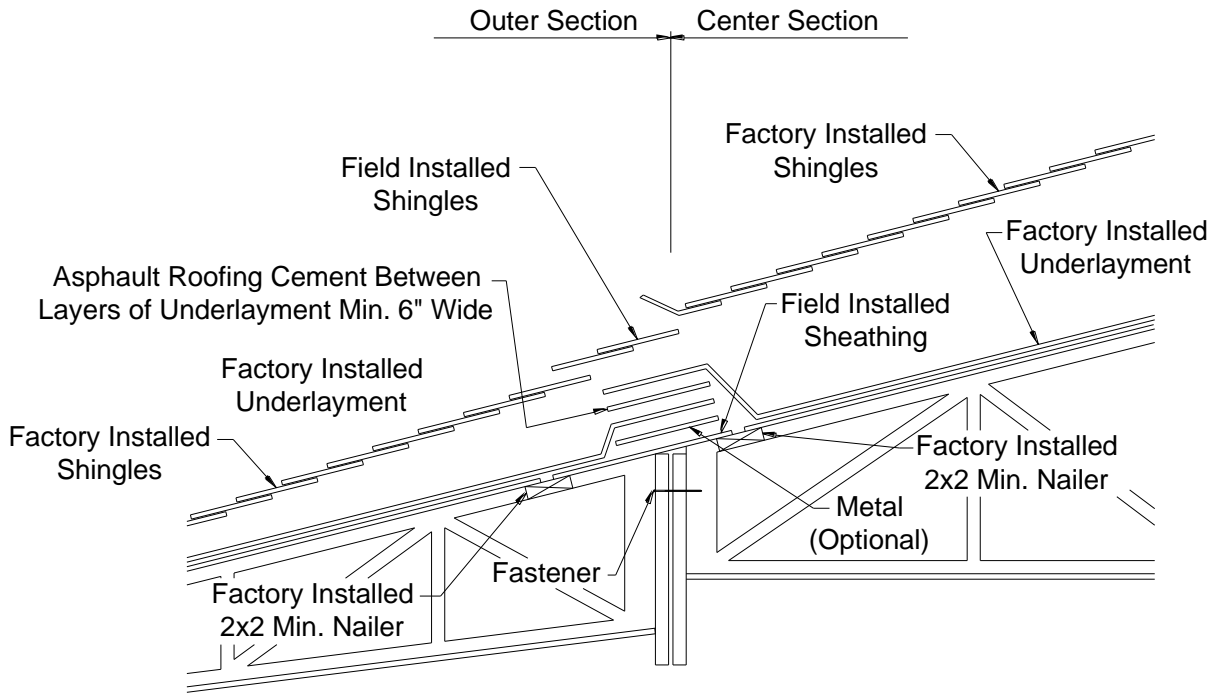
1. **Fill Gaps.** The gap in the sheathing at the hinge may need to be filled. A gap of 1/4 inch or less needs not be filled. Gaps up to 1/2 inch shall be filled with 2” x 32 gauge metal flashing over the gap. Gaps up to 1-1/2 inch shall be filled with 8” x 30 gauge metal flashing over the gap. Fasten the flashing to the sheathing using 1” x 1” x 16 gauge or 7/16” x 1” x 16 gauge staples at 4 inch along each edge of the flashing.
2. **Install underlayment.** Fold down the underlayment of the outer section roof and apply a minimum six-inch wide strip of roofing cement to the sheathing. Lay the underlayment of the center on top of the cement. Fold down the center section roof underlayment on this cement.
3. **Install shingles.** Install missing row(s) of shingles, securing them per the shingle manufacturer’s installation instructions (refer to the shingle wrapper).



Fastener		Spacing		
Type	Size	Wind Zone I	Wind Zone II	Wind Zone III
Lag screw	5/16" x 6"	14 in.	10 in.	6 in.
Wood screw	#10 x 5"	12 in.	6 in.	6 in.

Method 2: Field-installed sheathing

1. **Install underlayment.** Fold down the underlayment of the outer section roof and fold up the underlayment on the center section roof. Apply to the lower roof underlayment a minimum six-inch wide strip of roofing cement centered on the sheathing joint. Cover with the shipped loose underlayment. Apply another minimum six-inch wide strip of roofing cement to the ship loose underlayment centered on the upper roof sheathing joint.
2. **Install shingles.** Install missing row(s) of shingles per the shingle manufacturer’s installation instructions (refer to the shingle wrapper).



Method 2: Install fasteners through pre-installed sheathing. For homes where sheathing is in place on both sides of the marriage line install fasteners from the low side of the roof on an angle so as to penetrate roof beams on both sides of marriage line.

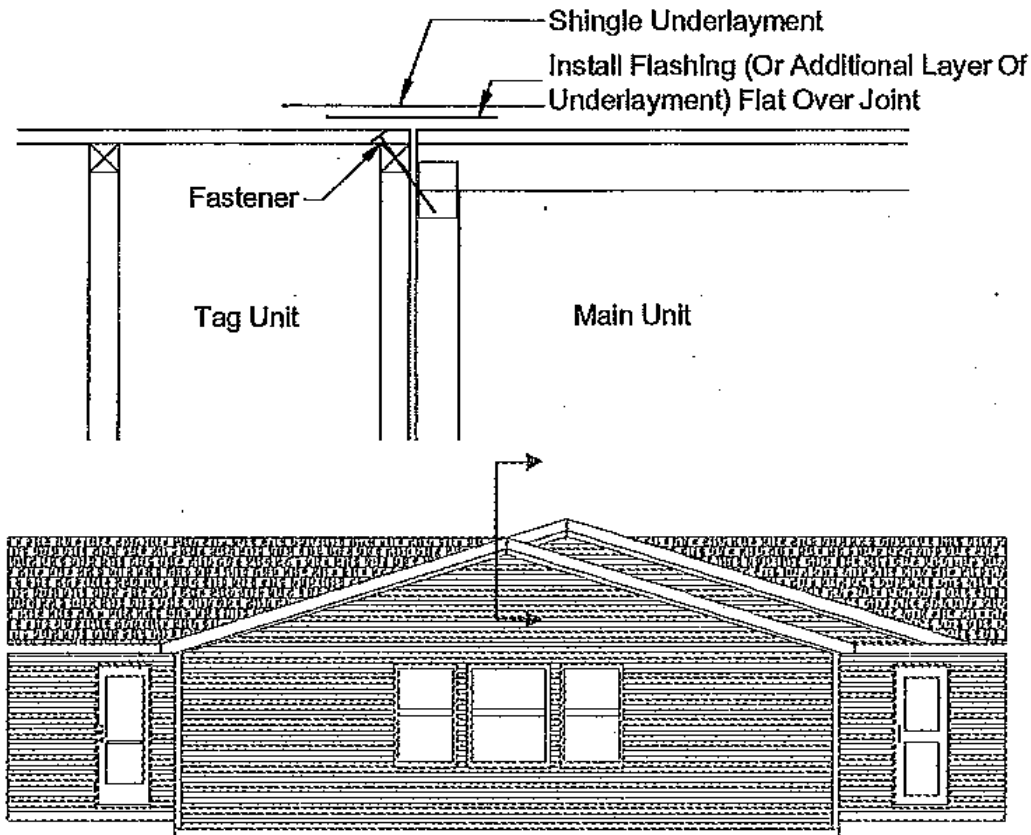
For homes where sheathing is shipped loose to be installed on site fasten field-installed sheathing to all underlying blocking and framing with 15ga 7/16” x 1-1/2” staples at four inches on center in field and perimeter.

TAG UNIT ROOF

If the home has a tag unit, the process for completing the roof is different for flush and offset roofs. Follow the manufacturer’s installation instructions. The following are examples of tag unit roof requirements.

Flush Roofs

For flush roofs, complete roofing along the marriage line and at the valley line as follows:



Marriage line

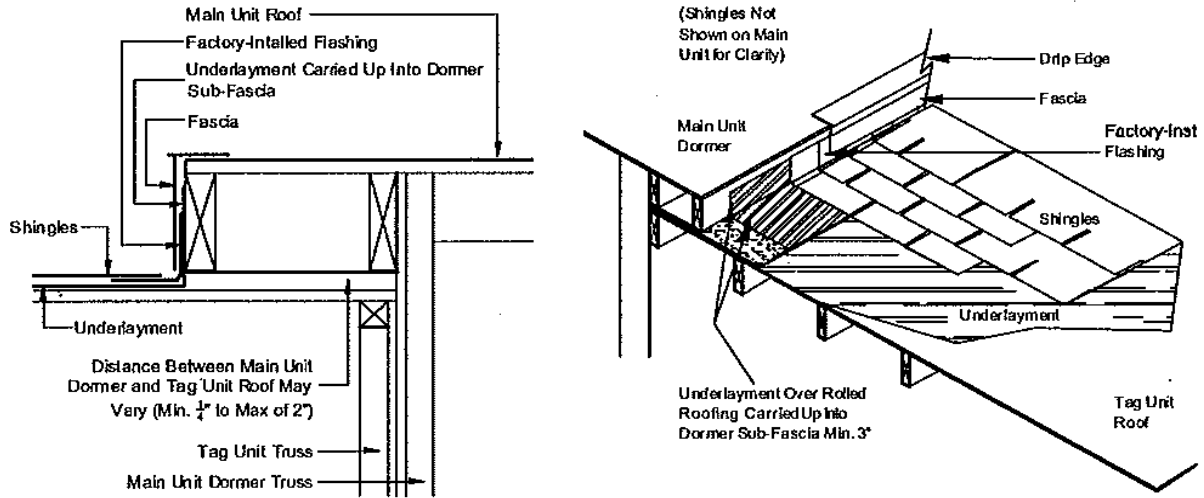
Method 1: Install metal flashing (minimum 30 gauge x minimum 6" wide) over the joint between the main roof dormer and tag unit roof. Secure the flashing to the roof decks on both dormer and tag unit roofs with roofing nails or 16 gauge staples with a one inch crown and long enough to fully penetrate the roof decks. Space fasteners maximum two inches on center near the edge of the flashing. Overlap seams in the metal by at least two inches. After flashing is complete, install shingles per shingle manufacturer instructions and ridge cap/vent.

Method 2: Install two layers of roofing underlayment or equivalent over the joint between the main roof dormer and tag unit roof lapping the factory installed underlayment a minimum of six inches on each side and fully cemented at the laps. Install shingles per shingle manufacturer instructions and ridge cap/vent.

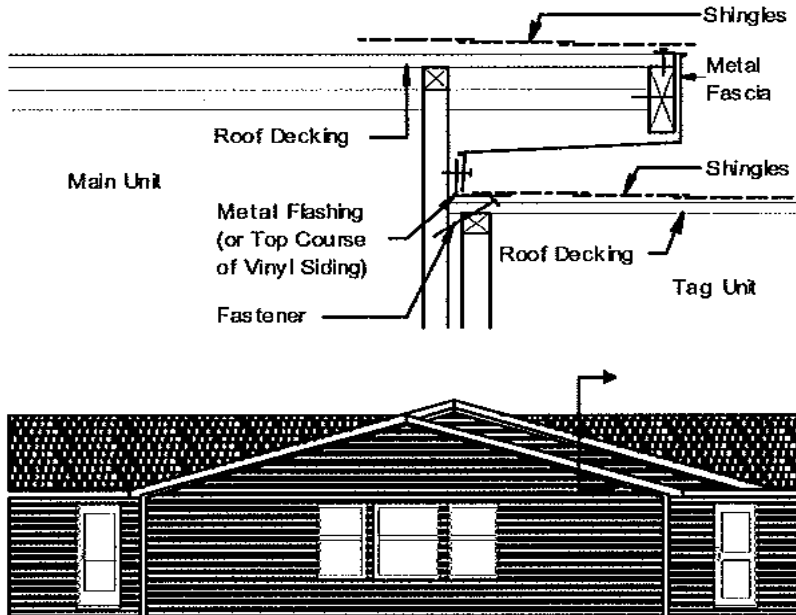
Valley line. Along the bottom of the valley, shingles and one or more layers of roll roofing may need to be installed. If fastened to the roof at the factory, unroll the roofing, overlap the tag roof and trim the roofing to the roof edge. If shipped loose, install the roll roofing at the valley, lapping it under the factory installed roll roofing a minimum of 12 inches and fully cement the

roofing at the lap. Complete shingles at the valley either by interweaving them or by trimming back approximately four inches from the valley line and fully cementing the exposed shingle edges.

Offset Roof. If there is a gap between the main unit dormer overhang and the tag unit roof of less than 2 inches, fold up the main unit dormer fascia, and bend the fascia back down and secure into sub-fascia with metal screws.



If the gap between the main unit dormer overhang and the tag unit roof is two inches or more, bend up the inside corner trim at the dormer overhang and main unit sidewall, fold up the factory installed flashing on the tag unit roof, fold the inside corner trim back down, and secure into dormer wall with metal screws.



ALTERNATE CONSTRUCTION

Presently AC homes make up about five-percent of all new manufactured homes being installed in Washington. Even though this is a low percentage it requires a high level of communication and planning between the manufacturer, purchaser, retailer and contractor performing the on-site work. It is important that contractors being used by dealers and manufacturer's for alternate construction home installations are knowledgeable of this type of construction.

AC homes may include on-site two story home design on a basement without floor insulation installed over heated basement.

The U.S. Department of Housing and Urban Development (HUD) evaluates the Alternate Construction concept and provides an approval letter with items to be completed in accordance with the DAPIA-Approved manufacturer's instructions and must be inspected prior to occupancy. These inspections are independent of the typical installation inspections the local enforcement agency performs.

The designation AC must be stamped on the front headboard frame with the serial number and be identified on the manufactured homes data certificate. The manufacturer shall provide notice to prospective purchasers that the home does not conform to the Standards. Such notice shall be delivered to each prospective purchaser before he/she enter into an agreement to purchase the home.

The Design Approval Primary Inspection Agency (DAPIA) shall approve set-up instructions provided with the home include the instructions necessary for the adequate completed of the home components covered under the AC authorization. The manufacturer is required to provide all materials and instructions. Required set-up/follow-up inspections are completed and records are maintained for completed and shipped homes in accordance with the provisions required in the AC letter.

Site inspection has been completed by qualified, experienced personnel selected by the manufacturer or IPIA in accordance from the state of origin accompanied with the AC letter. Such personnel who will make this special inspection include:

- A State IPIA inspector,
- A third party inspector,
- An authorized engineer or architect,
- A local building official.

The inspector must be independent of the manufacturing and assembling process and not a representative or employee of the manufacturer.

The contractor selected by the manufacturer will complete all site construction. All work to be per the manufacturers DAPIA instructions. The manufacturer is responsible for the completion of the on-site inspection. This responsibility may not be assigned to a retailer or other entity. Some past examples of on-site AC issues:

- No DAPIA Approval Instructions with the home for the contractor(s).
- Numerous material shortages in the ship loose package. These shortages range from the specific bolts, lags and screws to truss shortages, soffit material, roof sheathing, exhaust ducts fans not of proper length and plumbing materials.
- Manufacturer sent the wrong dormer truss kit with the home along with the shortage of several trusses.
- An engineer may need to become involved due to the contractor not building per the manufacturers DAPIA. This requires plans to be submitted to L&I, FAS plan review and required inspection for the alteration.
- Manufacturer failed to supply a large number of trusses, along with other materials.

NOTE: As noted above, the manufacturer’s quality assurance program plays a critical role in the success of the installer contractor doing the work in the field.

EXAMPLE OF MANUFACTURER’S REQUIREMENTS FOR ALTERNATE CONSTRUCTION FOR A HINGE ROOF SYSTEM

1. All model designs, installation drawings and procedures must be approved by your DAPIA before the manufacture of the homes. The model and drawings must comply with the Standards in all other respects. Your DAPIA must also determine that designs and details conform to the Standards in all other respects.
2. **(Manufacture)** will limit production to a maximum of 100 homes per plant which must be completed within two years from the date of this letter. Production of homes under this AC approval is permitted at the following facilities: **(Factory and address would be identified directly below)**
3. The retailers listed in Attachment A are approved to sell homes constructed under this AC. **(Department of HUD)** shall forward a copy of this letter to the manufacturer’s IPIA and DAPIA. **(Department of HUD)** shall also forward a copy of the letter to the SAAs in the state of manufacture and the state(s) in which the homes are to be located, if known.
4. **(Manufacture)** will ensure that each prospective purchaser receives a copy of the enclosed Notice to Purchaser (see Attachment B) indicating the type(s) of construction used before entering into any sales agreement. Alternatively, **(Manufacture)** may place the “Notice to Purchaser” in clear view, next to the Health Notice on formaldehyde emissions. It must not be removed until the sale of the home is completed.
5. **(Manufacturer’s)** quality control personnel will complete a Quality Control Checklist (see Attachment C) before homes are shipped from the manufacturing facility and will maintain the checklist with the other applicable QC forms.

6. **(Manufacturer's)** quality control personnel will check off items in the Notice to Purchaser and Inspection Report (Attachments B and D) that were utilized in the home's construction prior to the home leaving the production facility. **(Manufacture)** will provide each home with the DAPIA-approved installation instructions for the installation of the home at the site and the joining and completion of all parts of the home. The DAPIA, will approve the installation instructions to the extent that they ensure compliance with the applicable Standards.
7. **(Manufacture)** will provide all materials for completion of the roof including sheathing, underlayment, flashing, shingles, fasteners, overhang ridge venting, and if applicable, all materials for the completion of roof jack/vent assemblies.
8. **(Manufacture)** is responsible for ensuring that all construction necessary to conform to the Standards that is not specifically identified in this AC approval letter will be completed in the factory prior to the shipment of the home from the production facility.
 - a. **(Manufacture)** will ensure that the installation of the home and all on-site roof construction is complete before the on-site completion of vent pipes is begun. This approach is designed to prevent any movement of components and to ensure proper alignment of the flue assembly components and pipes.
 - b. **(Manufacture)** will securely attach a WARNING label (see Attachment C) in a readily visible location to the appliance, thermostat, and to the fireplace, if installed.
 - c. **(Manufacture)** will provide DAPIA-approved fireplace manufacturer's instructions for completion of the fireplace and the DAPIA-approved instructions for the completion of the hearth with each home.
 - d. **(Manufacture)** will include DAPIA-approved designs and materials including underlayment, flashing, shingles, siding, fasteners and any other materials required to complete the roof jack/vent assemblies.
 - e. **(Manufacture)** will affix a WARNING label (see Attachment C) to the front cover of the DAPIA-approved Manufacture Installation Manual. The applicable Supplemental Roof Jack/Vent Installation & Complete Details must be attached to the rear flap of the DAPIA-approved Manufacture Installation Manual.
 - f. **(Manufacture)** will cover the flue connection opening of the appliance with a metallic cover. This top will avoid the accidental use of the appliance and prevent the escape of potentially poisonous gases.
 - g. **(Manufacture)** will secure, assemble, and properly align components using methods cited in the DAPIA-approved appliance manufacturer's instructions. Manufacture will also secure and align every joint of the flue, exhaust duct, combustion air intake and whole-house vent system.

- h. **(Manufacture)** will ensure that all openings for pipes, vents and other penetrations in walls, floors and ceilings of furnace and water heater spaces shall be tight-fitted or fire-stopped as required by MHCSS 3280.206(c) of the Standards.
 - i. **(Manufacture)** will firmly attach draft hood connections to draft hood outlets or flue collars with sheet metal screws or other DAPIA-approved methods.
 - j. **(Manufacture)** will install the flue system and appliances in accordance with the terms of the appliance listing and the DAPIA-approved appliance manufacturer's instructions.
 - k. Fireplace chimneys will require on-site completion with an approved and listed chimney pipe. In addition, manufacture will provide and install an approved and listed spark arrester, termination device and rain cap assembly.
 - l. **(Manufacture)** will ensure that the finished fireplace chimney will extend at least three feet above the highest point at which it penetrates the roof, and at least two feet higher than any building or other obstruction within a horizontal distance of ten feet. If the site has obstructions extending higher than the home's roof peak with ten feet of the chimney, the installer may have to provide an additional section of chimney pipe, if required by the local code. The manufacture will ensure that the methods cited in the DAPIA-approved instructions are used to complete the roof and the wall framing and installation of exterior coverings.
9. A licensed contractor or similarly qualified professional selected by the manufacture will complete all site construction. The manufacture will provide each contractor with DAPIA-approved plans and instructions required to complete all site work that is specified to each individual home (e.g. the completion of roof jack/vent assemblies, fire-blocking around roof jack/vents, etc.).
10. **(Manufacture)** will use methods cited in the DAPIA-approved instructions to complete the framing, insulation and installation of roofing materials.
11. **(Manufacture)** will be responsible for the completion of an on-site inspection for all homes that are subject to this AC, prior to occupancy. This responsibility may not be assigned to a retailer or other entity. The manufacture's IPIA, or a qualified and experienced independent inspector acceptable to the IPIA, will inspect all site construction aspects covered by the Standards as identified in Attachment D, "On-Site Alternative Construction Inspection Report." A qualified inspector must be independent of the manufacturing and assembling process and not a representative or employee of the manufacturer. This inspector will certify that the home is completed according to the DAPIA-approved designs. The manufacture will be responsible for accounting to the Department for all homes that require inspections, for the coordination to complete inspections prior to occupancy, for providing necessary follow through to ensure inspections are completed and for providing the Department copies of completed

inspection reports. The manufacture is responsible for sending the Department all AC site inspection reports immediately upon completion of the inspections. In addition, the manufacture will provide copies of the inspection report to the IPIA, the SAA, the homeowner and the retailer. The manufacture will also maintain a copy of the report in its corporate office files.

12. **(Manufacture)** will provide the Department with cumulative production status reports (see Attachment E) on units manufactured under this AC approval. The production status reports must be cumulative for the approval period and include all of the information identified in Attachment E. The production status reports must reference this approval and each plant facility location and must contain the date of production, serial number with “AC”, the certification label numbers and shipping destination for each home. As the homes are completed on the homeowners’ final sites, the manufacture must update the production status reports by adding the physical address of each home site. These cumulative production status reports must be dated and signed by an authorized representative of the manufacture. The manufacture must submit this report electronically to the Department within 90 days from the date of manufacture of each home. If the manufacture cannot send the report electronically, please send a copy of the written report to the following address:

13. **(Manufacture)** will include the designation number assigned for AC on all attachments referenced in this letter.

ATTACHMENT B

03-08-AC

HOMES, INC.

NOTICE TO PURCHASER

The U.S. Department of Housing and Urban Development (HUD) has issued an Alternative Construction (AC) letter 03-08-AC to _____ Homes, Inc. (_____) concerning this home, which was produced in a _____ facility and finished by a licensed contractor or a similarly qualified individual.

As constructed in the factory, this home does not meet certain aspects of the Federal Manufactured Home Construction and Safety Standards (Standards). Specifically, one or more of the following items were not completed in the factory and, therefore, did not meet the Federal Standards at the time the home was shipped from the factory:

- Fireplace chimney
- Gas furnace roof jack/vent
- Gas water heater roof jack/vent
- Plumbing vent pipes
- Bathroom exhaust
- Kitchen range hood exhaust
- Whole-house ventilation duct

A licensed contractor or a similarly qualified individual will accomplish all site work. In accordance with the requirements of the AC letter, _____ will provide you with a copy of the site inspection report. All site work shall be inspected by _____ production Inspection Primary Inspection Agency (IPIA) or an experienced and qualified independent inspector acceptable to _____ IPIA.

WARNING

THIS HOME HAS BEEN SHIPPED WITH THE ABOVE-MENTIONED ITEMS PARTIALLY ASSEMBLED. THESE ITEMS MUST BE COMPLETED IN ACCORDANCE WITH THE DAPIA-APPROVED MANUFACTURER'S INSTRUCTIONS AND MUST BE INSPECTED PRIOR TO OCCUPANCY.

HUD evaluated this AC concept and concludes that it provides levels of quality, durability, and safety that are equivalent to those required by the Federal Standards. To comply with the approval letter issued to _____, the letters "AC" must appear in your home's serial number.

For additional information about the specific Federal Standards involved, a copy of the HUD letter issued to _____ pursuant to 24 CFR 3280.14(b) is available on request from your retailer or

Copy to Home Purchaser or placed next to the Health Notice on formaldehyde emissions

ATTACHMENT C

03-08-AC

HOMES, INC.

QUALITY CONTROL CHECKLIST (Page 1 of 4)

For Homes with Site Completed Roof, Fireplace Chimney, Furnace or Water Heater Roof Jack/Vent Assembly

Serial Number _____

Model Number _____

Quality Control personnel will complete the following checklist for units built under this Alternative Construction (AC) before the home is shipped.

YES NO

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. The letters "AC" are included in the home's serial number in all locations that the serial number occurs, including the serial number stamped on the front cross member and on all required paperwork. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. The applicable DAPIA-approved installation instructions for the installation of the home at the site and the joining and completing of all parts of the home are provided with the home. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. The applicable DAPIA-approved plans and instructions required to complete all site work that is specific to this home are provided with the home. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. A Notice to Purchaser (Attachment B) that identifies the specific type of construction used has been included in the set-up manual documents. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. An "On-Site Alternative Construction Inspection Report" (Attachment D) form that identifies the type of construction used has been provided with the set-up manual documents to be shipped with the home. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. A completed copy of this Quality Control (QC) checklist has been placed in this home's file as part of the permanent QC records. |
| | | 7. The following checked items have been included in this home as part of the AC approval: |
| | <input type="checkbox"/> | Fuel burning fireplace (check item 8) |
| | <input type="checkbox"/> | Fuel burning appliance(s) (check item 9) |
| | <input type="checkbox"/> | Gas furnace roof jack/vent |
| | <input type="checkbox"/> | Gas water heater roof jack/vent |

ATTACHMENT C

03-08-AC

HOMES, INC.

QUALITY CONTROL CHECKLIST (Page 2 of 4)

YES N/A

8. The following are requirements for roof jack/vent assemblies of fuel-burning fireplaces:

YES NO

a. A **WARNING** label (shown below) is securely attached in a readily visible location to applicable gas appliance fireplaces.

WARNING

This fireplace has been shipped with the flue assembly partially disassembled. The flue assembly **MUST** be completed in accordance with the DAPIA-approved fireplace manufacturer's installation instructions prior to occupancy by the owner.

b. _____ has provided the DAPIA-approved fireplace manufacturer's instructions for completion of the fireplace and the DAPIA-approved instructions for the completion of the hearth.

YES NO

c. _____ has provided the DAPIA-approved designs and materials including underlayment, flashing, shingles, siding, fasteners and any other materials required to complete the roof jack/vent assemblies.

d. The following **WARNING** label **MUST** be affixed to the front cover of the DAPIA-approved _____ Homes, Inc. Installation Manual:

WARNING

The flue pipe(s) and roof jack have **NOT** been installed on this home for the fireplace.

Check to ensure the installation is complete for the fireplace.

Complete any installation that is not already completed according to the DAPIA-approved fireplace manufacturer's instructions.

Fire-stop all appliance vent penetrations through the ceiling using methods shown in the DAPIA-approved instructions.

Failure to follow these instructions will result in an inoperative appliance and/or the release of hazardous carbon monoxide or methane fumes.

ATTACHMENT C

03-08-AC

HOMES, INC.

QUALITY CONTROL CHECKLIST (Page 3 of 4)

- YES NO
- e. The applicable Supplemental Roof Jack/Vent Installation & Complete Details **MUST** be attached to the rear flap of the DAPIA-approved Homes, Inc. Installation Manual.
- f. The fireplace flue connection opening is covered with a metallic cover to prevent the accidental use of the appliance and to prevent potentially poisonous gases from escaping the appliance.
- g. DAPIA-approved designs and material for fire-blocking or tight-fitting appliance vent ceiling penetrations in the fireplace are provided with the home.
- h. If applicable, roof jack/vent extensions are provided with the home.
- i. The exposed roofing area has been covered with 5-mil plastic or equivalent protective material.

- YES N/A
9. The following are requirements for roof jack/vent assemblies of fuel-burning appliances:

- YES NO
- a. A **WARNING** label (shown below) is securely attached in a readily visible location to applicable gas appliances, and thermostats (or designated thermostat locations).

WARNING

This appliance has been installed with the flue/vent assembly partially disassembled. The flue/vent assembly **MUST** be completed in accordance with the DAPIA-approved appliance manufacturer's installation instructions prior to occupancy by the owner.

- YES NO
- b. The appliance's flue connection opening is covered with a metallic cover to prevent the accidental use of the appliance and to prevent potentially poisonous gases from escaping the appliance.

ATTACHMENT C

03-08-AC

HOMES, INC.

QUALITY CONTROL CHECKLIST (Page 4 of 4)

- c. The DAPIA-approved appliance manufacturer's installation instructions are provided with the appliance.
- d. DAPIA-approved designs and materials for fire-stopping or tight-fitting appliance vent ceiling penetrations in the furnace and/or water heater compartments are provided with the home.
- e. If applicable, roof jack/vent extensions are provided with the home.
- f. The following WARNING label is affixed to the front cover of the DAPIA-approved Homes Inc. Installation Manual:

WARNING

The flue pipe(s) and roof jack have NOT been installed at the factory in this home for one or more fuel-burning appliances.

Check to ensure the installation is complete for all appliances.

- Gas furnace
- Gas water heater

Complete any installation that is not already completed according to the DAPIA-approved appliance manufacturer's instructions.

Fire-stop all appliance vent penetrations through the ceiling using methods shown in the DAPIA-approved designs.

Failure to follow these instructions will result in an inoperative appliance and/or the release of hazardous carbon monoxide or methane fumes.

CHECKED BY: _____
Signature (QC Personnel) Date

Copy to plant's home file(s)

ATTACHMENT D

03-08-AC

HOMES, INC.

ON-SITE ALTERNATIVE CONSTRUCTION INSPECTION REPORT (Page 1 of 3)

Home Information:	Homeowner Information:
Date of Production _____	Name _____
Serial Number _____	Street Address _____
Model Number _____	City, State, Zip _____
Plant Location _____	

Yes No

 Inspected Prior to Occupancy?

In compliance with Alternative Construction (AC) letter 03-08-AC issued by HUD, this home has been designed for partial assembly and completion on-site. The following checked item(s) was not completed when the home was shipped from the production facility:

- Fuel burning fireplace (check item 4)
- Gas furnace roof jack/vent (check item 5)
- Gas water heater roof jack/vent (check item 5)
- Plumbing vent pipes
- Bathroom exhaust
- Kitchen range hood exhaust
- Whole-house ventilation duct

The site construction was inspected by the undersigned representative of _____ Homes Production Inspection Primary Inspection Agency (IPIA) or by a qualified independent inspection acceptable to the IPIA for _____ Homes. The purpose of this inspection and this completed report is to ensure that the home is completed in compliance with _____ DAPIA-approved designs and other responsibilities pursuant to the approved AC letter. The 'Pass' and 'Fail' check boxes provided indicate whether the on-site completion is in compliance with the Federal Manufactured Home Construction and Safety Standards and the DAPIA-approved designs.

- Pass Fail
- 1. Verify that data plate and frame both have AC Prefix.
 - 2. All site work was completed by a licensed contractor or similarly qualified professional.
 - 3. The applicable DAPIA-approved plans and instructions required to complete all site work that is specific to this home are provided with the home.

ATTACHMENT D

03-08-AC

HOMES, INC.

ON-SITE ALTERNATIVE CONSTRUCTION INSPECTION REPORT (Page 2 of 3)

YES N/A

4. The following are requirements for roof jack/vent assemblies of fuel-burning fireplaces:

Pass Fail

a. All appliance vent ceiling penetrations are fire-stopped or tight-fitted using methods shown in DAPIA-approved designs.

b. Jack/vent components are secured, assembled and properly aligned using the method cited in the DAPIA-approved appliance manufacturer's instructions. Every joint of a flue, exhaust duct and combustion air intake is secured and aligned.

c. Installation is complete for each applicable fireplace appliance.

YES N/A

5. The following are requirements for roof jack/vent assemblies of fuel-burning appliances:

Pass Fail

a. All appliance vent ceiling penetrations in furnace compartments and/or water heaters are fire-stopped or tight-fitted using methods shown in the DAPIA-approved designs.

b. Jack/vent components are secured, assembled, and properly aligned using the method cited in the DAPIA-approved appliance manufacturer's instructions. Every joint of a flue, exhaust duct, and combustion air intake is secured and aligned.

c. Installation is complete for each applicable fuel-burning appliance.

- Gas furnace
- Gas water heater

d. All metallic covers have been removed from flue connection openings of all appliances.

ATTACHMENT D

03-08-AC

HOMES, INC.

ON-SITE ALTERNATIVE CONSTRUCTION INSPECTION REPORT (Page 3 of 3)

Pass Fail

6. All construction permitted under 03-08-AC that was completed on-site complies with the DAPIA-approved drawings and applicable instructions.

Deficiencies: _____

Corrective Action: _____

I have verified the completion of construction covered by the standards and the manufacturer's installation instructions for this home and find the above-stated site work to be in compliance with the requirements of the AC letter pursuant to 24 CFR 3282.14(c) of the Manufactured Home Procedural and Enforcement Regulations. _____ is responsible to ensure distribution of this completed inspection report to all parties indicated below, immediately upon receipt of the completed report:

Inspector's Signature and Information

Signature of Inspector _____

Printed Name Inspector _____

Company/Affiliation _____

Date(s) of Site Inspection _____

Copy to: _____, Homeowner, Retailer, IPTA, DAPIA, SAA, HUD

ATTACHMENT E

03-08-AC HOMES, INC.
 CUMULATIVE PRODUCTION STATUS REPORT
 CUMULATIVE PRODUCTION TOTALS (ALL PLANTS)
 (Reported Every Quarter)
 AC Valid thru: _____

Quarter Ending: _____

Plant Location: _____ Max. No. of Homes Approved: 100

Serial Number	HUD Label Number	Retailer/Dealer Name and Location	Name, Address, Email & Phone # of Homeowner	Date of Production	Date of Site Inspection	Inspected Prior to Occupancy Yes No

Authorized Mfr's Representative

Title: _____ Date: _____

copy to HUD

ON-SITE COMPLETION

On 3/7/2016 – HUD requires that all manufacturers have SC (Site-Completion) approvals for all aspects of construction no later than 9/7/2016. The manufacturer through their DAPIA must include unique numeric identification. This will be identified as part of the serial number as identified on the front headboard of the chassis along with the date certificate inside the home.

The manufacturer's Design Approval Primary Inspection Agency (DAPIA) must provide instructions for completion on-site. The DAPIA must include instructions authorized for completing the work on-site as a separate part of the manufacturer's approved design package. The manufacturer must provide a copy of these instructions and the inspection checklist required to be used by final site inspectors.

A Homeowner Notice is required to be posted inside the home. This notice provided to a purchaser prior to entering into a sales agreement is a disclosure that initially informs the prospective consumer about work that will be required on-site in order for the home to comply with HUD's standards. The notice provided in the home serves multiple purposes. In the event the home is not finished for some time after the sales agreement is finalized, it serves as reminder of the work necessary to complete the home on-site. The notice in the home also provides notification to an occupant that may not be the person or persons that entered into the sales agreement.

Examples of construction that may be completed on-site include:

- (1) Hinged roof and eave construction, unless exempted as installation by § 3285.801(f) of the Model Manufactured Home Installation Standards and completed and inspected in accordance with the Manufactured Home Installation Program;
 - (2) Any work required by the home design that cannot be completed in the factory, or when the manufacturer authorizes the retailer to provide an add-on, not including an attached garage, to the home during installation, when that work would take the home out of conformance with the construction and safety standards and then bring it back into conformance;
 - (3) Appliances provided by the manufacturer, installer, retailer, or purchaser, including fireplaces to be installed on site;
 - (4) Components or parts that are shipped loose with the manufactured home and that will be installed on-site, unless exempted as installation by the installation standards;
 - (5) Exterior applications such as brick siding, stucco, or tile roof systems; and
 - (6) Other construction such as roof extensions (dormers), site-installed windows in roofs, removable or open floor sections for basement stairs, and sidewall bay windows.
- (b) The manufacturer or a licensed contractor or similarly qualified professional with prior authorization from the manufacturer may perform the on-site work in accordance with the DAPIA approvals and site completion instructions. However, the manufacturer is responsible for

the adequacy of all on-site completion work regardless of who does the work, and must prepare and provide all site inspection reports, as well as the certification of completion, and must fulfill all of its responsibilities and maintain all records at the factory of origin as required by § 3282.609.

Can a homeowner be authorized to complete the on-site work?

The manufacturer may authorize others to complete construction work at the site, but the authorized parties must be a licensed contractor or similarly qualified professional and be provided prior authorization to do the work on the manufacturer's behalf. The homeowner could be allowed to perform the site construction work if authorized by the manufacturer, provided the work is performed under the supervision of a licensed Washington state contractor and certified installer that is authorized by the manufacturer to perform the work and the manufacturer agrees to be responsible for the final inspection and complete the required certification that all site work has been satisfactorily completed and conforms in all aspects to the Standards. NOTE: It is the manufacture's responsibility to certify that the construction complies and the retailer cannot sell a home that does not comply with the Standards.

Examples of site-installed or completed appliances that would require approval and inspection under Site Construction (SC) include but are not limited to:

- Site completion of the installation of a water heater, including site completion of venting, which complies with the standards in all other respects.
- Site completion of the installation of a heating system internal to the manufactured home, including site completion of venting.
- Site completion of the installation of a range or cooktop if no other source of cooking is factory provided.
- Site completion of the installation of an optional appliance such as a fireplace when on-site completion requires connection of exhaust/venting.
- Site completion of a home shipped with electric appliances, but factory constructed with optional gas risers provisioned for the possibility of gas appliance conversion before retail sale.

The manufacturer will need to comply with all terms and conditions outlined in each DAPIA-issued Site-Completed approval. This approval needs to identify the specific items that must be completed at the factory versus those aspects to be completed on site and include listing of materials and components that will be shipped with the home and provided on site. These aspects will be controlled through manufacturer inspection, IPIA surveillance and inspections, and will be subject to monitoring by the Department (HUD).

The State's IPIA's are responsible to complete inspections prior to occupancy. IPIA's need to report to HUD, the DAPIA, and manufacturer whenever any home is occupied before it inspects for compliance with all Site-Completed requirements and the Standards. IPIA's are also responsible to monitor the manufacturer's systems for notifying the IPIA when homes are ready for inspection and assuring that homes are not occupied before IPIA inspection and acceptance of the manufacturer's final site inspection report. This would be enforced on a case-by-case basis

as determined based on IPIA inspection reporting or other sources of information indicating nonconformance. IPIA's are to monitor and report per 3282.607(g) specifically on this issue.

An IPIA is required to red tag a home when it finds any failure to conform on site, regardless of when the issue is found during the IPIA's on-site inspection. If the IPIA determines that the manufacturer is not performing adequately in conformance with the approval, the IPIA must red tag and re-inspect until it is satisfied that the manufacturer is conforming to the conditions included in the approval. The home may not be occupied until the manufacturer and the IPIA have provided reports, required by this section, confirming compliance with the Construction and Safety Standards.

MHCSS 3282 Subpart M

On-Site Completion of Construction of Manufactured Homes

- Sec.
- 3282.601 Purpose and applicability.
- 3282.602 Construction qualifying for on-site completion.
- 3282.603 Request for approval; DAPIA review, notification, and approval.
- 3282.604 DAPIA responsibilities.
- 3282.605 Requirements applicable to completion of construction.
- 3282.606 Consumer information.
- 3282.607 IPIA responsibilities.
- 3282.608 Manufacturer responsibilities.
- 3282.609 Revocation or amendment of DAPIA approval.
- 3282.610 Failure to comply with the procedures of this subpart.
- 3282.611 Compliance with this subpart.

§ 3282.601 Purpose and applicability.

(a) *Purpose of section.* Under HUD oversight, this section establishes the procedure for limited on-site completion of some aspects of construction that cannot be completed at the factory.

(b) *Applicability.* This section may be applied when all requirements of this subpart are met. To be applicable a manufactured home must:

(1) Be substantially completed in the factory;

(2) Meet the requirements of the Construction and Safety Standards upon completion of the site work; and

(3) Be inspected by the manufacturer's IPIA as provided in this subpart, unless specifically exempted as installation under HUD's Model Installation Standards, 24 CFR part 3285. This subpart does not apply to Alternative Construction (see § 3282.14) that does not comply with the Manufactured Home Construction and Safety Standards.

§ 3282.602 Construction qualifying for on-site completion.

(a) The manufacturer, the manufacturer's DAPIA acting on behalf of HUD, and the manufacturer's IPIA acting on behalf of HUD may agree to permit certain aspects of construction of a manufactured home to be completed to the Construction and Safety Standards on-site in accordance with the requirements of this subpart. The aspects of construction that may be approved to be completed on-site are the partial completion of structural assemblies or systems (*e.g.*, electrical, plumbing, heating, cooling, fuel burning, and fire safety systems) and components built as an integral part of the home, when the partial completion on-site is warranted because completion of the partial structural assembly or system during the manufacturing process in the factory would not be practicable (*e.g.*, because of the home design or which could result in transportation damage or if precluded because of road restrictions). Examples of construction that may be completed on-site include:

- (1) Hinged roof and eave construction, unless exempted as installation by § 3285.801(f) of the Model Manufactured Home Installation Standards and completed and inspected in accordance with the Manufactured Home Installation Program;
 - (2) Any work required by the home design that cannot be completed in the factory, or when the manufacturer authorizes the retailer to provide an add-on, not including an attached garage, to the home during installation, when that work would take the home out of conformance with the construction and safety standards and then bring it back into conformance;
 - (3) Appliances provided by the manufacturer, installer, retailer, or purchaser, including fireplaces to be installed on site;
 - (4) Components or parts that are shipped loose with the manufactured home and that will be installed on-site, unless exempted as installation by the installation standards;
 - (5) Exterior applications such as brick siding, stucco, or tile roof systems; and
 - (6) Other construction such as roof extensions (dormers), site-installed windows in roofs, removable or open floor sections for basement stairs, and sidewall bay windows.
- (b) The manufacturer or a licensed contractor or similarly qualified professional with prior authorization from the manufacturer may perform the on-site work in accordance with the DAPIA approvals and site completion instructions. However, the manufacturer is responsible for the adequacy of all on-site completion work regardless of who does the work, and must prepare and provide all site inspection reports, as well as the certification of completion, and must fulfill all of its responsibilities and maintain all records at the factory of origin as required by § 3282.609.

§ 3282.603 Request for approval; DAPIA review, notification, and approval.

(a) *Manufacturer's request for approval.* The manufacturer must request, in writing, and obtain approval of its DAPIA for any aspect of construction that is to be completed on-site under this subpart. The manufacturer, its IPIA, and its DAPIA must work together to reach agreements necessary to enable the request to be reviewed and approved.

(b) *DAPIA notification.* The DAPIA, acting on behalf of HUD, must notify the manufacturer of the results of the DAPIA's review of the manufacturer's request, and must retain a copy of the notification in the DAPIA's records. The DAPIA shall also forward a copy of the approval to HUD or the Secretary's agent as provided under § 3282.361(a)(4). The notification must either:

- (1) Approve the request if it is consistent with this section and the objectives of the Act; or
- (2) Deny the proposed on-site completion and set out the reasons for the denial.

(c) *Manner of DAPIA approval.* Notification of DAPIA approval must include, by incorporation or by listing, the information required by paragraph (d) of this section, and must be indicated by the DAPIA placing its stamp of approval or authorized signature on each page of the manufacturer's designs submitted with its request for approval. The DAPIA must include an "SC" designation on each page that includes an element of construction that is to be completed on-site and must include those pages as part of the approved design package.

(d) *Contents of DAPIA approval.* Any approval by the DAPIA under this section must:

- (1) Include a unique site completion numeric identification for each approval for each manufacturer (*i.e.*, manufacturer name or abbreviation, SC-XX);
- (2) Identify the work to be completed on-site;
- (3) List all models to which the approval applies, or indicate that the approval is not model-specific;
- (4) Include acceptance by the DAPIA of a quality assurance manual for on-site completion meeting the requirements of paragraph (e) of this section;
- (5) Include the IPIA's written agreement to accept responsibility for completion of the necessary on-site inspections and accompanying records;
- (6) Identify instructions authorized for completing the work on-site that meet the requirements of paragraph (f) of this section;
- (7) Include the manufacturer's system for tracking the status of homes built under the approval until the on-site work and necessary inspections have been completed, to assure that the work is being performed properly;
- (8) Include a quality control checklist to be used by the manufacturer and IPIA and approved by the DAPIA to verify that all required components, materials, labels, and instructions needed for site completion are provided in each home prior to shipment;
- (9) Include an inspection checklist developed by the IPIA and manufacturer and approved by the DAPIA, that is to be used by the final site inspectors;
- (10) Include a Consumer Information Notice developed by the manufacturer and approved by the DAPIA that explains the on-site completion process and identifies the work to be completed on-site; and
- (11) Include any other requirements and limitations that the DAPIA deems necessary or appropriate to accomplish the purposes of the Act.

(e) *Quality assurance manual for on-site completion requirements.* The portion of the quality assurance manual for on-site completion required by paragraph (d)(3) of this section must receive the written concurrence of the manufacturer's IPIA with regard to its acceptability and applicability to the on-site completion of the affected manufactured homes. It must include a commitment by the manufacturer to prepare a final site inspection report that will be submitted to the IPIA for its review. When appropriate, this portion of the quality assurance manual for on-site completion will be deemed a change in the manufacturer's quality assurance manual for the applicable models, in accordance with §§ 3282.203 and 3282.361.

(f) *Instructions for completion on-site.* The DAPIA must include instructions authorized for completing the work on-site as a separate part of the manufacturer's approved design package. The manufacturer must provide a copy of these instructions and the inspection checklist required by paragraph (d)(9) of this section to the IPIA for monitoring and inspection purposes.

§ 3282.604 DAPIA responsibilities.

The DAPIA, acting on behalf of HUD, for any manufacturer proceeding under this section is responsible for:

- (a) Verifying that all information required by § 3282.603 has been submitted by the manufacturer;
- (b) Reviewing and approving the manufacturer's designs, quality control checklist, site inspection checklist, site completion instructions, and quality assurance manuals for site work to be performed;
- (c) Maintaining all records and approvals for at least 5 years;
- (d) Revoking or amending its approvals in accordance with § 3282.609; and
- (e) Reviewing its approvals under this section at least every 3 years or more frequently if there are changes made to the Manufactured Home Construction and Safety Standards, 24 CFR part 3280, to verify continued compliance with the Standards.

§ 3282.605 Requirements applicable to completion of construction.

- (a) *Serial numbers of homes completed on-site.* The serial number of each home completed in conformance with this section must include the prefix or suffix “SC”.
- (b) *Labeling.* A manufacturer that has received a DAPIA approval under § 3282.604 may certify and label a manufactured home that is substantially completed in the manufacturer's plant at the proper completion of the in-plant production phase, even though some aspects of construction will be completed on-site in accordance with the DAPIA's approval. Any such homes or sections of such homes must have a label affixed in accordance with § 3282.362(c)(2) and be shipped with a Consumer Information Notice that meets the requirements of § 3282.606.
- (c) *Site inspection.* Prior to occupancy, the manufacturer must ensure that each home is inspected on-site. The manufacturer is responsible for inspecting all aspects of construction that are completed on-site as provided in its approved designs and quality assurance manual for on-site completion.
- (d) *Site inspection report.* (1) In preparing the site inspection report, the manufacturer must use the inspection checklist approved by the DAPIA in accordance with § 3282.603(d)(9), and must prepare a final site inspection report and provide a copy to the IPIA within 5 business days of completing the report. Within 5 business days after the date that the IPIA notifies the manufacturer of the IPIA's approval of the final site inspection report, the manufacturer must provide a copy of the approved report to the lessor or purchaser prior to occupancy and, as applicable, the appropriate retailer and any person or entity other than the manufacturer that performed the on-site construction work.
(2) Each approved final site inspection report must include:
 - (i) The name and address of the manufacturer;
 - (ii) The serial number of the manufactured home;
 - (iii) The address of the home site;
 - (iv) The name of the person and/or agency responsible for the manufacturer's final site inspection;
 - (v) The name of each person and/or agency who performs on-site inspections on behalf of the IPIA, the name of the person responsible for acceptance of the manufacturer's final on-site inspection report on behalf of the IPIA, and the IPIA's name, mailing address, and telephone number;
 - (vi) A description of the work performed on-site and the inspections made;

- (vii) When applicable, verification that any problems noted during inspections have been corrected prior to certification of compliance; and
- (viii) Certification by the manufacturer of completion in accordance with the DAPIA-approved instructions and that the home conforms with the approved design or, as appropriate under § 3282.362(a)(1)(iii), the construction and safety standards.
- (3) The IPIA must review each manufacturer's final on-site inspection report and determine whether to accept that inspection report.
- (i) Concurrent with the manufacturer's final site inspection, the IPIA or the IPIA's agent must inspect all of the on-site work for homes completed using an approval under this section. The IPIA must use the inspection checklist approved by the DAPIA in accordance with § 3282.603(d)(9).
- (ii) If the IPIA determines that the manufacturer is not performing adequately in conformance with the approval, the IPIA must red tag and re-inspect until it is satisfied that the manufacturer is conforming to the conditions included in the approval. The home may not be occupied until the manufacturer and the IPIA have provided reports, required by this section, confirming compliance with the Construction and Safety Standards.
- (iii) The IPIA must notify the manufacturer of the IPIA's acceptance of the manufacturer's final site inspection report. The IPIA may indicate acceptance by issuing its own final site inspection report or by indicating, in writing, its acceptance of the manufacturer's site inspection report showing that the work completed on-site is in compliance with the DAPIA approval and the Construction and Safety Standards.
- (4) Within 5 business days of the date of IPIA's notification to the manufacturer of the acceptance of its final site inspection report, the manufacturer must provide to the purchaser or lessor, as applicable, the manufacturer's final site inspection report. For purposes of establishing the manufacturer's and retailer's responsibilities under the Act and subparts F and I of this part, the sale or lease of the manufactured home will not be considered complete until the purchaser or lessor, as applicable, has been provided with the report.
- (e) *Report to HUD.* (1) The manufacturer must report to HUD through its IPIA, on the manufacturer's monthly production report required in accordance with § 3282.552, the serial number and site completion numeric identification (see § 3282.603(d)(1)) of each home produced under an approval issued pursuant to this section.
- (2) The report must be consistent with the DAPIA approval issued pursuant to this section.
- (3) The manufacturer must submit a copy of the report, or a separate listing of all information provided on each report for homes that are completed under an approval issued pursuant to this section, to the SAAs of the States where the home is substantially completed in the factory and where the home is sited, as applicable.

§ 3282.606 Consumer information.

(a) *Notice.* Any home completed under the procedures established in this section must be shipped with a temporary notice that explains that the home will comply with the requirements of the construction and safety standards only after all of the site work has been completed and inspected. The notice must be legible and typed, using letters at least 1/4 inch high in the text of the notice and 3/4 inch high for the title. The notice must read as follows:

IMPORTANT CONSUMER INFORMATION NOTICE

WARNING: DO NOT LIVE IN THIS HOME UNTIL THE ON-SITE WORK HAS BEEN COMPLETED AND THE MANUFACTURER HAS PROVIDED A COPY OF THE INSPECTION REPORT THAT CERTIFIES THAT THE HOME HAS BEEN INSPECTED

AND IS CONSTRUCTED IN ACCORDANCE WITH APPROVED INSTRUCTIONS FOR MEETING THE CONSTRUCTION AND SAFETY STANDARDS.

This home has been substantially completed at the factory and certified as having been constructed in conformance with the Federal Manufactured Home Construction and Safety Standards when specified work is performed and inspected at the home site. This on-site work must be performed in accordance with manufacturer's instructions that have been approved for this purpose. The work to be performed on-site is [insert description of all work to be performed in accordance with the construction and safety standards].

This notice may be removed by the purchaser or lessor when the manufacturer provides the first purchaser or lessor with a copy of the manufacturer's final site inspection report, as required by regulation. This final report must include the manufacturer's certification of completion. All manufactured homes may also be subject to separate regulations requiring approval of items not covered by the Federal Manufactured Home Construction and Safety Standards, such as installation and utility connections.

(b) *Placement of notice in home.* The notice required by paragraph (a) of this section must be displayed in a conspicuous and prominent location within the manufactured home and in a manner likely to assure that it is not removed until, or under the authorization of, the purchaser or lessor. The notice is to be removed only by the first purchaser or lessor. No retailer, installation or construction contractor, or other person may interfere with the required display of the notice.

(c) *Providing notice before sale.* The manufacturer or retailer must also provide a copy of the Consumer Information Notice to prospective purchasers of any home to which the approval applies before the purchasers enter into an agreement to purchase the home.

(d) *When sale or lease of home is complete.* For purposes of establishing the manufacturer's and retailer's responsibilities for on-site completion under the Act and subparts F and I of this part, the sale or lease of the manufactured home will not be considered complete until the purchaser or lessor, as applicable, has been provided with a copy of the final site inspection report required under § 3282.605(d) and a copy of the manufacturer's certification of completion required under § 3282.609(k) and (l). For 5 years from the date of the sale or lease of each home, the manufacturer must maintain in its records an indication that the final on-site inspection report and certification of completion has been provided to the lessor or purchaser and, as applicable, the appropriate retailer.

§ 3282.607 IPIA responsibilities.

The IPIA, acting on behalf of HUD, for any manufacturer proceeding under this section is responsible for:

(a) Working with the manufacturer and the manufacturer's DAPIA to incorporate into the DAPIA-approved quality assurance manual for on-site completion any changes that are necessary to ensure that homes completed on-site conform to the requirements of this section;

(b) Providing the manufacturer with a supply of the labels described in this section, in accordance with the requirements of § 3282.362(c)(2)(i)(A);

(c) Overseeing the effectiveness of the manufacturer's quality control system for assuring that on-site work is completed to the DAPIA-approved designs, which must include:

(1) Verifying that the manufacturer's quality control manual at the installation site is functioning and being followed;

(2) Monitoring the manufacturer's system for tracking the status of each home built under the approval until the on-site work and necessary inspections have been completed;

- (3) Reviewing all of the manufacturer's final on-site inspection reports; and
- (4) Inspecting all of the on-site construction work for each home utilizing an IPIA inspector or an independent qualified third-party inspector acceptable to the IPIA and acting as the designee or representative:
 - (i) Prior to close-up, unless access panels are provided to allow the work to be inspected after all work is completed on-site; and
 - (ii) After all work is completed on-site, except for close-up;
- (d) Designating an IPIA inspector or an independent qualified third-party inspector acceptable to the IPIA, as set forth under § 3282.358(d), who is not associated with the manufacturer and is not involved with the site construction or completion of the home and is free of any conflict of interest in accordance with § 3282.359, to inspect the work done on-site for the purpose of determining compliance with:
 - (1) The approved design or, as appropriate under § 3282.362(a)(1)(iii), the Construction and Safety Standards; and
 - (2) The DAPIA-approved quality assurance manual for on-site completion applicable to the labeling and completion of the affected manufactured homes;
- (e) Notifying the manufacturer of the IPIA's acceptance of the manufacturer's final site inspection report (see § 3282.605(d)(3)(iii));
- (f) Preparing final site inspection reports and providing notification to the manufacturer of its acceptance of the manufacturer's final site inspection report within 5 business days of preparing its report. The IPIA is to maintain its final site inspection reports and those of the manufacturer for a period of at least 5 years. All reports must be available for HUD and SAA review in the IPIA's central record office as part of the labeling records; and
- (g) Reporting to HUD, the DAPIA, and the manufacturer if one or more homes has not been site inspected prior to occupancy or when arrangements for one or more manufactured homes to be site inspected have not been made.

§ 3282.608 Manufacturer responsibilities.

A manufacturer proceeding under this section is responsible for:

- (a) Obtaining DAPIA approval for completion of construction on-site, in accordance with § 3282.603;
- (b) Obtaining the IPIA's agreement to perform on-site inspections as necessary under this section and the terms of the DAPIA's approval;
- (c) Notifying the IPIA that the home is ready for inspection;
- (d) Paying the IPIA's costs for performing on-site inspections of work completed under this section;
- (e) Either before or at the time on-site work commences, providing the IPIA with a copy of any applicable DAPIA-approved quality assurance manual for on-site completion, the approved instructions for completing the construction work on-site, and an approved inspection checklist, and maintaining this information on the job site until all on-site work is completed and accepted by the IPIA;
- (f) Satisfactorily completing all on-site construction and required repairs or authorizing a licensed contractor or similarly qualified person to complete all site construction and any needed repairs;
- (g) Providing a written certification to the lessor or purchaser, when all site construction work is completed, that each home, to the best of the manufacturer's knowledge and belief, is constructed in conformance with the Construction and Safety Standards;

- (h) Ensuring that the consumer notification requirements of § 3282.606 are met for any home completed under this subpart;
- (i) Maintaining a system for tracking the status of homes built under the approval until the on-site work and necessary inspections have been completed, such that the system will assure that the work is performed in accordance with the quality control manual and other conditions of the approval;
- (j) Ensuring performance of all work as necessary to assure compliance with the Construction and Safety Standards upon completion of the site work, including § 3280.303(b) of this chapter, regardless of who does the work or where the work is completed;
- (k) Preparing a site inspection report upon completion of the work on-site, certifying completion in accordance with DAPIA-approved instruction and that the home conforms with the approved design or, as appropriate under § 3282.362(a)(1)(iii), the construction and safety standards;
- (l) Arranging for an on-site inspection of each home upon completion of the on-site work by the IPIA or its authorized designee prior to occupancy to verify compliance of the work with the DAPIA-approved designs and the Construction and Safety Standards;
- (m) Providing its final on-site inspection report and certification of completion to the IPIA and, after approval, to the lessor or purchaser and, as applicable, the appropriate retailer, and to the SAA upon request;
- (n) Maintaining in its records the approval notification from the DAPIA, the manufacturer's final on-site inspection report and certification of completion, and the IPIA's acceptance of the final site inspection report and certification, and making all such records available for review by HUD in the factory of origin;
- (o) Reporting to HUD or its agent the serial numbers assigned to each home completed in conformance with this section and as required by § 3282.552; and
- (p) Providing cumulative quarterly production reports to HUD or its agent that include the site completion numeric identification number(s) for each home (see § 3282.603(d)(1)); the serial number(s) for each home; the HUD label number(s) assigned to each home; the retailer's name and address for each home; the name, address, and phone number for each home purchaser; the dates of the final site completion inspection for each home; and whether each home was inspected prior to occupancy.
- (q) Maintaining copies of all records for on-site completion for each home, as required by this section, in the unit file to be maintained by the manufacturer.

§ 3282.609 Revocation or amendment of DAPIA approval.

- (a) The DAPIA that issued an approval or the Secretary may revoke or amend, prospectively, an approval notification issued under § 3282.603. The approval may be revoked or amended whenever the DAPIA or HUD determines that:
 - (1) The manufacturer is not complying with the terms of the approval or the requirements of this section;
 - (2) The approval was not issued in conformance with the requirements of § 3282.603;
 - (3) A home produced under the approval fails to comply with the Federal construction and safety standards or contains an imminent safety hazard; or
 - (4) The manufacturer fails to make arrangements for one or more manufactured homes to be inspected by the IPIA prior to occupancy.
- (b) The DAPIA must immediately notify the manufacturer, the IPIA, and HUD of any revocation or amendment of DAPIA approval.

§ 3282.610 Failure to comply with the procedures of this subpart.

In addition to other sanctions available under the Act and this part, HUD may prohibit any manufacturer or PIA found to be in violation of the requirements of this section from carrying out their functions of this Subpart in the future, after providing an opportunity for an informal presentation of views in accordance with § 3282.152(f). Repeated infractions of the requirements of this section may be grounds for the suspension or disqualification of a PIA under §§ 3282.355 and 3282.356.

§ 3282.611 Compliance with this subpart.

If the manufacturer and IPIA, as applicable, complies with the requirements of this section and the home complies with the construction and safety standards for those aspects of construction covered by the DAPIA approval, then HUD will consider a manufacturer or retailer that has permitted a manufactured home approved for on-site completion under this section to be sold, leased, offered for sale or lease, introduced, delivered, or imported to be in compliance with the certification requirements of the Act and the applicable implementing regulations in this part 3282 for those aspects of construction covered by the approval.

Chapter 6

Anchoring

- **Anchoring Requirements**
- **HUD Wind Zone**
- **Anchoring Equipment**
- **Anchoring Methods**
- **Earthquake Bracing
Regulations**

ANCHORING REQUIREMENTS

This chapter covers the design and installation of the stabilizing system which secures the home against lateral and upward forces caused by wind. The system covered here uses earth (or ground) anchors and steel straps connected to the home's longitudinal steel beam and/or exterior walls. Stabilizer plates may also be used to prevent the anchor head from moving laterally in the ground. An anchor, strap, and stabilizer plate (if used) together are referred to as a tie-down.

Anchors can also be mounted in concrete footings when there is enough concrete mass (weight) to resist the lateral and upward forces.

All homes in Washington State must be permanently anchored. The Washington Installation Code, WAC 296-150I-0310 (1)(c), requires all homes in Washington state to be anchored according to the manufacturer's installation instructions or according to the specifications of an engineer or architect licensed in Washington State. Homes temporarily placed on dealers' lots are exempt from the anchoring requirement. According to the WAC, local jurisdictions may not prescribe anchoring methods; however, local jurisdictions do have the authority to approve materials used in the installation process.

The HUD requires manufacturers to give instructions for at least one suitable method of anchoring their homes.

Most home manufacturers' installation manuals give instructions for anchoring with a basic ground anchor, steel strap, and buckle method. Some manufacturers will provide supplemental instructions for other types of anchoring equipment. If you are unsure whether the anchoring system you will be installing is compatible with a particular home design, contact the manufacturer before installing the system.

Follow the home manufacturer's installation instructions if they apply to the type of system you are installing. If you are using an anchoring system other than the one addressed by the home manufacturer's instructions, you must follow the instructions from the anchoring equipment manufacturer. You must also have engineering and testing data for that system available for approval by the local jurisdiction. Instructions for all equipment used in the installation that are not included in the setup manual should be stored with the setup manual.

HUD WIND ZONES

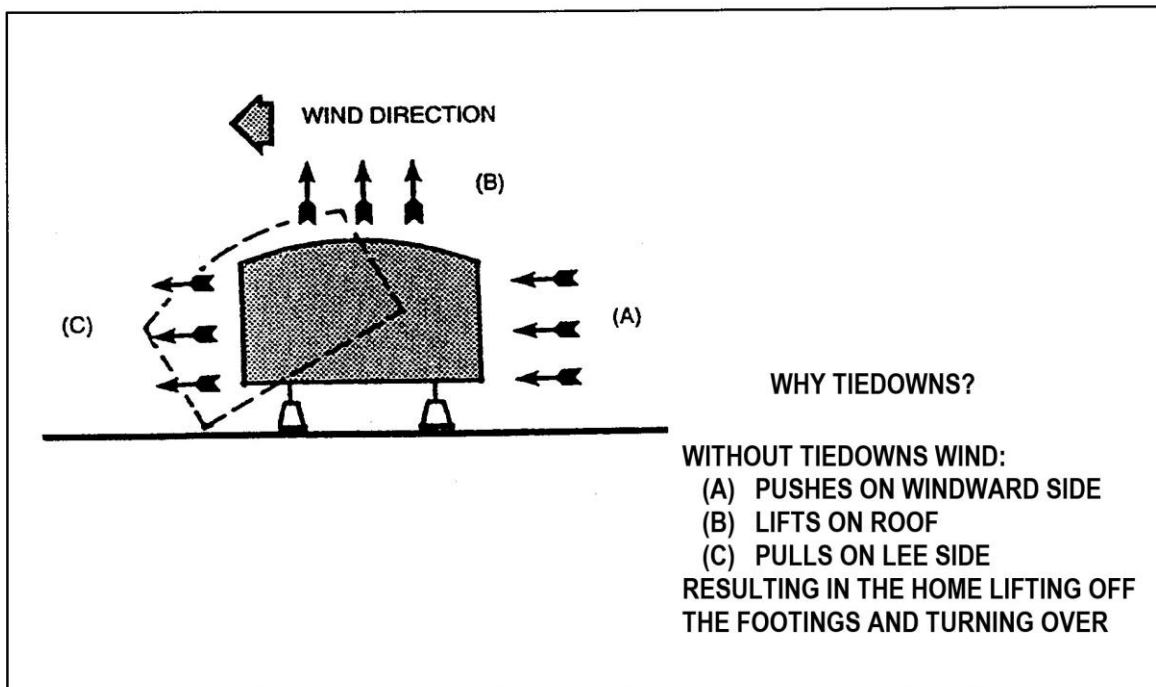
Section 305 (c) of the HUD Code includes the state of Washington, as well as most of the United States, in Wind Zone I for design and construction purposes. The design pressures for this zone are 15 pounds per square foot (PSF) horizontal and 9 (PSF) net vertical uplift. Section 306(a) specifies that, in Wind Zone I, the design pressures must be increased by a safety factor of 1.5.

Some locations in Washington such as along the Columbia River, Pacific Coast, N. Whidbey Island, and high elevations in the Cascades have high wind, perhaps much higher than the design pressures for the home. For homes being placed in high-wind areas, the homeowner or building

department may wish to have you anchor the home according to Wind Zone II techniques. In addition, homeowners may wish to consider ordering a roof from the factory with hand-tabbed shingles (using special care to glue the shingles down better than the standard procedures) or a high-wind stapling pattern. Home retailers can provide information on this practice. It's a good idea to clear trees that might fall on the home due to high winds.

NOTE: 24 CFR 3285.405 Severe Wind Zones. *When any part of a home is installed within 1,500 feet of a coastline in Wind Zone II or III, the manufactured home must be designed for the increased requirements, as specified on the home's data plate in accordance with acceptable engineering practice. Where site or other conditions prohibit the use of the manufacturer's instructions, a registered professional engineer or registered architect, in accordance with acceptable engineering practices, must design anchorage for the special wind conditions.*

The diagram below shows the forces on the home due to exceptionally strong winds. The wind causes a positive pressure on the windward side and a negative pressure on the roof and the leeward side. Exceptionally strong winds could cause single-section homes to turn over. While multi-section homes are not as likely to turn over due to high winds, the home can be damaged due to movement of the sections.



ANCHORING EQUIPMENT

The HUD Code in Section 306(f) requires anchoring equipment to be capable of resisting an allowable working load equal to or exceeding 3,150 pounds and to be capable of withstanding a 50-percent overload (4,725 pounds total) without failure of either the anchoring equipment or the attachment point on the manufactured home. Anchoring equipment must meet or exceed these requirements. Section 306(b)(2) Ground anchors should be embedded below the frost line and be at least 12 inches above the water table; ground anchors should be installed to their full depth, and stabilizer plates should be installed to provide added resistance to overturning or sliding forces. Anchoring equipment should be certified by a registered professional engineer or architect.

There are different types of anchoring equipment and systems. The method of anchoring commonly addressed in most home manufacturers' installation manuals is steel straps, buckles, and ground anchors. The type of anchor used is based on the type of soil. There are special anchors for use in rocky areas.

There is a basic difference between wind anchors and earthquake anchors. Wind anchors should hold the home tightly to the ground to prevent movement due to wind forces over a long period. Earthquake anchors should allow the home to move relative to the ground but still keep the home from falling. The ground should be able to move back and forth quickly under the home, with the home staying in one place, and not falling off its foundation. There are commercial systems available to accomplish both purposes. Earthquake anchors are discussed more at the end of the chapter.

If you hire an engineer or architect to design an anchoring system, that person must be licensed in Washington State. If a home manufacturer provides a design, which has been approved by the Design Approval Primary Inspection Agency (DAPIA), the engineering stamp can come from any state.

Discuss with the local building department before installing anchors if you are unsure the anchoring method you intend to use will be accepted. Explain the situation, how you plan to handle it, and give the inspector written documentation to support your plan.

The manufactured home must be secured against the wind by the use of an anchor assembly or an alternate assembly or an alternative foundation system. Where site or other conditions prohibit the use of the manufacturer's instructions, a registered engineer or registered architect must design the stabilizing system.

ANCHORING METHODS

Ground Anchors – Ground anchors are a commonly used method to anchor homes. Most manufacturers' installation manuals give specific instructions for installing homes using ground anchors. Be sure to use the type of anchor that is appropriate for the soil type. The home manufacturer's instructions and the equipment manufacturer's instructions will give you the proper angle for strap installation, usually 40 to 50 degrees.

- **FHA does not accept ground anchors as a permanent attachment. (per the 1996 Permanent Foundation Guide for Manufactured Housing)**

Cross-Drive Rock Anchors - Cross-drive anchors are designed to be installed in solid rock. Some anchoring equipment manufacturers say cross-drive anchors can also be used in hard or rocky soil. If you are installing anchors in rocky soil where you can't get augers into the ground, cross-drive anchors may be acceptable if the anchor manufacturer has written instructions stamped by a Washington State engineer that cover installation in that particular soil. The number of anchors may be higher than if they were installed in solid rock.

Anchors embedded in concrete - If you are installing a new home with anchors embedded in concrete runners or a full slab, find out if the manufacturer has specific instructions for this method of anchoring. Some retailers have obtained such designs for the homes that they sell. If instructions are not available from the home manufacturer, you must use a design by a professional engineer or architect licensed in Washington. Exposed metal needs to be protected against corrosion unless the home manufacturer's or engineer's design states otherwise.

Anchor straps – Straps must be made of materials strong enough to resist the wind forces set by HUD. Many straps are engineered to simply loop around the I-beam with the strap slipped through the attached buckle. The straps should come over the top of the I-beam to resist twisting of the beam under stress.

Oliver Technology (OTI) – All Steel Foundation System 1100 IV Pier Support, an alternative to conventional anchors. These systems eliminate the need for most anchors in Wind Zone 1. Special Circumstances: pier height not to exceed 48" inches, roof eaves exceed 16" inches, roof pitch greater than 7/12, and location is within 1,500 feet of the coastline. Concrete footer, runners or slab has a minimum of 2,900 (PSI) minimum depth of 3.5" inches (dry set).

Xi2 – Ground system with longitudinal stabilization for Wind Zone 1. The results of testing do not apply when any of the following conditions exist: Pier heights exceed 48-inches, home exceeds three sections, roof pitch exceeds 20-degrees (approximately 4.37/12, main rail spacing is less than 75.5 inches or greater than 99.5 inches, the home is located within 1,500 feet of the coastline, sidewall height exceed 8'-0", and vertical projection exceed 9'-0" vertical projection refers to total height of floor joist, wall height, and eave height.

Minute Man Anchors – Minute man stabilizing devices are designed for use intended to laterally restrict movement of the anchor through the soil. The foundation pier is best suited to a dry environment and are not recommended for use within 1,500 feet of the coastline.

Flood and seismic forces. The stabilizing system requirements in this chapter do not consider flood or seismic loads and are not intended for use in flood or seismic hazard areas. In those areas retain a registered engineer or registered architect to design the stabilizing system.

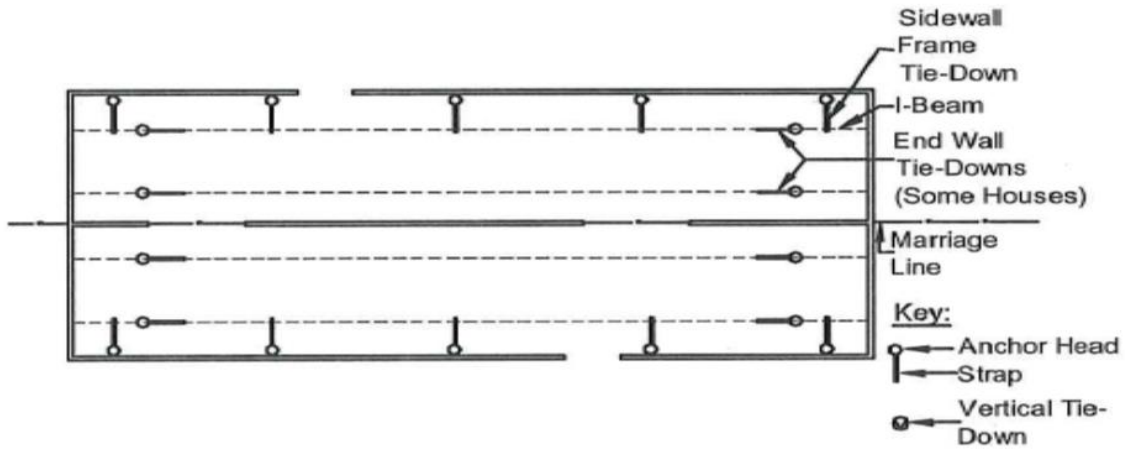
Depending on the height of the home above the ground, it may be difficult or impossible to install the straps at the required 40 to 50 degrees from vertical without the anchor going past the skirting. There are alternative procedures presented by manufacturers in their instructions. One alternative is to install a combination of vertical and diagonal straps, with the diagonal straps going inward under the home instead of outward. This inward strap direction is how end ties are normally installed.

Ties that cross from the ground or foundation to the other side of a multi-section home help to hold the sections together during high winds, floods, or earthquakes. Holding the home sections together helps reduce damage.

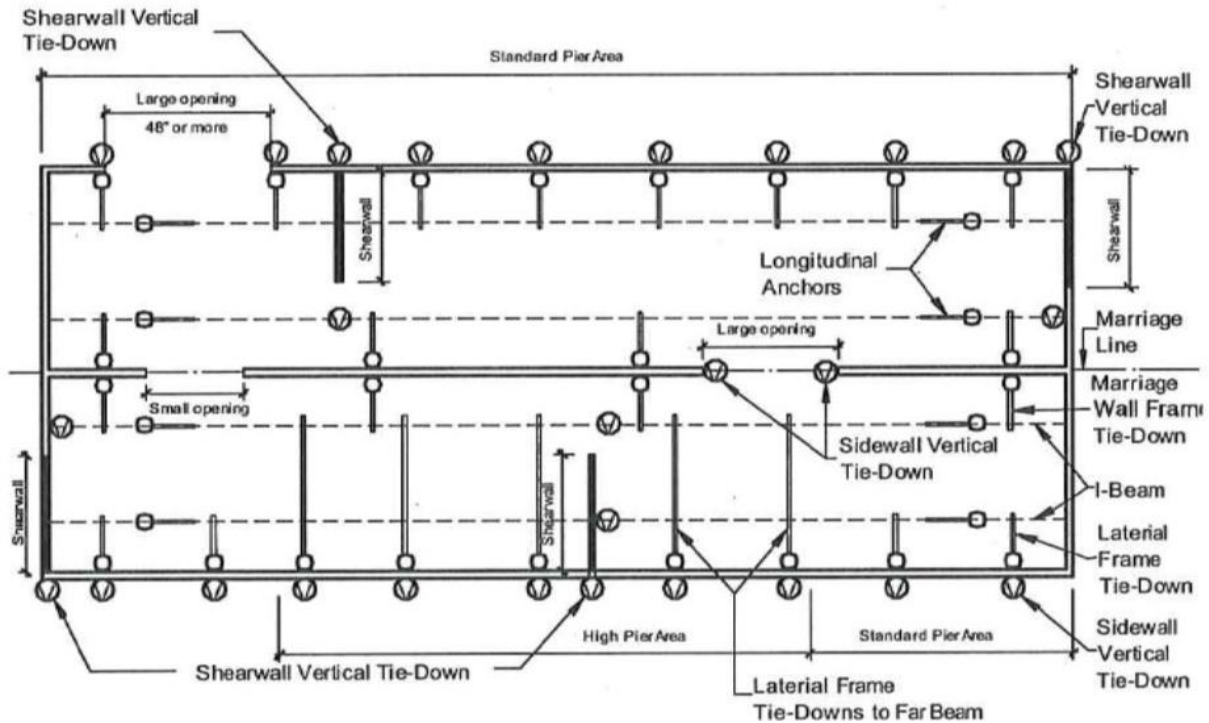
Do not install only vertical ties or only ties at a small angle relative to vertical. Vertical ties have little strength in the horizontal direction, and may fail under horizontal design loads.

The illustrations that follow include diagrams similar to what you will find in manufacturers' installation manuals.

Typical anchor locations for a double-section home in Wind Zone 1



Typical anchor location for a double-section home in Wind Zone II or III



SIDEWALL FRAME ANCHORS

Spacing requirements will vary depending on the type of home (single or multi-section), the slope of the roof, the width of the floor for each section, the sidewall height, I-beam spacing, and the height from the ground to the strap attachment point. Manufacturer's Installation Instructions will provide tables for the appropriate wind zone, determine the column and row that corresponds to the characteristics of the home. The value on the tables is the maximum distance between anchors. Keep in mind that sidewall frame tie-downs must be located no more than two feet from each end wall.

Chapter 6 - Anchoring

Diagonal ties

Note --

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

Diagonal and vertical ties

Note--

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

Strap Method	Anchor Min. Ultimate 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

Note --

- 1 Unless listed/labeled for a higher capacity by the anchor manufacturer
- 2 Unless a greater spacing is specified by the anchor manufacturer
- 3 All homes located in Wind Zones II and III shall have a vertical tie installed at each diagonal tie location.

PORCH POST ANCHORS

Tie down anchors are required at each sidewall and marriage line porch post. Each post that requires an anchor will have a tie down bracket attached from the factory or be designated by a pier label.

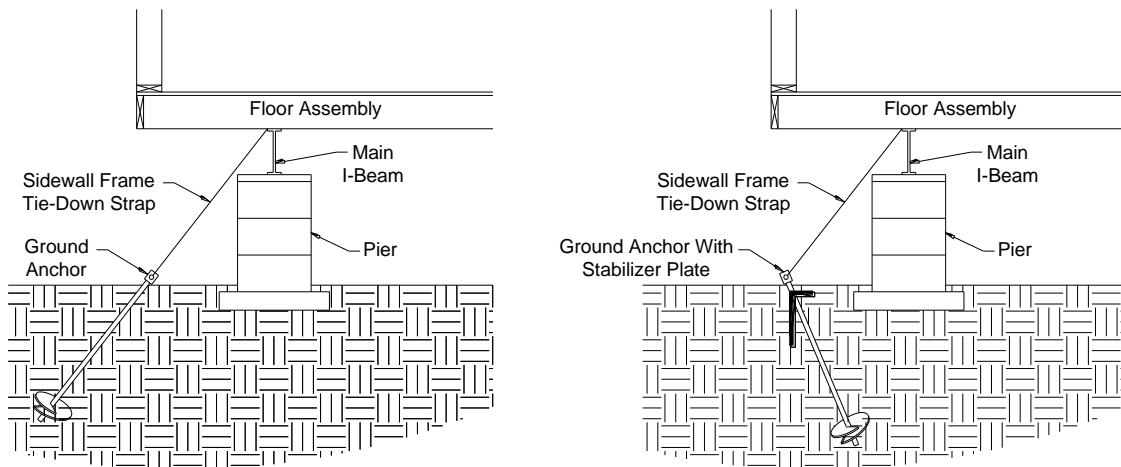
INSTALL ANCHORS

Before beginning anchor installation, check for obstructions under the home such as piers and frame members that may interfere with the tie down strapping. Check with utility companies to determine the location of underground utilities, such as electrical and phone lines, and water, sewer and gas pipes, that may be buried in potential anchor locations. Also check for homeowner-installed wires and pipes, such as those connecting exterior lighting or auxiliary structures to the home.

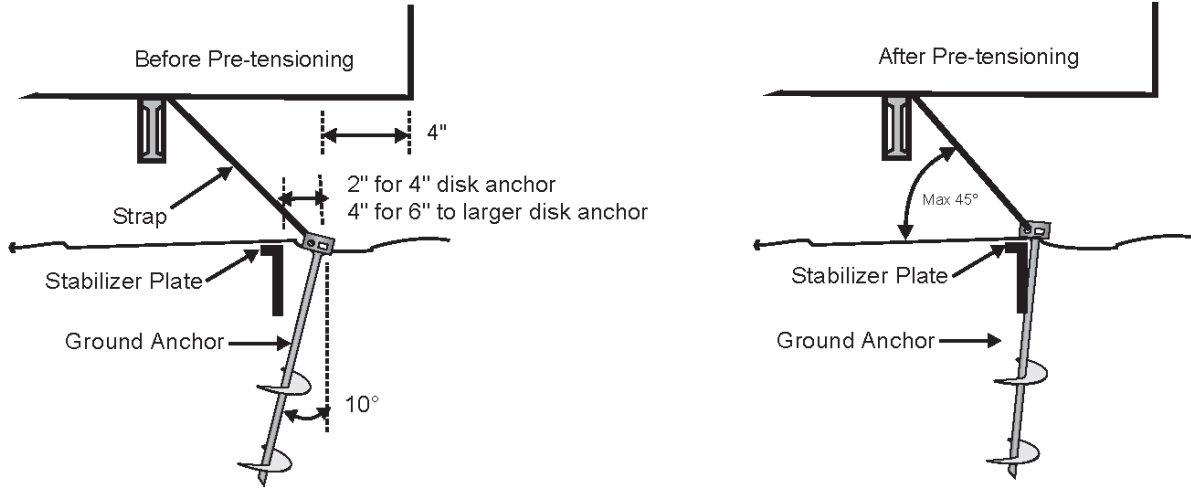
Frame Anchors. Frame anchors can be installed in two ways, in-line and against a stabilizer plate. The two methods are discussed below:

In-Line Configuration. The in-line configuration for homes can be used in Wind Zone 1 only. Typically, in-line anchors are used under high homes where the anchors can be installed from under the home after the home set. In-line anchors can also be installed before the home is set, however precisely aligning the anchor with the home both vertically and horizontally is difficult. Using swivel connectors for the strap to beam connection can provide some horizontal flexibility.

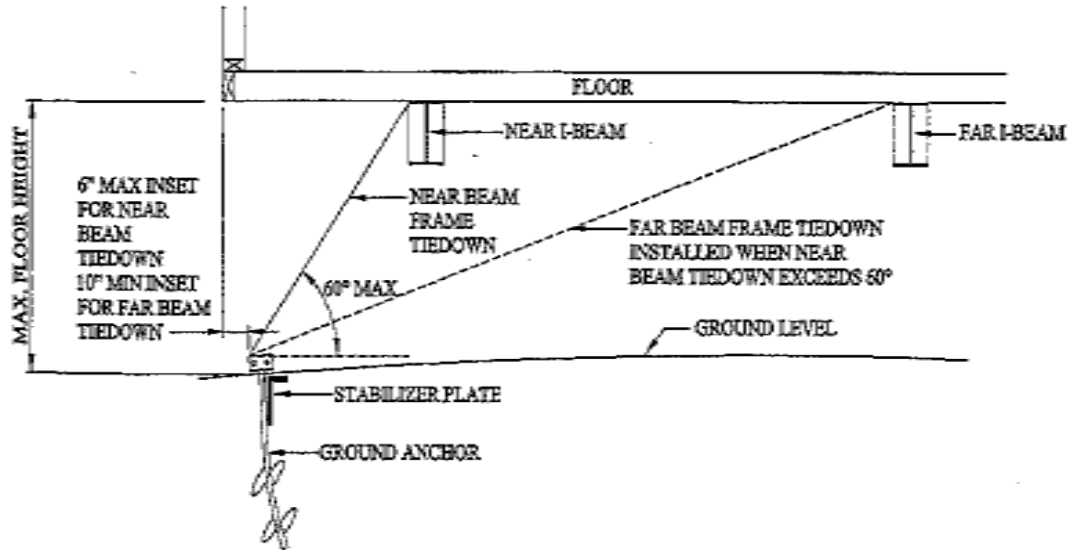
To install in-line frame anchors, drive the anchor into the ground at an angle and location such that a straight line can be drawn from the tip of the anchor through the anchor head and to the connection point on the I-beam.



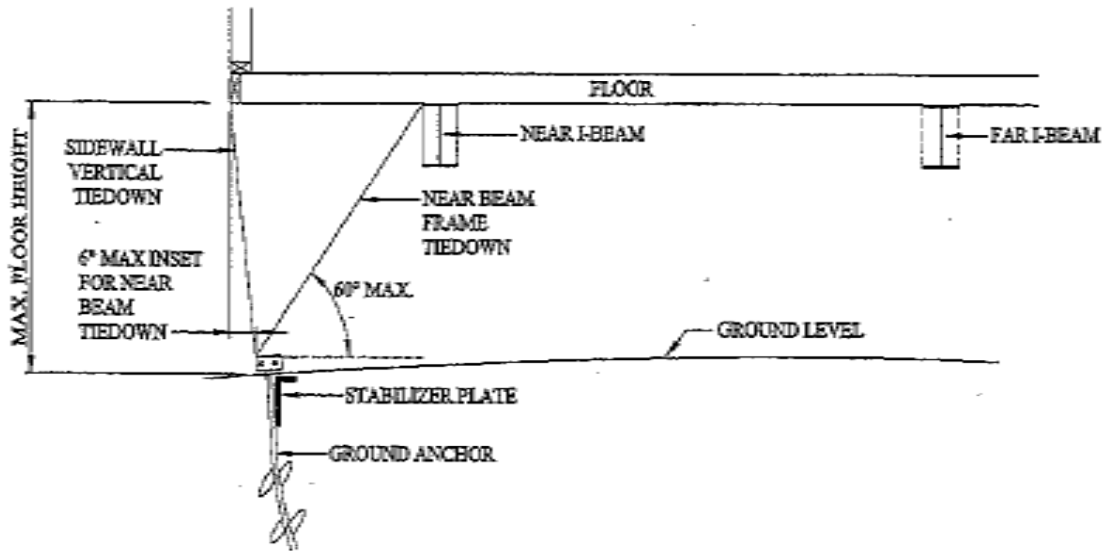
Stabilizer Plate Configuration. Stabilizer plate configurations are suitable for homes in all wind zones. Anchors may be installed after the home is set. A stabilizer device, typically an ABS or metal plate, is used to prevent the top of the anchor from slicing through the soil when the load is applied. Stabilizer plates are available in a variety of widths. Choose the widest plate that can be driven into the soil to maximize resistance to movement. The LAHJ may have stabilizer plate requirements.



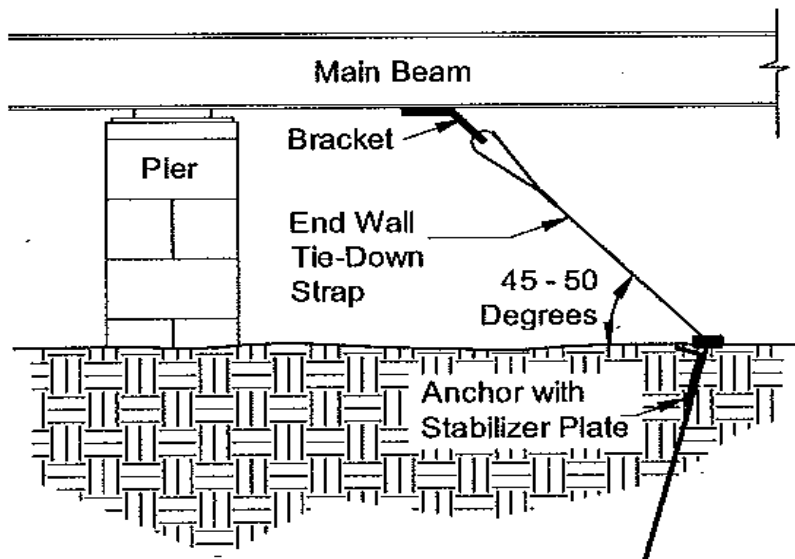
Wind Zone 1 Frame Tie down. When the angle of the near beam frame tie down strap exceeds 60 degrees the far beam frame tie down strap is installed in addition to the near beam strap.



Vertical Anchors. To install vertical anchors, screw the anchor into the ground directly under the strap attachment point on the home until the bottom of the anchor head is flush with the ground or no more than one inch above grade.

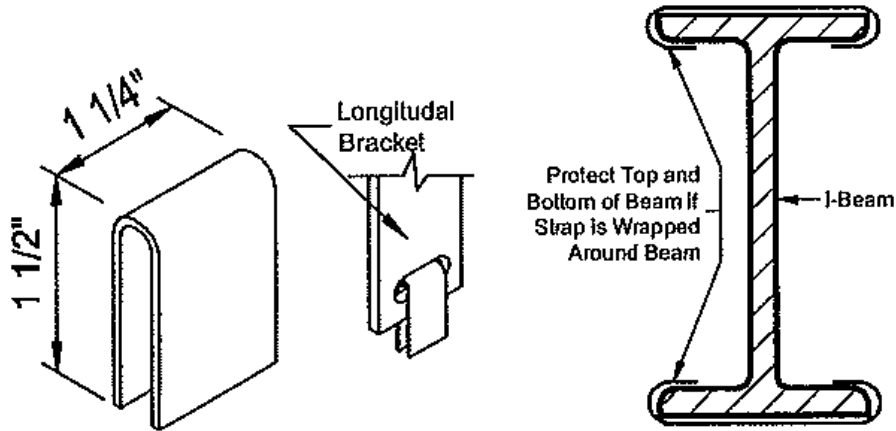


Longitudinal End Wall Frame Anchors. Longitudinal end wall frame tie-downs are especially important for homes that are wider and have higher roof pitches because those features increase the surface areas exposed to wind loads at the end of the home. Attach straps to the bracket welded by the manufacturer to the frame. If no bracket have been installed, use approved beam clamps designed specifically for this purpose, available from anchor suppliers or connect the strap to a spring hanger or a crossmember (within 3" of the main I-beam). Connect straps to anchors following same procedure as for sidewall frame anchors. Protection of the strap corners must be provided.



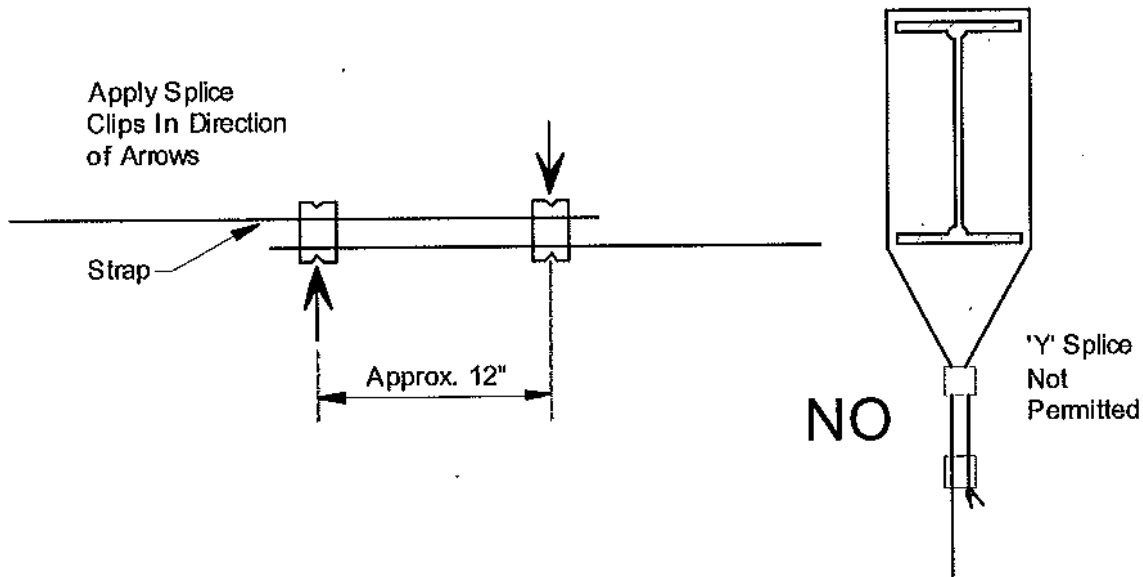
INSTALL STRAPS

Follow the manufacturer's instructions to connect straps from the home to sidewall frame, end wall frame and vertical anchors. Always protect straps at sharp corners including around I-beams with radius clips or other methods. Radius clips may be fabricated from 26 gauge (minimum) by 1 1/4 inch wide galvanized steel strap formed to fit around corners.



SPLICING STRAPS

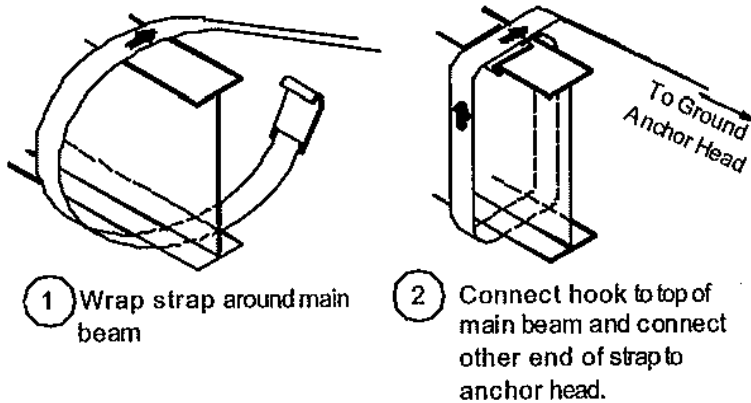
Splicing may be required when a pre-cut strap is of insufficient length. Splices in tie-down straps are not permitted in a 'Y' configuration. Overlap straps by 12 inches, applying one splice clip from above and the other below; use a crimping tool to tightly seal the splice clips. Do not run any portion of the splice through an anchor head bolt.



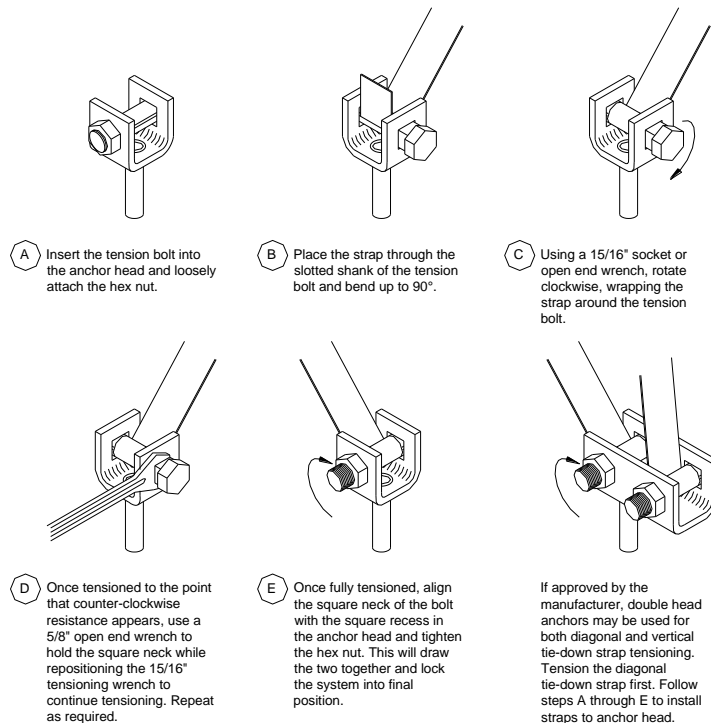
SIDEWALL FRAME ANCHORS

Install straps to sidewall frame anchors as follows:

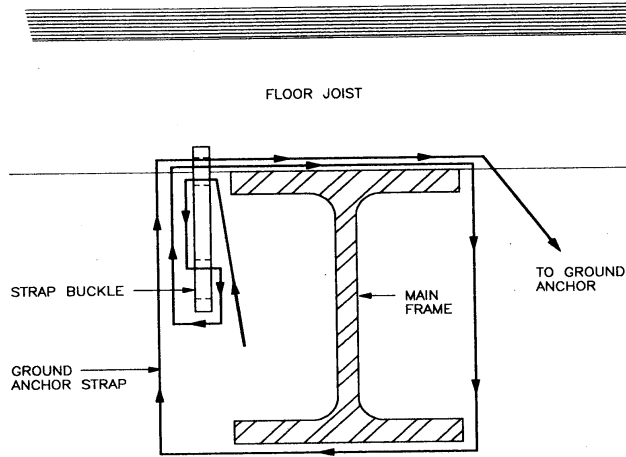
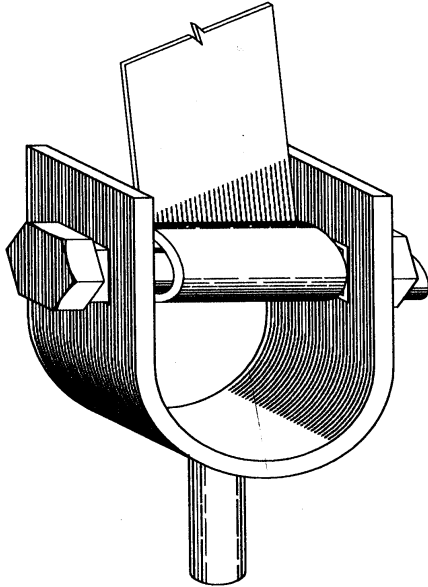
1. **Connect strap to home.** Connect one end of the strap to the home connection point using approved buckles or clips (swivel or hook clip preferred).



2. **Connect strap to anchor.** Connect the other end of the strap to the split bolt in the anchor. Leave enough strap length to be able to make at least three, but no more than five complete turns around the bolt before it becomes tight (approximately 2 ½ inches per turn or 7 ½ to 13 inches total). Fewer than three turns and the strap may not hold onto the bolt when force is applied. Conversely, more than five turns may not fit within the U-channel of the anchor head.

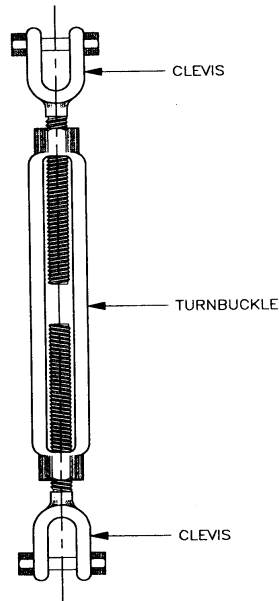


3. Pretension anchor. For anchors with stabilizing plates, pretension the anchor by pulling it up to the stabilizer plate using the strap and take-up bolt to move the anchor head. Continue pulling the strap until the plate moves a small amount (about 1/2 inch). This is called packing the plate and it will yield the strongest resistance (the bottom of the anchor head should be maximum 1/4 inch above the top of the stabilizer plate).



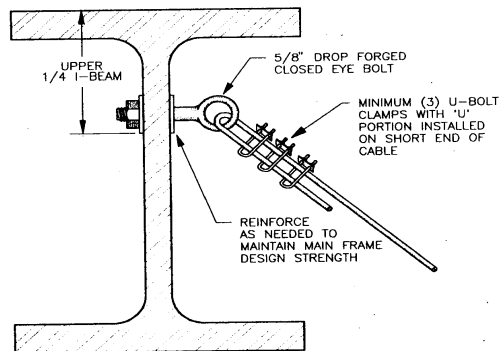
NOTE: STRAPPING WITHIN 20 MILES OF THE COAST SHALL BE: STAINLESS STEEL OR 0.035 INCH THICK X 1 1/4" WIDE STEEL COATED WITH MIN. 0.30 OUNCES ZINC PER FOOT. PER ASTM D3953-87

Ground Anchor Yoke Tensioning Device



Turnbuckle Tie-Down Tensioning Device

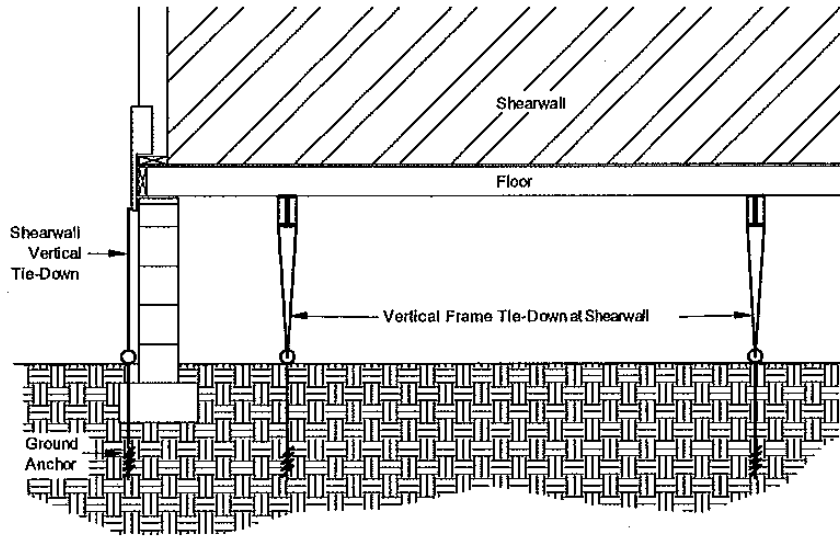
Main Frame Tie-Down Strap Connection



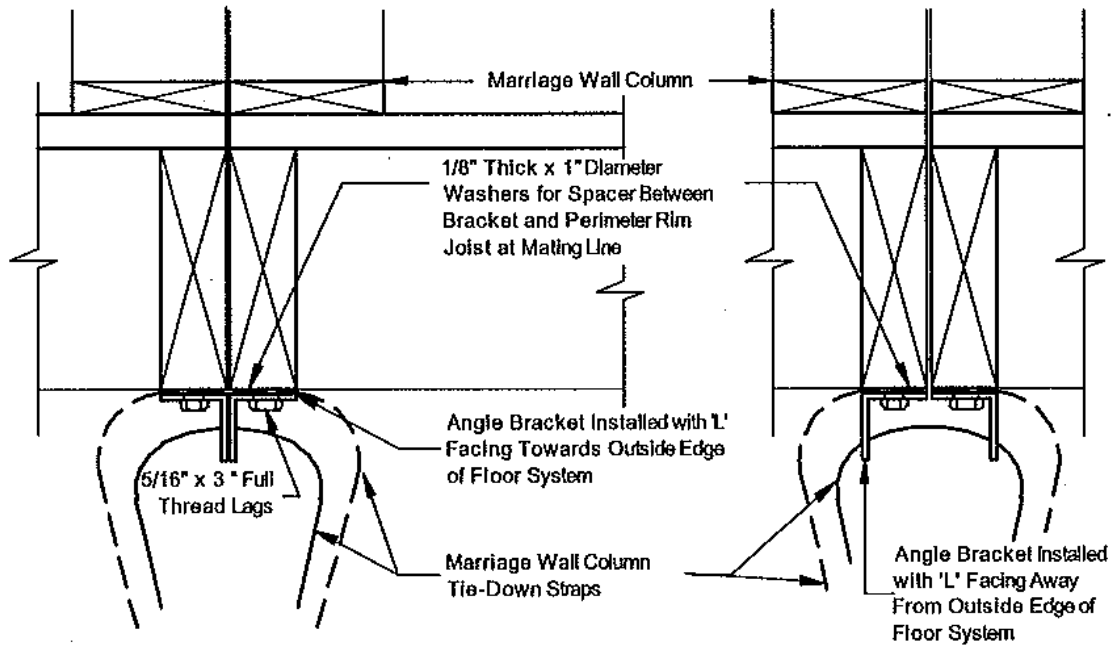
Main Frame Bolt Tie Down Connection

VERTICAL ANCHORS

If vertical straps have been attached to the home by the manufacturer, connect the other end of the straps to the anchor heads. If not, install the strap from one head of a double-headed anchor, up through the brackets (if provided) or around the I-beam and down to the other anchor bolt in a continuous loop.



For marriage line vertical tie-downs where brackets have not been factory installed, install provided steel angles in straps as shown below.



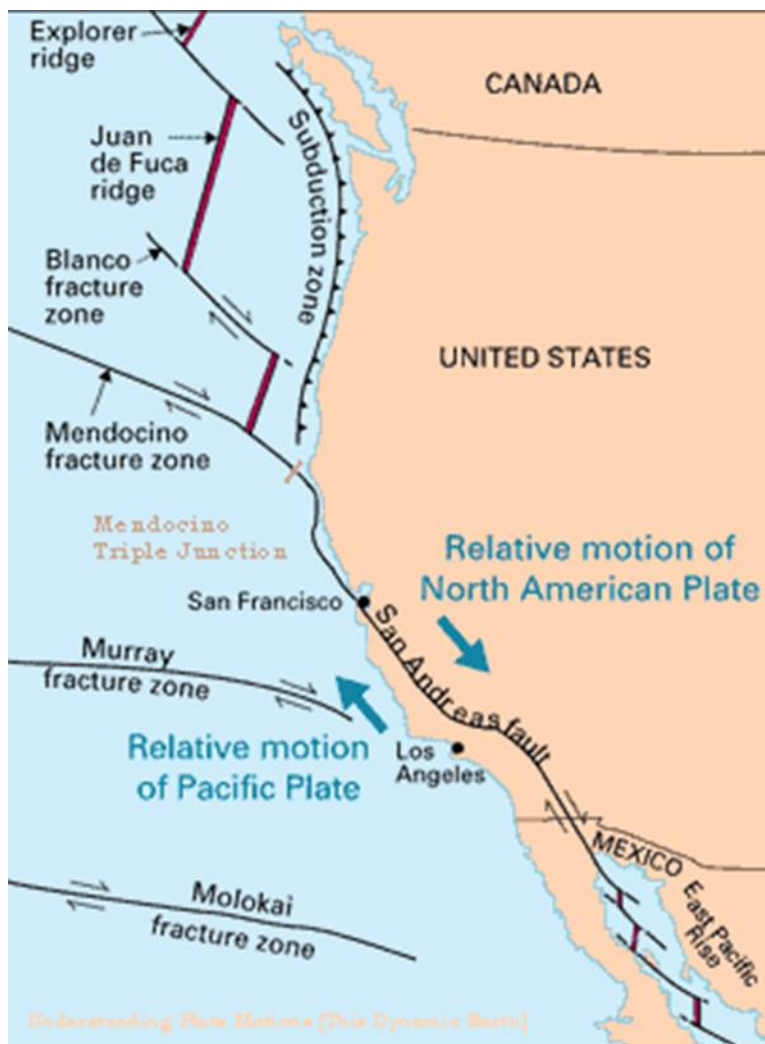
After all anchors have been installed and pre-tensioned, recheck all anchor straps to assure that they are tight and that the anchor shafts have remained in contact with the stabilizer plates. Do not over-tension straps.

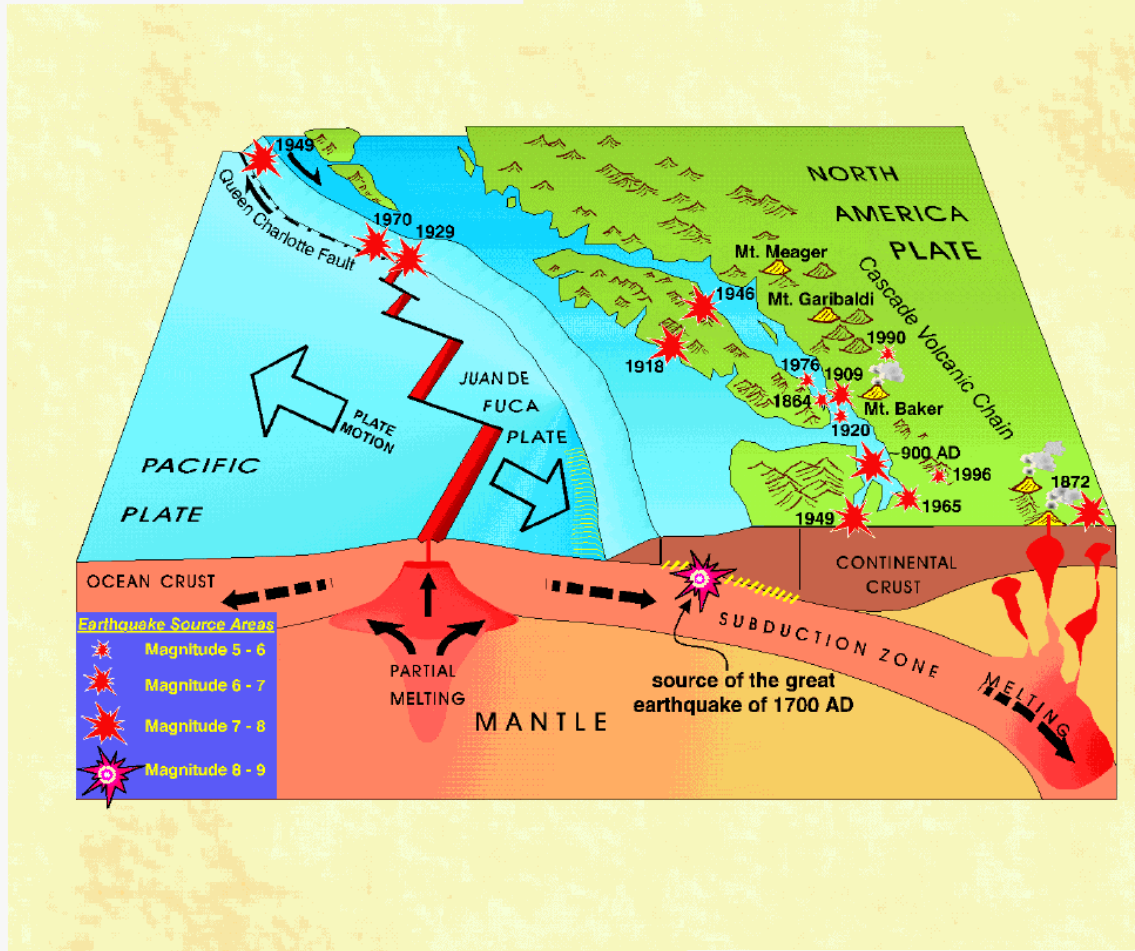
EARTHQUAKE BRACING

Earthquake bracing is a type of anchoring system that resists motion caused by earthquakes. Anchoring systems designed to resist wind provide some help unless it is a large earthquake. The chief motion caused by earthquakes is a quick back-and-forth movement of the earth. Normal ties designed to resist wind loads may fail under these conditions. The forces from earthquakes are technically called seismic loads.

When a manufactured home slides off its support system and falls more than two inches, severe structural damage can occur. Homes can also be destroyed by fire due to gas lines rupturing or other causes of fire related to an earthquake.

Where will the next quake come from?





Regulations

There is currently no federal or state requirement for earthquake bracing of manufactured homes in Washington State. WAC 296-150I-0340 allows local jurisdictions to adopt installation requirements to protect homes from damage due to earthquakes if they are in an area considered hazardous due to the probability of earthquakes. Local jurisdictions may require systems to be designed to meet the earthquake zone that covers the installation site.

Earthquake-Resistant Bracing Systems (ERBS) - These systems are designed to resist seismic forces and minimize damage to the home. Some Earthquake-Resistant Bracing Systems meet Wind Zone I wind anchoring requirements. Check the engineering supplied with the system to be sure.

Washington State does not have an ERBS certification program. Check with the city or county where the home is to be placed for approval procedures for the earthquake bracing system that you are considering using. Be prepared to provide engineering and other documentation for the system.

Saddles and Locking Top Devices - These replace the standard flat piece on top of the adjusting bolt on metal piers to more securely connect the pier to the I-beam of the home.

Marriage Locks - These are devices to connect the chassis of multi-section homes together. They generally consist of a threaded steel rod running through or below the chassis. They are mechanically connected to the chassis with clamps and locking nuts. Three to four marriage locks are normally installed at each marriage line.

Heavy Duty Piers, Super Piers and Safety Jacks - These steel piers are designed to carry as much as 10 times the weight of a standard steel pier. The base of these piers is 1.5 to 2 times wider than the standard pier and they are equipped with a locking mechanism at the top to fasten them to the I-beam. Normally they are installed to replace every third or fourth standard pier.

In order to meet local frost heave requirements, place the ERBS piers on a gravel base that goes below the frost line. If the soil does not drain well, then a gravel base may fill with water and cause frost heave damage. In this case it is better to pour a concrete footing below the frost line and let the ERBS base rest on the concrete footing.

One type of ERBS is a specially designed pier with a wide concrete base with an attached steel pier bolted to the home's I-beams. These systems are engineered for both earthquake and high wind protections. In an earthquake, the home with the piers attached is designed to move independently of the ground and support the home without allowing it to fall. The bottom of the concrete base slides across the ground. Provide all engineering data to the local jurisdiction for approval. Some jurisdictions are requiring wind anchors to be installed with this system. The equipment manufacturer may be able to help educate the local building official regarding the equipment's ability to protect against both wind and earthquakes.

Chapter 7

Mechanical Systems

- **Heating Crossover Duct**
Super Good Cents Specifications
- **Combustion Appliances**
Outside Combustion Air
Gas
Gas Line Testing
Chimneys
- **Plumbing**
Drainage System
DWV Testing
Water Supply
Water Testing
Freeze Protection
- **Electrical**
Electrical Crossovers
Bonding of Sections
Electrical System Testing
Energizing the Home
Smoke Alarms
Carbon Monoxide Alarms

HEATING CROSSOVER DUCT

The Washington Installation Code, WAC 296-150I, requires the heating crossover duct to be installed per the home manufacturer's installation instructions, instructions in 24 CFR Part 3285 Model HUD Code Subpart G. The backup instructions listed below if the home manufacturer's installation instructions are unavailable. If the manufacturer's instructions are unclear, ask the manufacturer for clarification or follow the backup instructions in the WAC. and 24 CFR Part 3285 requires the duct to be suspended or supported above the ground.

WAC 296-150I-0310(g): *“Heat duct crossovers must be installed in accordance with the manufacturer’s installation instruction manual or to the requirements in the Model Manufactured Home Installation Standards 24 CFR Parts 3285.606 if the manufacturer’s instructions are not available: Heat duct crossovers must be installed to avoid standing water and installed to prevent compression, sharp bends, and to minimize stress at the connections. (Local Enforcement Agencies often require 4”inch separation)*

A common problem with the installation of manufactured homes is improper attachment or support of the heating crossover duct. Compression and sharp bends in the duct reduce the flow of warm air through the duct, causing cool areas in the home. Because the furnaces are usually downdraft, which pressurizes the crossover duct, any leakage in the duct allows the warm heated air or cool air-conditioned air to be forced into the under floor crawl space and wasted.

NOTE: *Some manufacturers use an in-floor ducting system. The ducts fit into the floor cavity within the belly board eliminating exposed crossovers under the home.*

Some homes are designed with the heating crossover duct built into the floor joist, eliminating the need for duct installation. If the building inspector questions the missing crossover duct, provide them with the instructions and specifications for the in-floor system.

Super Good Cents Specifications

The Super Good Cents (SGC) specifications are found in Appendix C, Section 5.6, of this manual. While the SGC heating specifications are required for all Super Good Cents homes, they are also good practice for all installations. Never allow the duct to sit in standing water.

Reminder: *When installing a Super Good Cents home, the Super Good Cents specifications take precedence over the home manufacturer’s requirements. Heating ducts in Super Good Cents homes must have a rating of R-8 or higher.*

NORTHWEST ENERGY EFFICIENT MANUFACTURED HOMES (NEEM) ON-SITE SPECIFICATIONS

**Published by the Oregon Office of Energy with the support of
Bonneville Power Association – 2004**

5.1 General: The home shall be inspected on site to determine compliance with these specifications and manufacturer's instructions and/or local codes.

All site-built additions shall comply with local codes and/or utility requirements.

5.2 Damage Repair: Damage occurring to factory-installed energy measures during transportation and setup shall be corrected. This includes any damage to belly fabric and floor insulation. Damage to windows, frames and doors which affects thermal performance shall be repaired or the window or door replaced.

Any disturbance of insulation, belly fabric or other energy-related components due to plumbing, wiring or other on-site work shall be corrected.

5.3 Air Sealing

5.3.1 Marriage Line: Non-porous caulking, foam or weather stripping shall be used to seal the marriage line. A sealant is required even if the walls and ceilings are taped and textured. If additional on-site sealing is required because of incomplete factory work, a non-porous air barrier shall be applied to complete the marriage line seal.

5.3.2 Window and Door Frames: Window and door frames shall be installed and adjusted according to the original equipment manufacturer's instructions to minimize air leakage and water penetration.

5.3.3 Other Penetrations: All penetrations in the building envelope, such as for piping and wiring, recessed fixtures in walls and ceilings, swamp coolers and exhaust-fan housings shall be sealed.

5.3.4 Building Air Tightness Standard: Any house tested shall not exceed 5.0 Air Change per Hour (ACH) at 50 Pascal's (Pa) and shall be tested in accordance with on-site protocols in Appendix A of the reference manual and comply with prescriptive measures in section 2.4.1 and section 5.3.

5.4 Skirting/Foundation Fascia: Skirting/foundation fascia shall be installed and all ventilation openings shall be screened or louvered. All other holes or gaps between the skirting and the ground shall be sealed.

5.5 Crawl Space Moisture Control

5.5.1 Ground Cover: A vapor retarder, consisting of 6-mil black polyethylene or approved linear low-density poly, shall cover the ground throughout the entire crawl space. All joints shall be lapped at least 8 inches. The ground cover shall not contact wood that is not treated to prevent moisture damage.

5.5.2 Crawl Space Ventilation: Under floor crawl spaces shall be vented by screened or louvered openings in the skirting. Such vents shall be located to provide cross ventilation through at least two opposing walls. The total net-free ventilation area shall be at least 1 ft² for each 150ft² of under floor area. This ventilation area may be reduced to 1 ft² for every 300 ft² of under floor area if approved and if the soil is dry and well-drained.

5.5.3 Clothes Dryer: The clothes-dryer exhaust duct shall be vented to a termination outside the home. If the dryer vent passes through the floor into the crawl space, it shall be vented out through the skirting with no dips.

5.5.4 Drains: All water drains, including condensate drains from air conditioning equipment and water heater overflow valve piping, shall be piped to the outside to drain away from the home.

5.6 Crossover Ducts: Where installed, crossover ducts for the heating system shall comply with the following requirements:

5.6.1 Crossover Duct Materials: Crossover duct materials shall:

1. be labeled R-8 as a minimum insulation value;
2. have an exterior vapor retarder rated at 1.0 perm or less;
3. have an inner liner material which includes an interior spring-steel wire helix bonded within two layers of 57-gauge Mylar polyester film, or approved equal;
4. have all tears, holes and penetrations sealed;
5. include the crossover duct manufacturer's splice kit, if required;
6. have a minimum interior diameter of 10 inches, or as approved;
7. include a sheet-metal elbow of at least 26-gauge to connect the collar to the crossover duct;
8. include two-inch wide foil tape (NASHUA #322 or equivalent) or a duct sealer for outdoor applications (HARDCAST HDC RTA-50 or equivalent) for all metal-to-metal connections;
9. include stainless-steel, worm-drive clamps or nylon straps; and
10. include a belly-bottom tape approved by the manufacturer.

5.6.2 Sheet-Metal or Elbow: The sheet-metal elbow shall be:

1. 26-gauge and secured to the vertical collar with sheet metal screws;
2. sealed at the connection to the vertical collar with foil tape or duct sealer;
3. sealed at all seams of the adjustable elbow, if applicable, with foil tape or duct sealer; and
4. insulated to a minimum level of R-8.

5.6.3 Crossover-Duct Connections: Connections of the inner liner of the crossover duct shall be:

1. cut to minimize excess duct length and/or stress at the connections;
2. secured to the elbow with sheet metal screws or other mechanical fasteners; and
3. taped to the elbow or spliced with clamps or straps.

5.6.4 Crossover-Duct Vapor Retarder Connections: Connections of the exterior vapor retarder of the crossover duct shall be:

1. secured to the elbow, collar or splice with clamps or straps; and
2. taped to the belly bottom where the crossover duct enters the belly with approved belly-bottom tape.

5.6.5 Crossover-Duct Support: The crossover duct shall be:

1. supported above the ground by strapping or blocking where clearances permit;
2. installed to avoid standing water;
3. installed to prevent compression and sharp bends which restrict airflow; and
4. installed to minimize stress at the connections.

Note: Where clearance permits, strapping is recommended over blocking because strapping decreases animal access to the duct.

5.7 Operational Checks: All mechanical equipment, such as exhaust fans, fresh-air inlets and heating systems, shall operate properly. The whole-house ventilation time clock shall be set to the proper time. Controls shall be set to operate the whole-house fan or fans for a minimum of two four-hour periods per day. Windows and doors shall open and close easily and seal tightly.

5.8 Homeowner Information: If a utility certifies the home, then it shall ensure that a homeowner ventilation brochure is included in the important papers envelope provided with the home. These utilities shall also explain the whole-house and spot ventilation systems to the occupants and instruct them on how to set the whole-house control(s). Homeowners should be advised that time clocks should be reset after power outages.

NOTE: A zoning bill was passed in 2004, became effective in 2005. The statute says jurisdictions “may” make the thermal equivalency requirements for manufactured homes to meet the WSEC. This provision must be adopted in their zoning code. The measure is codified in: (See Appendix D for RCW requirements)

RCW 35.21.684; RCW 35A.21.312 & RCW 36.01.225

ENERGY STAR/NEEM Installation Checklist Fax Form*

*Please fax this form to the manufacturer fax number listed below

Manufacturer: _____ **Serial Number** _____
Fax to number _____
Retailer: _____
Home installer _____
Home Address: _____
City: _____ **State:** _____ **Zip:** _____

All site-built additions shall comply with local codes and/or utility requirements

Installation Item Description	Yes	No	Installation Defects	Remedies taken
Marriage line sealed. Walls and ceilings are taped and textured, a non-porous air barrier is applied to complete the marriage line seal.				
Window and door frames installed and adjusted to minimize air leakage and water penetration, gaps around windows and doors are sealed.				
All penetrations in the building envelope are sealed				
Skirting/foundation installed and all ventilation openings are screened or louvered. All other holes or gaps between the skirting and the ground are sealed				
The total net free ventilation of the crawl space is 1 sq. ft. for each 150sq. ft. of under-floor area. (This ventilation area may be reduced to 1sq. ft. for every 300sq.ft. of under-floor area or greater, if the home is installed on an engineered foundation system and approved by the local jurisdiction. Also the soil under the home should be dry and well drained).				

Chapter 7 – Mechanical Systems

A vapor retarder of at least six mil black polyethylene, is installed on the ground throughout the entire crawl space. Joints lapped by at least 8 inches				
All condensate drains piped to the outside of the home				
The clothes dryer exhaust duct is vented outside the home or foundation/skirting.				
All belly fabric tears and openings are sealed, areas cleaned before sealing. All energy related components in tack.				
The crossover duct material is labeled R-8.				
Crossover duct cut to length, is straight and supported off the ground				
The duct material has all tears, holes and penetrations sealed.				
The crossover duct has sheet metal elbows, sealed and connected to the vertical collar and with sheet metal screws, band clamps, nylon straps or other mechanical fasteners. Crossover duct sealed to elbow with tape or mastic. Elbow sealed at all seams.				
The crossover duct is taped to the bottom covering where the duct enters the belly with approved tape.				
Operational checks have been made on all exhaust fans, fresh air inlets and heating/cooling equipment.				

The items on this checklist are to be completed by a representative of the home manufacturer. Please sign the checklist and fax to the manufacturer and keep a copy for the records.

I have inspected this home and find that all site work complies with the above requirements

Signature of manufacturer's representative

date

Print name _____

Methods for Connecting the Heating Crossover Duct

There are three main types of duct crossover connections. Based on the location of the duct, follow the installation instructions.

- Under the floor
- In the roof cavity
- In floor, through-the-rim joist

To prevent air leakage, seal all ductwork connections, including duct collars using one or more of the following materials:

- Galvanized metal straps in combination with galvanized sheet metal screws.
- For rigid air ducts and connectors, tape and mastics listed to UL 181A.
- For flexible air ducts and connectors, tape and mastics listed to UL 181B.

Under Floor Flexible Crossover Duct

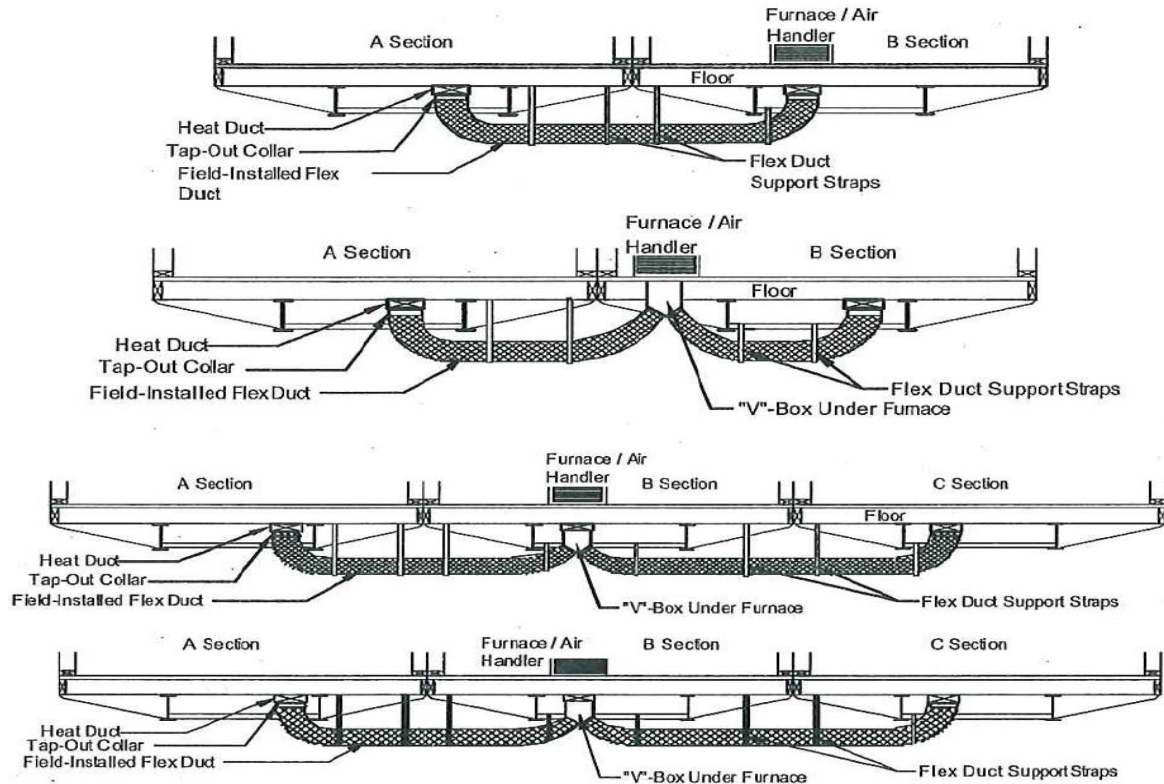
When heating or cooling equipment is installed in the home, the flexible crossover duct is provided by the manufacturer. In all cases the crossover duct must be listed for exterior use.

There are four common configurations of under floor crossover ducts depending on the number of home sections and the furnace/air handler location.

NOTE: Use only qualified personnel to make crossover connections. Consult the Local Enforcement Agency for licensing or any additional crossover connection requirements. Whenever possible maintain access to connection areas for future maintenance. Permanent, durable, and tight crossover duct connections are critical to the proper performance of the home. Leaky ducts can result in severe moisture problems in the home, discomfort from rooms not receiving the proper amount of conditioned air, and high utility bills from wasted heating and/or cooling energy.

For under floor flexible crossover ducts follow the steps below:

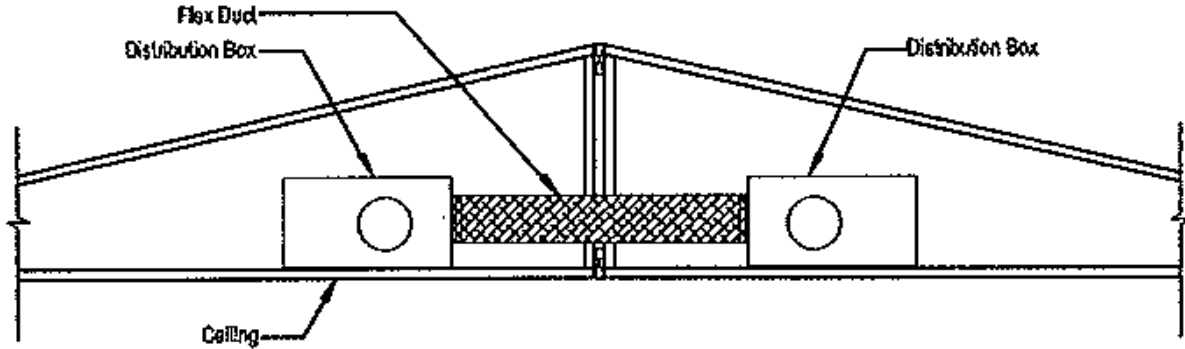
1. **Locate collars.** Locate the metal crossover collars (or V-box) connected to the main trunk duct (or furnace) under the home and remove temporary shipping protection.
 2. **Install inner duct.** Slide the crossover duct inner liner over the crossover collar/V-box as far as it will go. Temporarily fasten the inner liner in place with duct tape. Install a large nylon zip-tie over the inner liner just above the “ridge” around the crossover collar/V-box. Apply mastic completely over the inner liner and collar/V-box (alternately, the mastic may be applied to the collar/V-box prior to sliding the duct inner liner over it).
 3. **Connect duct insulation.** Bring the duct insulation up over the zip-tie and above the home’s bottom board into the floor cavity. Temporarily duct tape it against the base of the trunk duct/V-box.
 4. **Pull duct wrap.** Pull the crossover duct outer wrap over the top of the insulation and temporarily secure it to the trunk duct/V-box with duct tape.
 5. **Install zip-tie.** Feel for the nylon zip-tie that was installed over the inner liner. Place another nylon zip-tie just under the first one to permanently secure the crossover duct insulation and outer wrap.
 6. **Trim duct.** Trim the crossover duct to length such that the installed duct will be straight with no kinks or unnecessary bends.
 7. **Connect other end.** Follow the same procedure (steps 1 through 5) to connect the opposite end of the crossover duct and any other crossover ducts.
 8. **Seal joints.** Seal the joints between the bottom board and the crossover duct with foam or mastic.
 9. **Support duct.** Support the crossover duct(s) above the ground using nylon or galvanized metal straps and saddles spaced every 48 inches on center or less. Choose straps at least ½ inch wider than the spacing of the metal spirals encasing the crossover duct. Install the straps so they cannot slip between spirals. Secure metal straps with galvanized screws.
- **NOTE:** *Securing the crossover. Between Step 5 and Step 6, drill three or more 1/16 inch holes an equal distance around and just below the bottom edge of the nylon zip-tie. Install #12 pan head screws in these holes, through the flexible duct and into the metal crossover collar/V-box. The screw heads should be against the zip-tie.*



ROOF CAVITY CROSSOVER DUCT

For ducts installed in the roof cavity.

1. **Access duct.** Access the crossover location through an access panel in the ceiling / the open sides of the home before sections are joined / an access panel in the roof and remove any temporary shipping protection.
2. **Join ducts.** Using the provided flexible duct, join the distribution boxes in each section of the home, cutting off any extra duct length to keep the duct as straight as possible.
3. **Fasten ducts.** At each connection point between ducts and between ducts and distribution boxes or connectors, secure the inner duct liner with a nylon strap, apply mastic completely over the connection area, pull the duct insulation and outer liner over the connection area, and secure them with a second nylon strap.
4. **Reinstall panel.** Reinstall and secure the access panel, if applicable.



IN THE FLOOR CROSSOVER DUCT

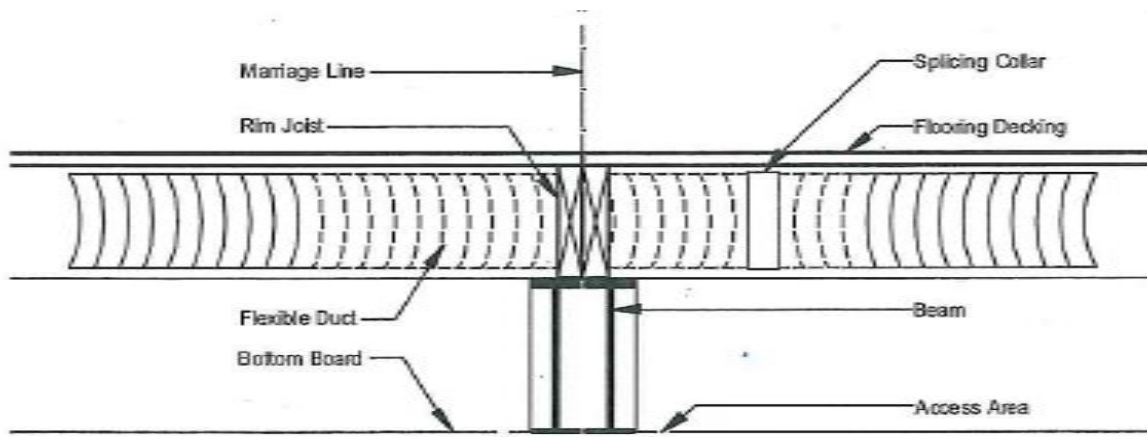
Where one or more crossover ducts are built into the home's floor system, connect them either through or under the rim joist depending on the design of the home.

With a through-the-rim joist design the duct in each floor section terminates at an opening in the marriage line rim joist.

NOTE: If the duct runs through the marriage line rim joist, a perimeter pier is required under the marriage wall at the crossover location unless otherwise noted on the manufacturer's blocking plan or other supplemental documents, or unless the home is constructed with a perimeter support system.

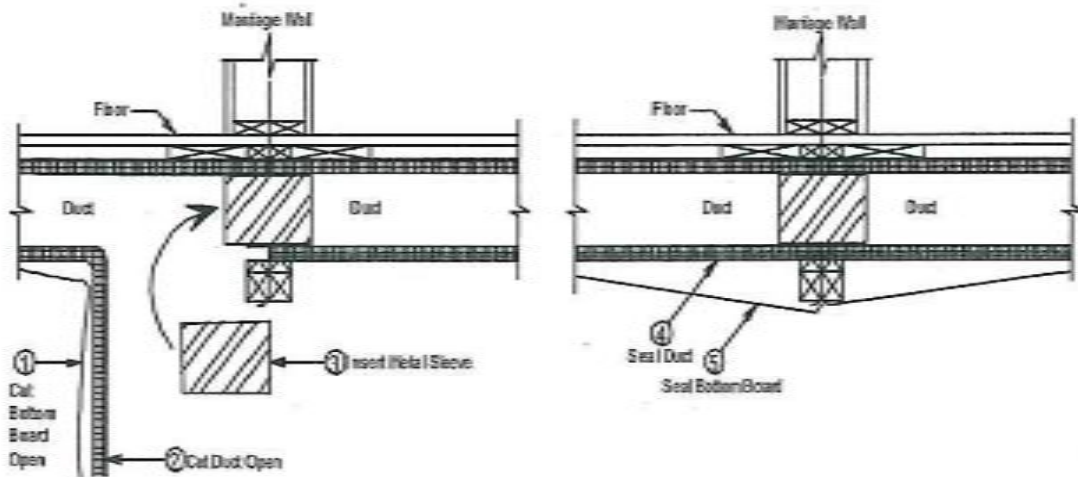
Method 1: Metal or Duct board through rim joist without sleeve.

1. **Align Crossover duct location.** Verify that when both halves of the home are installed that the crossover duct locations will align properly.
2. **Air tight Seal.** Verify that the gasket or duct board used to seal between both halves of the home is in good condition and will properly seal the duct system.
3. **Connect the Units.** Connect the floors using the procedures for connecting the floors.
4. **Seal bottom board.** Move the floor insulation back to its original location and seal the bottom board with tape specially made for that purpose (may be provided).



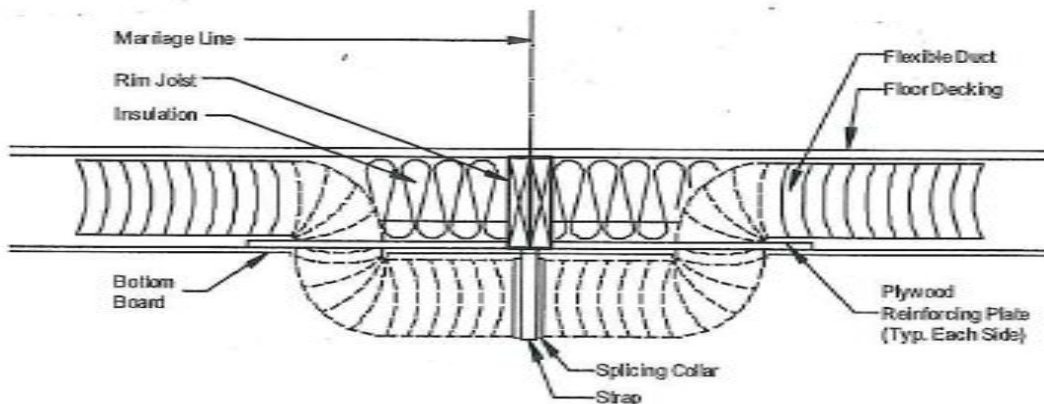
Method 2: Duct board with sleeve.

1. **Open bottom board.** On the section of the home with the furnace, cut the bottom board along the center line of the two floor joists on either side of the crossover duct starting at the marriage line and extending approximately three feet toward the center of the section.
2. **Open duct.** Create an opening in the duct by cutting the duct board.
3. **Insert sleeve.** Insert the provided metal sleeve, centering it on the marriage line joint.
4. **Seal duct.** Close the bottom of the duct and seal it with tape specially made for that purpose. (may be provided).
5. **Seal floor.** Replace the floor insulation to its original position and seal the bottom board tightly with tape specially made for that purpose.



Under the rim joist

In this configuration, flexible crossover ducts from adjoining sections pass through the floor and dips under the rim joist at the marriage line where they are joined. Pull each pair of ducts through the openings provided in the bottom board, under the marriage line rim joist and connect them using the provided splicing collar and the procedure for joining under floor flexible crossover ducts or the duct manufacturer instructions if provided.



COMBUSTION APPLIANCES

Combustion appliances such as wood burning stoves or fireplaces should be installed according to the fireplace or wood stove manufacturer's installation instructions. Heavy wood stoves or fireplaces may require extra support under the floor (see Chapter 4).

NOTE: Installing a wood or pellet stove requires an alteration permit and inspection from the Department of Labor and Industries. You can access L&I Manufactured Home Checklist for all alterations at: <https://lni.wa.gov/licensing-permits/manufactured-modular-mobile-structures/manufactured-home-permits-inspections/#do-the-work>

Outside Combustion Air

One decision you must make as a home installer is where to duct the outside combustion air for wood stoves, fireplaces, or other combustion appliances. You have the choice of ducting the combustion air from under the home or all the way through the skirting to the outside. Consider the information below when determining where to duct the outside combustion air.

WAC 296-150I-0310(1)(d)(ii) requires ventilation around the perimeter of the home to have a net area of not less than one square foot for each one hundred fifty feet of under floor area (1/150) most manufactured home manuals requires the same 1/150. If this required ventilation is not met venting systems shall not terminate underneath a manufactured home. 24 C.F.R. MHCSS 3280.710

The HUD Code in Section 3280.709(g)(1)(iii) says: “The combustion air inlet shall conduct the air directly into the fire chamber and shall be designed to prevent material from the hearth dropping onto the area beneath the manufactured home.” When the ventilation requirements of 1/150 or met combustion air duct can terminate under the home. The International Mechanical Code, Section 703, allows combustion air to be taken from under floor areas provided there is proper ventilation and space for airflow.

Under floor spaces must have clear openings to the exterior at least twice the area of the outside air duct. For manufactured homes, the under floor area means the crawl space under the home, not the space within the floor system. The fireplace manufacturer can require a combustion air duct to be installed from outside the skirting that connects to the air inlet and then to the appliance. Follow the equipment manufacturer’s instructions.

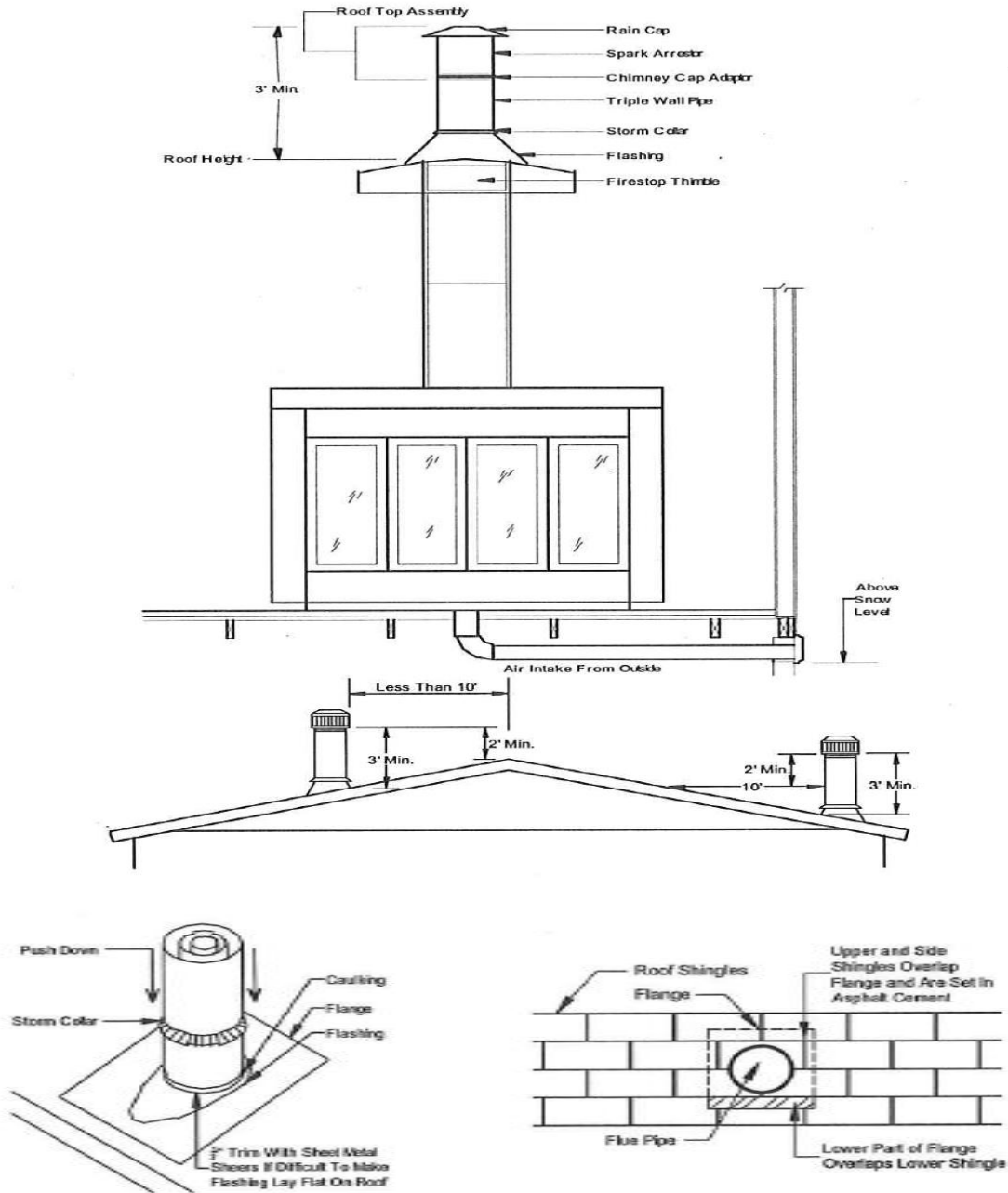
NOTE: Regardless of whether the air is taken from the crawl space or outside, all air inlets must be screened with one-quarter-inch mesh screen.

CHIMNEYS

Wood or gas-fueled appliances need to be vented in accordance with Section 3280.710 of the HUD Code. If a home is shipped with the chimneys disassembled, it must be assembled on site. Follow the equipment manufacturer's installation instructions carefully. Ensure that each assembled section is securely locked in place.

Fireplace and wood stoves may require on-site installations of additional sections of approved chimney pipe, a spark arrestor, and a rain cap assembly. Follow the manufacturer's instructions.

1. Remove coverings. Remove protective materials covering the roof flashing and any foreign material from the installed part of the chimney.
2. Install chimney pipe. Assemble and seal the chimney per the fireplace or wood stove manufacturer's installation instructions and if there is a conflict between the instructions and the figure, follow the instructions. To assure sufficient draft for proper operation, extend the chimney at least three feet above the highest point where it penetrates the roof and at least two feet higher than any surface within 10 feet of the chimney. May need additional section(s) of chimney pipe if required by local code or if the site has obstructions within 10 feet of the chimney.
3. Install shingles. Install shingles up to the edge of the flue cut-out in the roof deck. Secure shingles installed under the roof flashing with asphalt cement.
4. Install flashing. Place flashing over pipe section and shingles and set in asphalt cement. Secure flashing to roof deck at top two corners with roofing nails.
5. Complete shingles. Cut shingles in successive courses to fit around the pipe and embed them in asphalt cement where they overlap the flashing. Secure shingles with roofing nails through flashing and apply asphalt cement over nail heads. The complete installation should have the lower part of the flange overlapping the lower shingles and the side and upper shingles overlapping the flange.



GAS SYSTEMS

This section applies to hooking up gas equipment that was installed in the home at the factory. For gas equipment installed on site, an alteration permit and inspection must be obtained from the Department of Labor and Industries. See Chapter 9, Alterations.

Natural Choice homes are the gas equivalent of electric Super Good Cents homes. If a home is Natural Choice, the Super Good Cents specifications in Appendix C must be followed for set-up. Gas piping installations are not included under the Washington State plumbing laws. That means there are no state law that requires licensing or certification of gas pipe installers; however, there

are a number of jurisdictions that do have requirements for gas installers to be licensed. Contact the jurisdiction where the home is being installed to verify if a licensed gas certification is required. In all cases, do not install gas lines or make gas connections unless you are experienced and proficient in doing so.

The HUD Code, Section MHCSS 3280.705, governs gas line piping design, installation, and testing. Read that section thoroughly before doing work with gas piping.

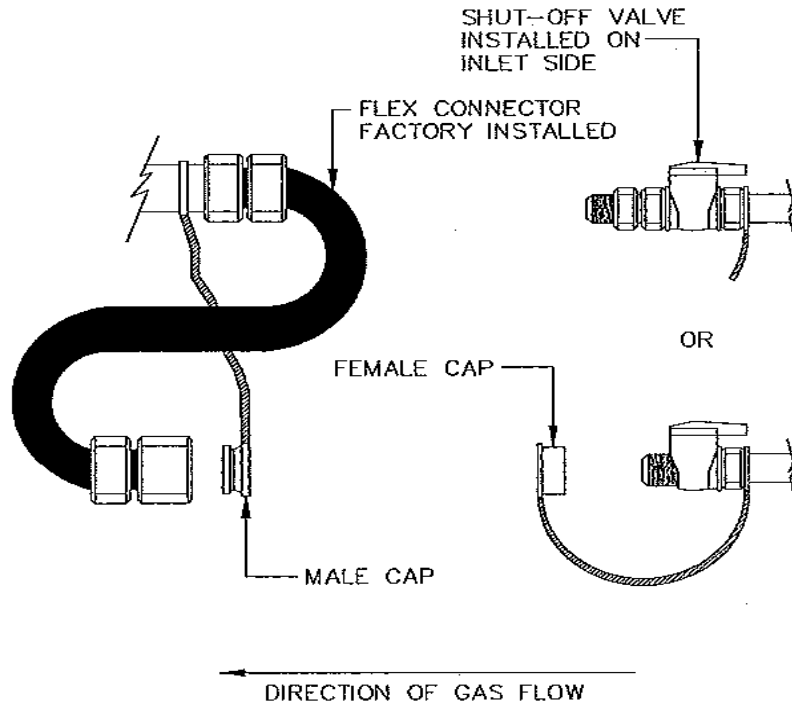
Read the installation instructions for each home concerning gas service connections. Follow the procedures described for:

- 1) Inspect vents. Assure that all exhaust vents on gas-fired equipment are securely connected and that roof jacks and stacks have not come loose during transit and they are properly installed. Example check gas water heater combustion air to verify it terminates below the bottom board of the home and will be able to draw air to the appliance.
- 2) Review appliance instructions. Review each appliance manufacturers' instruction before the home is connected to the gas supply. Most gas appliances are typically configured to operate on natural gas. If the gas supply will be LPG, consult the appliance manufacturer's instruction determine what changes need to be made. For homes located above 3,000 feet, appliance may require a different orifice.
- 3) If not already installed, remove the cap from the homes inlet pipe and install a full flow shut-off valve at the supply inlet.
- 4) Install regulator. The gas piping system is designed for a pressure that is at least seven inches of water column (4 oz. per square inch or 0.5 psi.) If gas from any supply source exceeds, or could exceed this pressure, install a regulator if required with the Local Jurisdiction Having Authority.
- 5) Connect supply. Using matching threaded fittings connect the gas supply to the inlet side of the shut-off valve. Close all valves at appliances prior to opening the main supply valve.

After all gas connections are made, Washington Installation Code, WAC 296-150I-0310(1)(m) requires testing per the manufacturer's installation instructions. The person connecting the gas must test the systems. This is important. ***If you hook up the gas, you must test it!*** For relocated homes, the following procedure is in accordance with the HUD Code, Section 705:

The gas line crossover must be "readily accessible" according to HUD Code Section 3280.705(c)(1). Some DAPIAs* allow the gas crossover to be in the interior of the marriage line. Requirements for the valve required at the crossover, labeling, etc., are listed in Section 705(c).

The example drawing below of a typical gas line crossover. A shutoff valve is required on the upstream side, as shown on this detail.



* *DAPIAs, Design Approval Primary Inspection Agencies, are HUD-approved agencies whose responsibilities lie in approving a factory's engineering plans. They approve the plans based on compliance with the federal standards.*

GAS TESTING

Test the gas piping system in the following two ways: 1) piping only and 2) entire system. Consult with the Local Enforcement Agency for any additional testing or start-up requirements.

Before testing begins, the temperature of the ambient air and the piping should be approximately the same. Conduct the tests when and where air temperatures will remain constant.

Piping only test (all appliances isolated)

1. **Isolate appliance.** Isolate all appliances from the system by closing all appliance shut-off valves.
2. **Attach gage.** Attach to the home's gas inlet a mercury manometer or slope gauge calibrated in increments of not more than 1/10 lb.
3. **Pressurize system.** Using an air compressor, pressurize the system with compressed air to three psi and isolate the pressure source from the system.
4. **Monitor pressure.** Monitor the pressure for at least 10 minutes.
5. **Check for leaks.** If pressure drops below three psi, check for leaks by applying a non-corrosive, ammonia-free gas leak detection fluid to the joints at all valves, appliance connections and crossover connections (do not use dish washing detergents, soaps or other household chemicals). If bubbles form, tighten the connection and recheck.

6. **Repair leaks.** If leaks persist, replace defective pipes or fittings with sound material and retest.
7. **Release pressure.** Release pressure and open all appliance shut-off valves.
8. **Rinse connections.** Thoroughly rinse all tested connections with water to remove leak detection fluid.

Entire system test (with appliances)

1. **Close appliances.** Close all gas equipment controls and pilot light valves according to the individual gas equipment manufacturer's instruction.
2. **Open valves.** Assure that gas shut-off valves for all gas equipment are in the open position.
3. **Attach gauge.** Attach to the home's gas inlet a pressure gauge calibrated in ounces.
4. **Pressurize system.** Pressurize the system with compressed air to six to eight ounces (3/8 to 1/2 PSI, or 10 to 14 inches of water column).
5. **Check for leaks.** Check for leaks as described
6. **Rinse connections.** Thoroughly rinse all tested connections with water to remove leak detection fluid.

NOTE: A Carbon Monoxide Detector is required to be installed

PLUMBING

The Washington Installer Certification Law, RCW 43.22A.010(6) & WAC 296-150-0100, defines installation to include: "all on-site work necessary for the setting up and completion of a manufactured or mobile home, starting with the preparation of the building site through the final permit approval." The Washington State Department of Labor and Industries allows that the assembly of shipped-loose plumbing provided by the manufacturer and its parts as ship loose materials to complete the plumbing system can be installed and completed either by a certified installer or licensed Washington plumber.

If certified installers choose to make plumbing connections and assemble shipped-loose plumbing, it is essential that 1) the home manufacturer has provided all necessary parts, and 2) the home manufacturer has provided complete and specific instructions, and 3) the certified installer has experience and proficiency in doing such work.

Generally, the local jurisdiction inspects plumbing connections along with other parts of the home installation. Some jurisdictions require plumbing permits in addition to placement permits. Be sure to check with the local jurisdiction for their requirements.

If any changes to the plumbing systems of the home are necessary, the work must be completed by a certified plumber and an alteration permit and inspection must be obtained from the Department of Labor and Industries.

REMINDER: If the home arrives with the plumbing connections on the opposite end of the home than intended, reversing the drainage plumbing is considered an alteration and requires a permit and inspection from Department of Labor and Industries. The alteration must be performed by a certified plumber.

DRAINAGE SYSTEM

Home manufacturers must build the home's plumbing systems according to the requirements in MHCSS 3280.610(c)(5) of the HUD Code. Most manufacturers install drain line plumbing using one of the following methods:

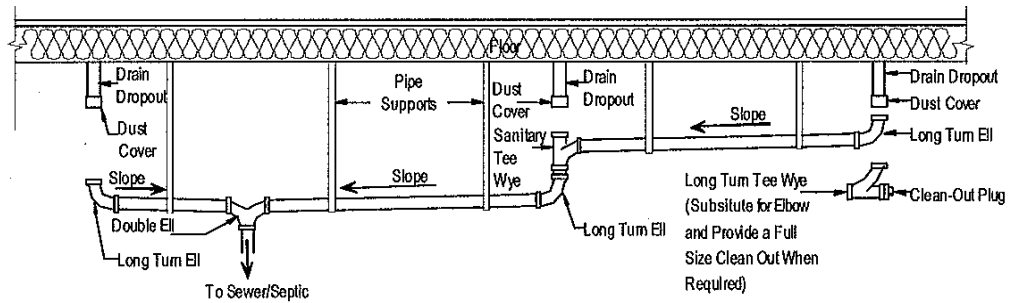
1. All drain piping and supports are fully assembled at the factory. Only the drain connection is required on site.
2. The drain piping and supports are fully assembled at the factory but are cut loose for shipment. Re-assembly is required on site with the use of couplings only.
3. Drain pipe, fittings, supports, and cement are shipped loose with instructions for assembly. Detailed assembly is required on site.

Drainage system piping can be complicated to put together. If you are not confident that you can perform the job to the specifications, you should call a certified plumber. If the home manufacturer has failed to provide adequate instructions or any of the necessary parts, contact the retailer and the manufacturer requesting what you need. Do not complete the plumbing connections until the home manufacturer has supplied adequate instructions and parts.

CONNECT DRAIN, WASTE, AND VENT LINES

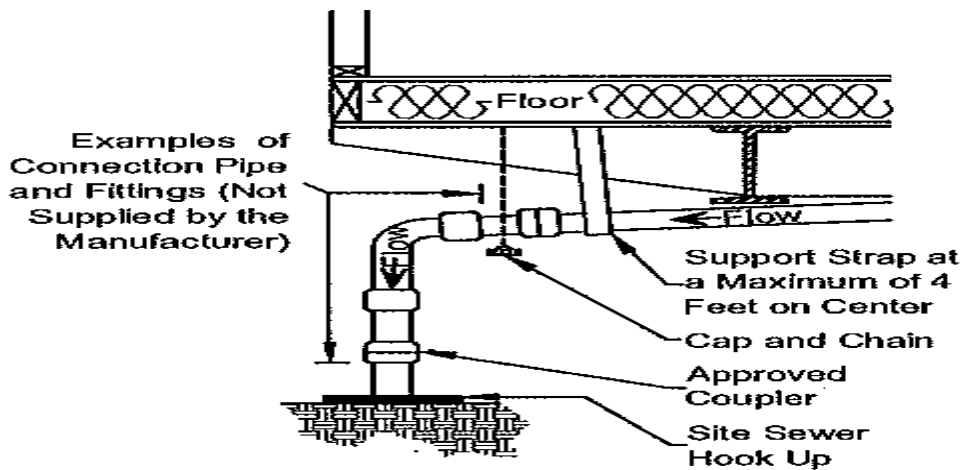
Manufacturer installation instructions will require the completion of the drain, waste and vent system below the floor as follows:

1. **Remove caps.** Remove shipping covers from pipes extending through the bottom board; inspect pipes and fittings and clean them of dirt, obstructions, and burrs.
2. **Assemble pipes.** Using the drain schematic drawing provided with the home, begin assembling the DWV system starting at the location farthest from the sewer/septic connection and working towards the outlet, fastening the pipe with cement or adjustable screw-clamp connectors, if provided. As the system is assembled, support the piping with temporary blocking. Unless otherwise noted on the schematic diagram, provide a minimum 1/4 inch per foot slope towards the sewer/septic using a plumber's level. Where a slope of 1/4 inch per foot cannot be maintained, use a minimum slope of 1/8 inch per foot and install of a full-size clean-out at the uppermost point of the run.

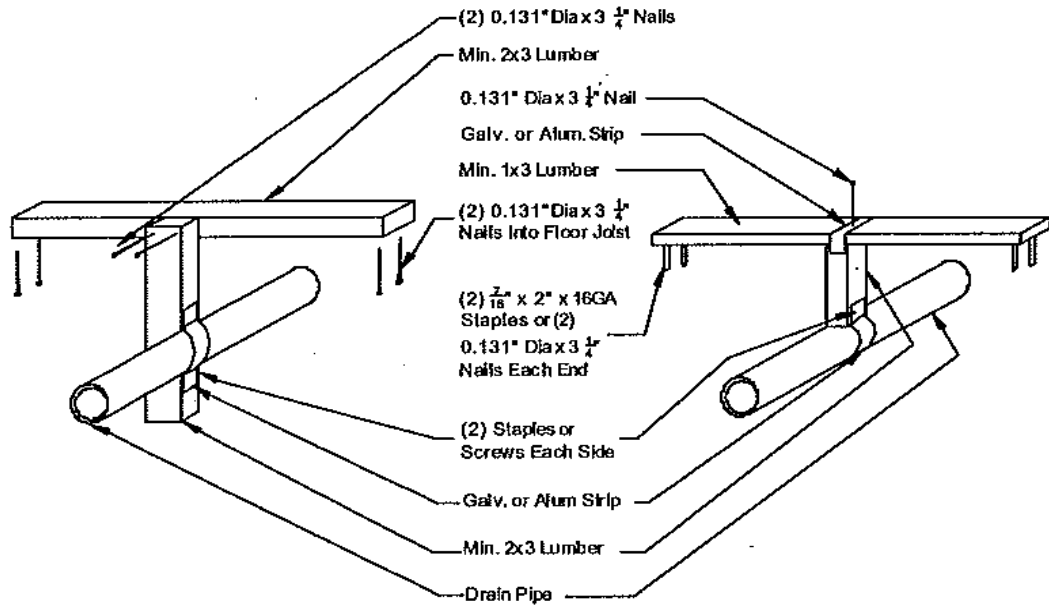


3. **Test.** After all drain lines have been connected, conduct a two-part leakage test on the completed drainage system as follows:
 - Part 1. With all fixtures connected, and all tub and shower drains plugged, fill the system with water to the rim of the toilet bowl through a higher fixture. Release all trapped air, replace tub and shower plugs, backfill fixtures, and allow the system to stand at least 15 minutes. Check for leaks this will require checking p-traps located in the floor cavity for tubs and showers. Drain the system. If leaks are found, repair and retest.
 - Part 2. Plug all fixtures, sinks showers, and tubs and fill with water. Release the water in all fixtures simultaneously to obtain the maximum possible drain piping flow. As water is draining, check for leaks. If any are found, repair and retest.

4. **Connect to outlet.** Connect the main drain line to the site sewer/septic hookup, using an approved elastomer coupler.



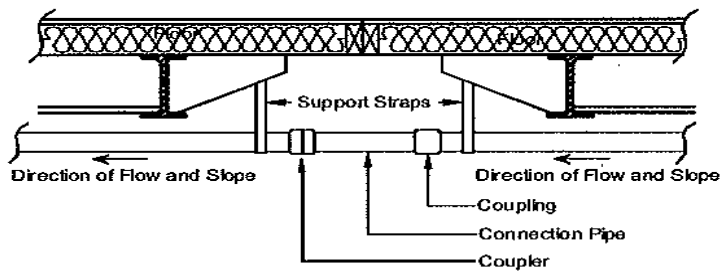
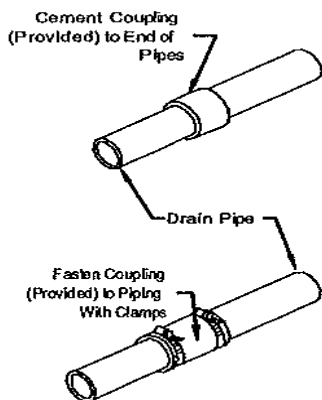
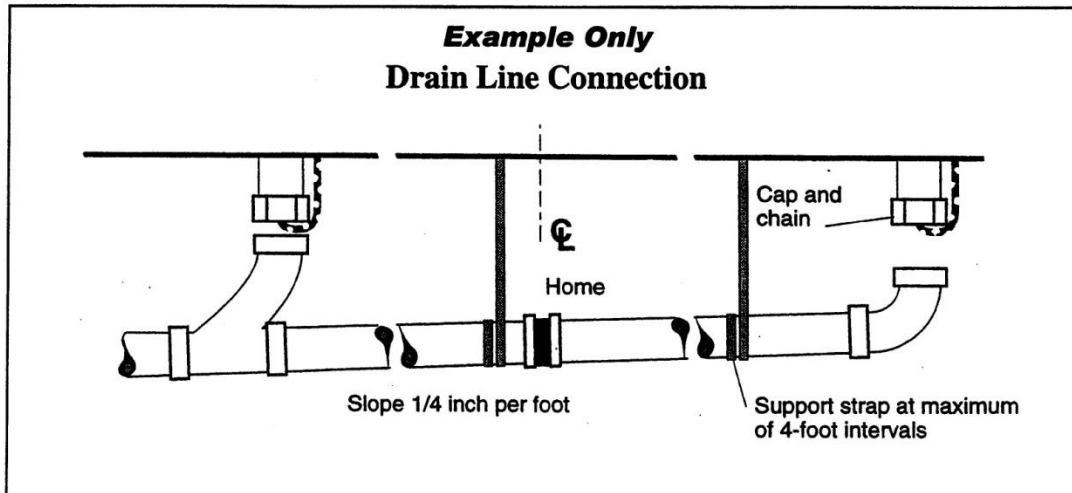
5. **Install supports.** Install permanent drain line supports at a distance of four feet on center or less. Manufacturers may require additional strapping within (12 inches) and blocking (24 inches) where piping turns vertical.



6. **Insulate.** Replace all insulation and make sure all potentially exposed portions of the DWV system are well insulated to protect against freezing.

You must follow the detailed instructions given by the home manufacturer for assembly of shipped-loose piping. Those instructions must be in accordance with the HUD Code. The HUD Code sets out the following requirements:

- Section 3280.603(a)(6) prohibits drilled and tapped fittings.
- Section 3280.603(b)(6) requires that all exterior openings around piping and equipment shall be sealed to resist the entrance of rodents. *Be sure to seal the belly fabric where drainage pipes penetrate the underside of the home.*
- Section 3280.610(c) requires that a home must have only one drain outlet.
- Section 3280.606(b) requires that cleanouts must be installed where required and they must be accessible with at least 12 inches of space. For drainage piping under the home, cleanouts must be installed at the upper end of any horizontal pipe that has a slope of less than 1/4 inch per foot. All parts of the drainage system must be accessible by a cleaning tool without turning more than a total of 360 degrees. Water closets (toilets) may be removed to provide access for cleaning.
- Section 608 requires plastic drainage pipe to be supported at maximum of 4 feet intervals.



WATER SUPPLY

Sections 3280.609 (a) through (b) of the HUD Code are the basis for manufacturer's instructions on making water supply connections. Follow the home manufacturer's installation instructions carefully.

- If the water pressure exceeds 80 pounds per square inch (psi) gauge pressure, a pressure-reducing valve must be installed in the supply pipe.
- Water supply inlet connection must be 3/4-inch diameter.
- If not already in place, a main shutoff valve must be installed in the supply piping ahead of the connection to the home. This valve must be of the full-flow type such as a gate valve or ball valve and must be 3/4-inch nominal diameter, the same size as the supply pipe.
- Pack insulation around plumbing connections and replace inspection covers.
- Plastic water supply pipe must be supported at intervals not to exceed three feet.

PVC WATER SUPPLY

NOTE: Installation Standard for PVC Cold Water Building Supply and Yard Piping IAMPO IS 8-2006

IS 8-2006 2.4.4 Exposed Piping. Vertical piping may extend a maximum of 24 inches (610mm) above grade when located on the exterior of the building or structure and protected from mechanical damage to the satisfaction of the Administrative Authority. Where exposed to sunlight, the pipe shall be wrapped with at least 0.040 inches (1.0mm) of tape or otherwise protected from UV degradation.

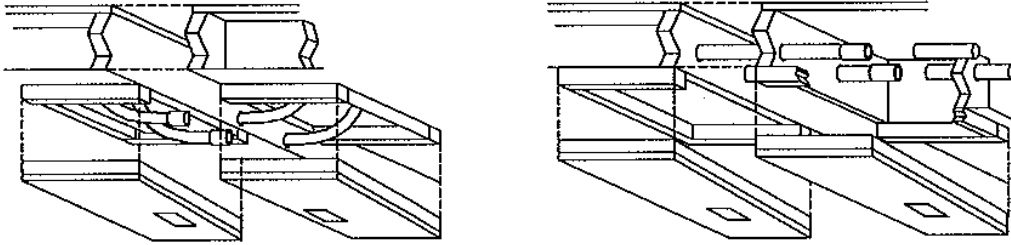
IS 8-2006 2.7.1 Location. PVC piping shall be installed only outside the foundation of any building or structure or parts thereof. It shall be buried in the ground for its entire length except vertical piping may be extended above grade per Section 2.4.4 It shall not be installed within or under any building or structure or mobile home or commercial coach or parts thereof. The term “building or structure or parts thereof” shall include structures such as porches and steps, whether roofed or not, roofed porte-cocheres, roofed patios, carports, covered walks, covered driveways and similar structures or appurtenances. [UPC 604.0]

CONNECT WATER LINES

Connect water lines inside the floor through access panels or below the bottom board as follows:

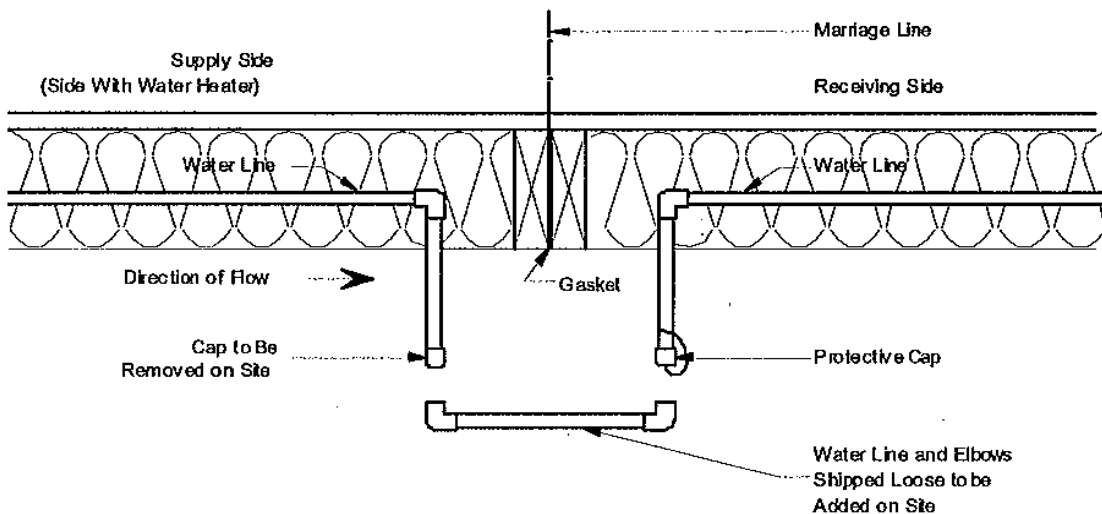
WATER LINES ACCESSED THROUGH PANELS

1. **Remove panels.** Remove access panels from each home section. Accessible panels will include: Access to water heater compartment, access to washer box p-trap, all access panels located in the belly for access to the p-traps for all tubs and showers.
2. **Remove caps.** Remove shipping caps from ends of water lines.
3. **Pull lines.** Pull water lines through holes in rim joist. If holes are not provided, drill round holes in the center of the rim joist, with a maximum diameter of one third the rim joist depth.
4. **Connect pipes.** Connect threaded water lines using provided connector fittings (do not use lubricants or sealants). Connect non-threaded water lines using provided fittings and cement, inserting pipe to full depth of each fitting (a short connector pipe may be provided to bridge the gap between sections). All CPVC piping requires a two-step process using both primer and cement. Even if one step cement is used primer is required per the Uniform Plumbing code.
5. **Test.** Test connections for leaks.
6. **Seal floor.** Securely replace insulation and access panels.



WATER LINES DROPPED BELOW BOTTOM BOARD

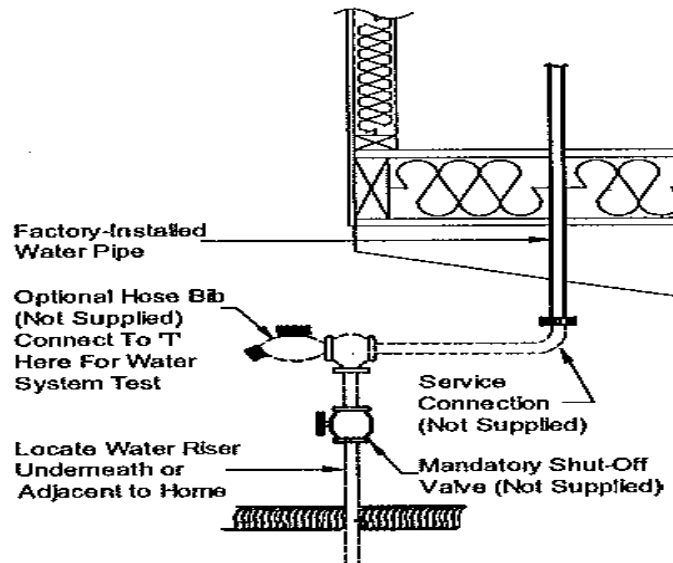
1. **Remove caps.** Remove protective shipping caps from ends of pipe and make sure pipe ends are clean and smooth.
2. **Connect pipes.** Connect threaded water lines using flexible pipe or a rigid connector line (if provided) and connector fittings (do not use lubricants or sealants). Connect non-threaded water lines, pipe, and elbows with cement provided, inserting pipe to full depth of each fitting.
3. **Test.** Test connections for leaks.
4. **Protect pipes.** Wrap water lines with insulation and bottom board shipped loose with home or otherwise protect to prevent freezing. Tape bottom board using tape specially made for that purpose (may be provided) and staple with 7/16" x 1/2" staples at four inches o.c. around bottom board using a divergent (stitch) stapler or equivalent. Generally, only insulation is necessary to protect water supply lines from freezing when the home is skirted. Some homeowners may desire to protect their water supply lines with a heat tape. This tape must be approved for manufactured home use by a nationally recognized testing agency and be installed in compliance with manufacturer's instructions. An electrical outlet has been provided under the home for the heat tape. This outlet is not protected by a Ground Fault Circuit Interrupter and should not be used for any other purpose.



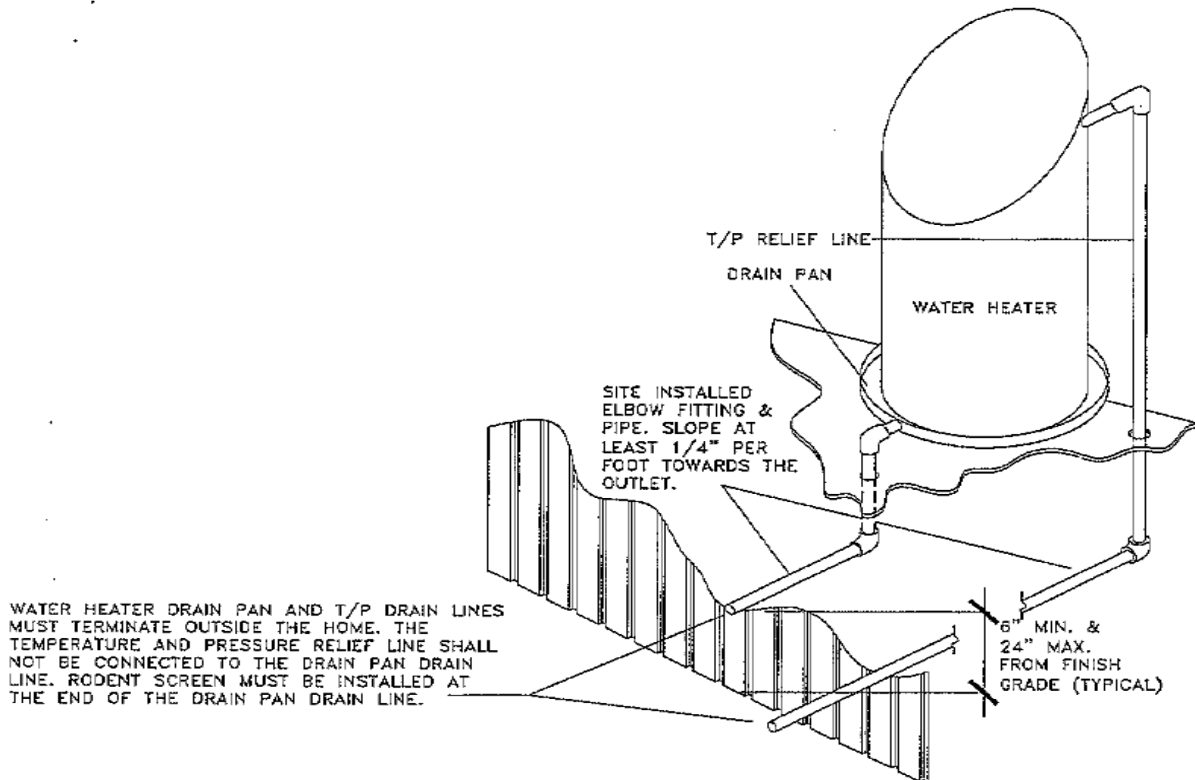
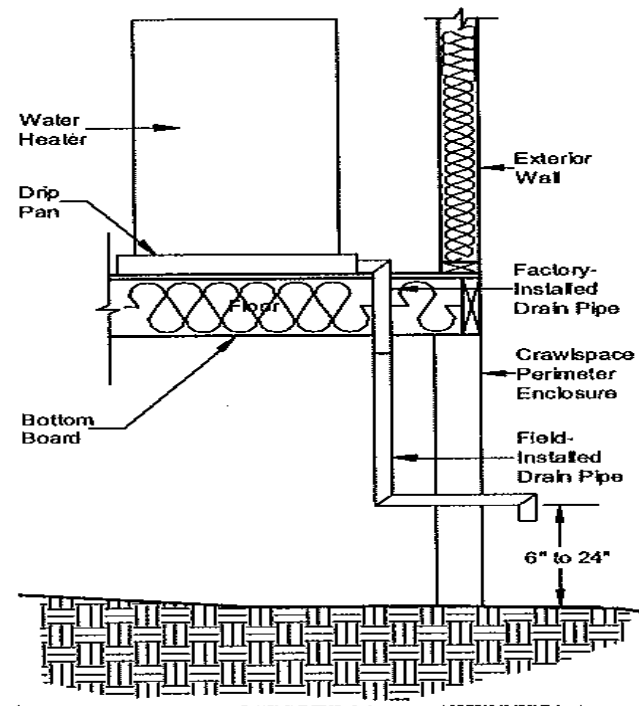
CONNECT WATER SERVICE

To connect the home's water system to the water source, identify the water inlet located under the home (usually below the water heater compartment or utility room).

1. **Flush pipe.** Flush field installed water piping free of all debris prior to connection to the home's water inlet.
2. **Clean threads.** Ensure that pipe threads are clean.
3. **Install pressure-reducing valve.** If the local water supply exceeds 80 PSI install a pressure-reducing valve.
4. **Connect valve.** Install a main shut-off valve between the water supply and the home. Locate the riser for the shutoff valve underneath or adjacent to the home. Select a full flow gate or ball shutoff valve, or equivalent valve. To prevent the possibility of fresh water contamination install an anti-siphon valve on field installed exterior faucets.



5. **Install water heater discharge drain.** Inspect the drain opening on the water heater to ensure that it is clear of any obstruction. If the home is to be installed on a basement or enclosed crawlspace, install drain pipe connecting the discharge from the water heater temperature and pressure relief valve to the outside.
Install water heater drip pan drain. Assure that the drain for the water heater drip pan does not terminate under the home. Using the materials provided and the accompanying instructions run a drain line from the water heater drip pan through the wall or floor to the exterior of the crawl space. Terminate the line between six and 24 inches above grade. Make the termination point rodent proof.
6. **Insulate.** In areas subject to freezing temperatures, protect with insulation or heat tape pipes, valves and pressure reducers that are exposed to the outdoors; and pipes in water heater compartments with non-insulated doors, Connect heat tape to the electrical outlet under the home near the water supply inlet. Heat tape must not be installed on the DWV pipe. Electrical outlet provided under the home must only be used for the heat tape connection because it is not GFCI protected.



WATER HEATER DRAIN PAN AND T/P DRAIN LINES MUST TERMINATE OUTSIDE THE HOME. THE TEMPERATURE AND PRESSURE RELIEF LINE SHALL NOT BE CONNECTED TO THE DRAIN PAN DRAIN LINE. RODENT SCREEN MUST BE INSTALLED AT THE END OF THE DRAIN PAN DRAIN LINE.

WATER LINE TESTING REQUIREMENTS

The Washington Installation Code, WAC 296-150I-0310(1)(m), states:

*“The testing of **water lines**, waste lines, gas lines and electrical systems must be as per the manufacturer’s installation instructions. If the manufacturer’s installation instructions require testing any of these systems, the local jurisdiction is responsible for verifying that the tests have been performed and passed.”*

The individual installing or connecting the system is required to test it. It is up to the local jurisdiction to determine how they will verify testing. Some jurisdictions may require that the inspector be present during the test. ***If you turn on the water to the home, test it for leaks. You can be held responsible for damage to the home if you fail to test the systems.***

The water supply system pressure test is described in the HUD Code, Section Manufactured Home Construction and Safety Standards 3280.612(a). The requirement is that the system must hold air or water pressure at 80 psi (pounds per square inch) for 15 minutes. Most of the homes shipped to Washington State require either air or water to hold 80 PSI for 15 minutes. Some manufacturers require checking for leaks with water at an unspecified pressure. For relocated homes 24 CFR Part 3285 Model HUD Code requires testing with air or water at 80 psi for 15 minutes without loss of pressure.

NOTE: 3/15/2021 HUD Changes: MHCSS §3280.612 Tests and inspection.

- (a) Water system. All water piping in the water distribution system must be subjected to a pressure test. The test must be made by subjecting the system to air or water at 80 psi + or – 5 psi for 15 minutes without loss of pressure. The water used for the test must be obtained from a potable water source.

NOTE: If you air test the supply system with the water heater full of water, don't fill it with pressurized air! High-pressure air, if contained in a volume such as in a water heater, can be dangerous if there is a leak due to the inability to stop the high-speed air as it expands out through the leak. Water stays about the same volume when compressed and does not create the same problem as pressurized air.

TESTING

After connecting the water lines check the water system for leaks using one of the procedures described below. Before testing, close all water faucets, spigots, and toilet-tank float valves.

Hydrostatic (preferred):

1. **Bypass water heater.** Bypass the water heater by disconnecting the hot outlet and cold inlet water lines from the water heater and joining them together. This will protect the hot water tank from damage and protect those involved in the test from possible injury.
2. **Pressurize system.** Connect a hydrostatic pump, valve and gauge. Pressurize the system with water at 80 PSI, and then isolate it from the pressure source. Bleed all air from the highest and farthest points in the system.
3. **Hold pressure.** Monitor the pressure for at least 15 minutes.
4. **Fix leaks.** If the pressure drops below 80 PSI, locate and correct any leaks by cutting out and discarding bad pipe sections or joints and installing new pipe or joints with couplings.
5. **Repeat.** Repeat the test until all leaks have been eliminated.

Pneumatic:

1. **Bypass water heater.** Bypass the water heater by disconnecting the hot outlet and cold inlet water lines from the water heater and joining them together. This will protect the hot water tank from damage and protect those involved in the test from possible injury.
2. **Pressurize system.** Connect an air pump and pressure gauge to the water inlet, pressurize the system to 80 PSI and isolate the pressure source from the system.
3. **Hold pressure.** Monitor the pressure for at least 15 minutes. If the pressure drops below 80 PSI, locate any leaks by applying soapy water to the connections and looking for bubbles.
4. **Fix leaks.** Connect any leaks by cutting out and discarding bad pipe sections or joints and installing new pipe or joints with couplings.
5. **Retest.** Repeat the procedures until all leaks have been eliminated.
6. **Restore connections.** Reconnect the water heater and the water supply.

CAUTION: Pipe manufacturers and the Uniform Plumbing Code Installation Standards **prohibit** testing PVC or CPVC plastic pipe with air.

FREEZE PROTECTION

In all areas in Washington State water supply pipes outside and in the crawl space must be protected from freezing.

WAC 296-150I-0310(1)(I), requires water piping to be protected against freezing as per the manufacturer's installation instructions or by the use of a heat tape listed for use with manufactured homes and installed per the heat tape manufacturer's installation instructions.

MHCSS 3280.603(b)(4) All piping and fixtures subject to freezing temperatures shall be insulated or protected to prevent freezing, under normal occupancy.

UPC 313.6 No water, soil, or waste pipe shall be installed or permitted outside of a building or in an exterior wall unless, where necessary, adequate provision is made to protect such pipe from freezing. All hot and cold water pipes installed outside the conditioned space shall be insulated to a **minimum R-3**.

WSEC R403.5.3 Hot water pipe insulation. (Prescriptive). Insulation for hot water pipe, both within and outside the conditioned space, shall have a minimum thermal resistance (*R*-value) of R-3.

Use a heat tape or cable that is rated for manufactured homes and follow the product manufacturer's instructions. Generally, automatic (with a thermostat) heat tape can be insulated over, but non-automatic (without a thermostat) cannot. Heat cable on plastic pipe cannot be insulated over. Check the instructions to be sure.

FREEZE PROTECTION FOR UNOCCUPIED HOMES

If the home is to be left unheated in cold weather, protect water lines from freezing as follows:

1. **Disconnect supply.** Turn off the water supply and disconnect the water supply inlet.
2. **Drain water heater.** Turn off the water heater, if necessary, attach a hose to the valve to direct water away from under the home, open the drain valve and drain the tank completely.
3. **Drain faucets.** Open all faucets throughout the home (including the laundry area if plumbed, and any exterior faucets) and let them drain completely.
4. **Drain toilets.** Flush toilets and drain water tanks completely.
5. **Close faucets.** Close all water faucets with the exception of one.
6. **Connect compressor.** Connect a maximum of 30 psi air supply to the water inlet connection using a low pressure compressor.
7. **Open faucets.** With the air supply on the system, open one faucet at a time throughout the home.
8. **Disconnect compressor.** After the entire system has been drained of all water, disconnect the air supply and close the water inlet valve.
9. **Pour anti-freeze.** Pour an antifreeze solution into all drain traps, including sinks, tubs, and toilets. Be sure that the antifreeze is safe for the fixture and P-traps.

ELECTRICAL

WAC 296-150I-0020(13) states:

“‘Mobile or manufactured home installation’ as defined in RCW 43.22A.010 does not include installation of electrical wires and equipment that convey electrical power to the home or to an outlet in the home, and does not include the bonding crossover. Installation of electrical wires and equipment that convey electrical power to the home or to an outlet in the home must be performed by a journeyman or specialty electrician as defined in Chapter 19.28 RCW. Equipment does not include plug-in household appliances.”

The Washington State Department of Labor and Industries (L&I) asserts that all electrical connections, including installation of shipped-loose electrical fixtures, such as ceiling fans, lighting fixtures, and hard wired crossover electrical junction boxes must be made by a journeyman or specialty electrician. The exception is when the manufacturer’s employee install shipped loose electrical along with any warranty work the manufacturer’s employees complete. A service contractor cannot repair electrical work unless they are an EL01 or EL02 licensed electrician under Labor and Industries electrical program.

24 C.F.R. MHCSS 3280.803(k)(3) Power Supply (see also) NEC 550.32(B)

(3) Service equipment installed in or on the manufactured home, provided that all of the following conditions are met:

- (i) In its written installation instructions, the manufacturer must include information indicating that the home must be secured in place by an anchoring system or installed on and secured to a permanent foundation;
- (ii) The installation of the service equipment complies with Article 230 of the National Electrical Code, NFPA 70-2005 (incorporated by reference, see §3280.4). Exterior service equipment or the enclosure in which it is to be installed must be weatherproof, and conductors must be suitable for use in wet locations;
- (iii) Means are provided for the connection of the grounding electrode conductor to the service equipment and routing it to the conductor outside the structure;
- (iv) Bonding and grounding of the service must be in accordance with Article 250, NFPA 70-2005, National Electrical Code (incorporated by reference, see §3280.4);
- (v) The manufacturer must include in its installation instructions one method of grounding the service equipment at the installation site. The instructions must clearly state that other methods of grounding are found in Article 250 of NFPA 70-2005, National Electrical Code;
- (vi) The minimum size grounding electrode conductor must be specified in the instructions; and
- (vi) A red warning label must be mounted on or adjacent to the service equipment. The label must state the following: **WARNING—DO NOT PROVIDE ELECTRICAL POWER UNTIL THE GROUNDING ELECTRODE(S) IS INSTALLED AND CONNECTED (SEE INSTALLATION INSTRUCTIONS).**

24 C.F.R. MHCSS 3280.809 Grounding

(a) *General.* Grounding of both electrical and nonelectrical metal parts in a manufactured home shall be through connection to a grounding bus in the manufactured home distribution panelboard. The grounding bus shall be grounded through the green-colored conductor in the supply cord or the feeder wiring to the service ground in the service-entrance equipment located adjacent to the manufactured home location. Neither the frame of the manufactured home nor the frame of any appliance shall be connected to the neutral conductor in the manufactured home.

(b) *Insulated neutral.* (1) The grounded circuit conductor (neutral) shall be insulated from the grounding conductors and from equipment enclosures and other grounded parts. The grounded (neutral) circuit terminals in the distribution panelboard and in ranges, clothes dryers, counter-mounted cooking units, and wall-mounted ovens shall be insulated from the equipment enclosure. Bonding screws, straps, or buses in the distribution panelboard or in appliances shall be removed and discarded. However, when service equipment is installed on the manufactured home, the neutral and the ground bus may be connected in the distribution panel.

(2) Connection of ranges and clothes dryers with 120/240 volt, 3-wire ratings shall be made with 4 conductor cord and 3 pole, 4-wire grounding type plugs, or by type AC metal clad conductors enclosed in flexible metal conduit. For 120 volt rated devices a 3-conductor cord and a 2-pole, 3-wire grounding type plug shall be permitted.

(c) *Equipment grounding means.* (1) The green-colored grounding wire in the supply cord or permanent feeder wiring shall be connected to the grounding bus in the distribution panelboard or disconnecting means.

(2) In the electrical system, all exposed metal parts, enclosures, frames, lamp fixture canopies, etc., shall be effectively bonded to the grounding terminal or enclosure of the distribution panelboard.

(3) Cord-connected appliances, such as washing machines, clothes dryers, refrigerators, and the electrical system of gas ranges, etc., shall be grounded by means of an approved cord with grounding conductor and grounding-type attachment plug.

(d) *Bonding of noncurrent-carrying metal parts.* (1) All exposed noncurrent-carrying metal parts that may become energized shall be effectively bonded to the grounding terminal or enclosure of the distribution panelboard. A bonding conductor shall be connected between each distribution panelboard and an accessible terminal on the chassis.

(2) Grounding terminals shall be of the solderless type and approved as pressure-terminal connectors recognized for the wire size used. Star washers or other approved paint-penetrating fitting shall be used to bond terminals to chassis or other coated areas. The bonding conductor shall be solid or stranded, insulated or bare and shall be No. 8 copper minimum, or equal. The bonding conductor shall be routed so as not to be exposed to physical damage. Protection can be afforded by the configuration of the chassis.

(3) Metallic gas, water and waste pipes and metallic air-circulating ducts shall be considered bonded if they are connected to the terminal on the chassis (see §3280.809) by clamps, solderless connectors, or by suitable grounding-type straps.

(4) Any metallic roof and exterior covering shall be considered bonded if (i) the metal panels overlap one another and are securely attached to the wood or metal frame parts by metallic fasteners, and (ii) if the lower panel of the metallic exterior covering is secured by metallic fasteners at a cross member of the chassis by two metal straps per manufactured home unit or section at opposite ends. The bonding strap material shall be a minimum of 4 inches in width of

material equivalent to the skin or a material of equal or better electrical conductivity. The straps shall be fastened with paint-penetrating fittings (such as screws and star washers or equivalent).

NEC 550.16 Grounding

In the electrical system, all exposed metal parts, enclosures, frames, luminaire canopies, and so forth, shall be effectively bonded to the grounding terminal or enclosure of the panelboard.

All exposed non-current-carrying metal parts that are likely to become energized shall be effectively bonded to the grounding terminal or enclosure of the panelboard. A bonding conductor shall be connected between the panelboard and an accessible terminal on the chassis.

Grounding terminals shall be of the solderless type and listed as pressure-terminal connectors recognized for the wire size used. The bonding conductor shall be solid or stranded, insulation or bare, and shall be 8 AWG copper minimum, or equivalent. The bonding conductor shall be routed so as not to be exposed to physical damage.

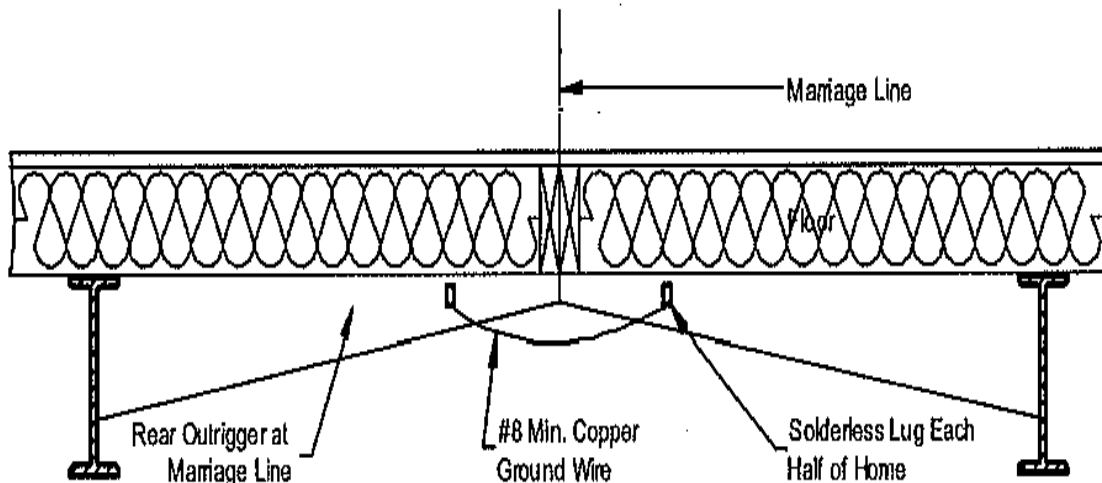
Metallic gas, water, and waste pipes and metallic air-circulating ducts shall be considered bonded if they are connected to the terminal on the chassis [see NEC 550.16(C)(1)] by clamps, solderless connectors, or by suitable grounding-type straps.

Any metallic roof and exterior covering shall be considered bonded if the following conditions are met. (1) The metal panels overlap one another and are securely attached to the wood or metal frame parts by metallic fasteners. (2) The lower panel of the metallic exterior covering is secured by metallic fasteners at a cross member of the chassis by two metal straps per manufactured home unit or section at opposite ends. The bonding strap material shall be a minimum of 4-inches (100mm) in width of material equivalent to the skin or a material of equal or better electrical conductivity. The straps shall be fastened with paint penetrating fittings such as screws and star washers or equivalent.

ELECTRICAL BONDING OF THE CHASSIS

To ensure all metal parts are effectively grounded, electrically bond all chasses together as follows:

1. **Find lugs.** Determine if solder less ground lugs are provided on the front or rear frame outriggers or headers.
2. **Attach wire.** If lugs are provided, uncoil the bonding wire (#8 minimum bare copper wire) from one side of the home and connect it to the lug provided on the opposing side [using the provided paint penetrating star washer], tighten the set screw firmly on the wire and repeat for any additional home sections.



3. **Attach strap.** If ground lugs and copper wire are not provided, attach the provided four-inch bonding strap to each pair of adjacent chasses with two #8 x 3/4" self-tapping metal screws (one screw each side).

CONNECT ELECTRICAL CROSSOVERS

Multi-section homes may have one or more electrical crossovers located in the walls(s) and/or floor(s) along the marriage line(s).

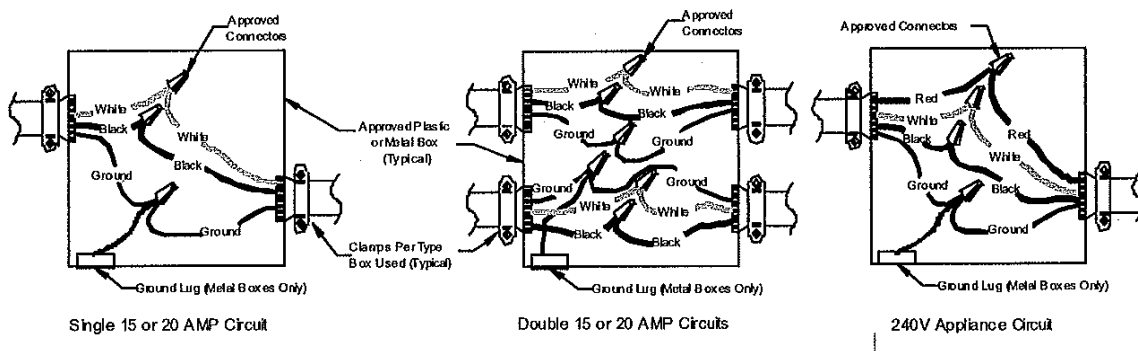
JOINING WIRES

Two types of connections may be present at these locations – snap connectors and junction boxes. Identify matching circuits if multiple circuits exist at a single crossover location. These will be coded for identification. Connect snap connectors according to the connector manufacturer's installation instructions, including fastener requirements.

Connect wires in junction boxes as follows:

Pull wires. Pull circuit wires into the junction box, sliding them through a Romex connector and secure snugly, do not over-tighten.

1. **Strip wires.** Remove the outer jacket that holds the circuit wires together providing a minimum of four inches of free wire in the box.
2. **Connect wires.** Connect wires together matching like colors, using appropriately sized wire nuts. Use the ground wire to ground the junction box and/or cover plate(s), if metal. Junction boxes may contain single or multiple 15 or 20-amp circuits, or a single 240-volt appliance circuit.
3. **Replace cover.** Reposition the junction box cover and secure using machine (not sheet metal) screws.

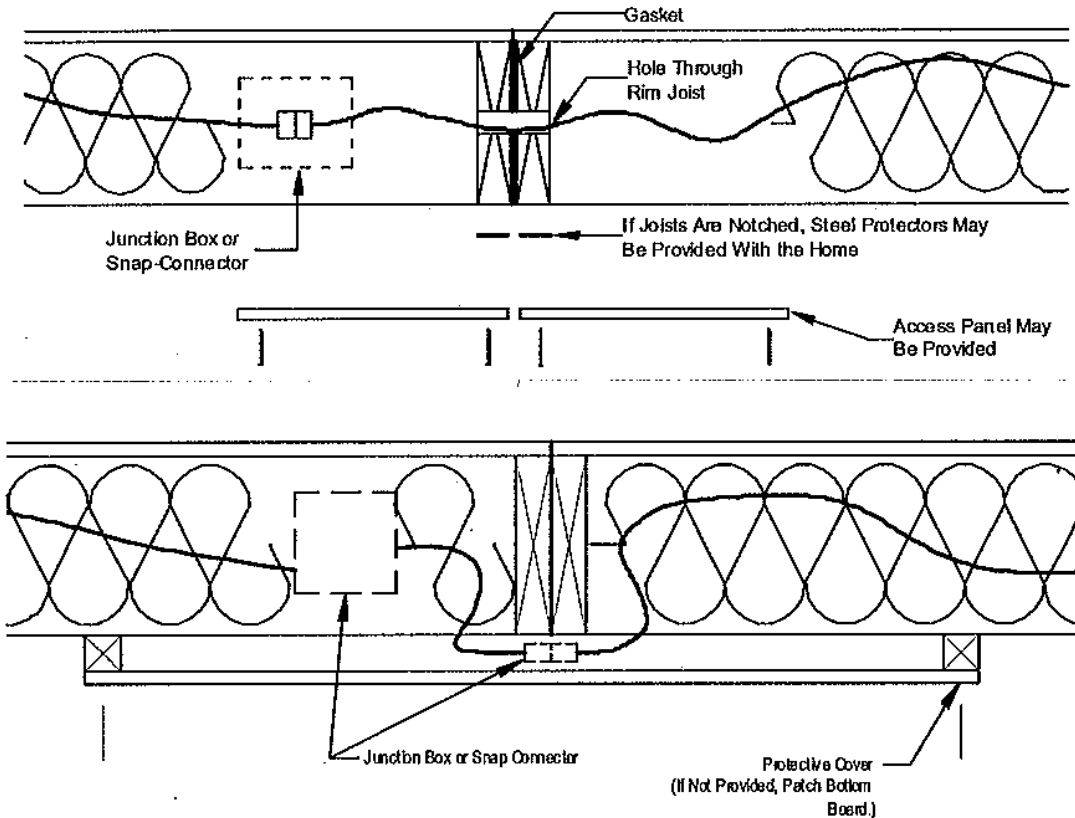


FLOOR CROSSOVER

When making electrical connection(s) in the floor, use one of the wiring options described below:

Method 1: Access panel

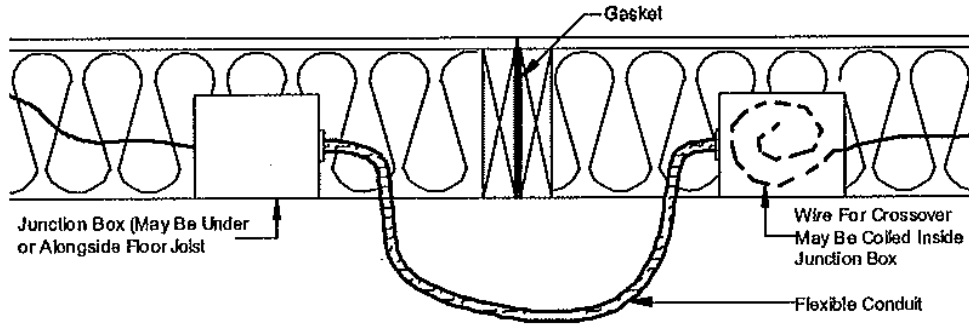
1. **Access wires.** Find the cross location(s) and remove the access panel(s) if attached. If access panel openings are not provided, cut through bottom board to expose the wiring.
2. **Route wires.** Pass the wires through predrilled holes or notches in the rim joist or if there is a single bumped-out access panel under the rim joist. If holes or notches have not been provided and there is no bumped-out access panel, drill maximum one-inch diameter hole(s) half-way up the rim joists on each home section, making sure the holes align and feed the wire through the hole.
3. **Connect wires.** Connect wires via a junction box or snap-connector(s) as described above.
4. **Secure wires.** Secure wires with staples to adjacent joists or studs within eight-inches of junction box or snap-connector(s).
5. **Install metal protector plates.** For notched perimeter joists, install steel wire protector plates.
6. **Seal bottom board.** Replace insulation and re-install access panels and/or seal the bottom board with tape specially made for that purpose (may be provided). The access panel(s) may be temporarily installed near the crossover location or shipped loose with the home.



Method 2: Junction box with conduit

1. **Access boxes.** If junction boxes are not exposed, access them inside the floor by cutting the bottom board or by removing the access panel(s). Remove the junction box covers.
2. **Connect wires.** If wire is coiled inside one junction box, insert it into [provided] flexible conduit and pass it under the rim joists to the opposing box and make the connection as described above. If no coiled wire is provided, install [provided ship-loose] conduit with wire making connections in both boxes.
3. **Cover boxes.** Replace and secure covers on junction boxes.
4. **Seal floor.** Replace any displaced insulation and replace access panel or seal the bottom board with tape specially made for that purpose (may be provided).

Variation to Method 2: A junction box may be installed only on one side with the other side containing conduit behind an access panel. Bring the conduit to other side and make one connection in the junction box.

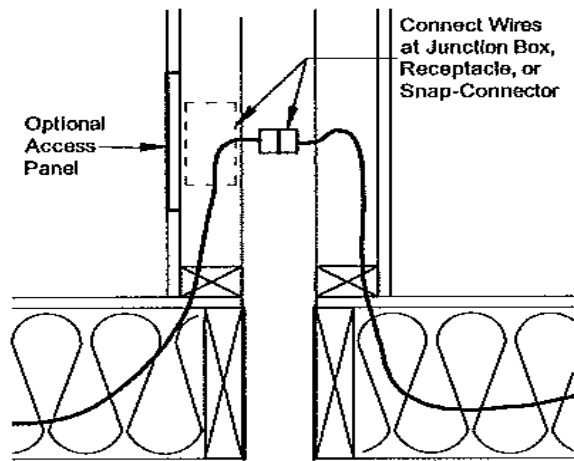


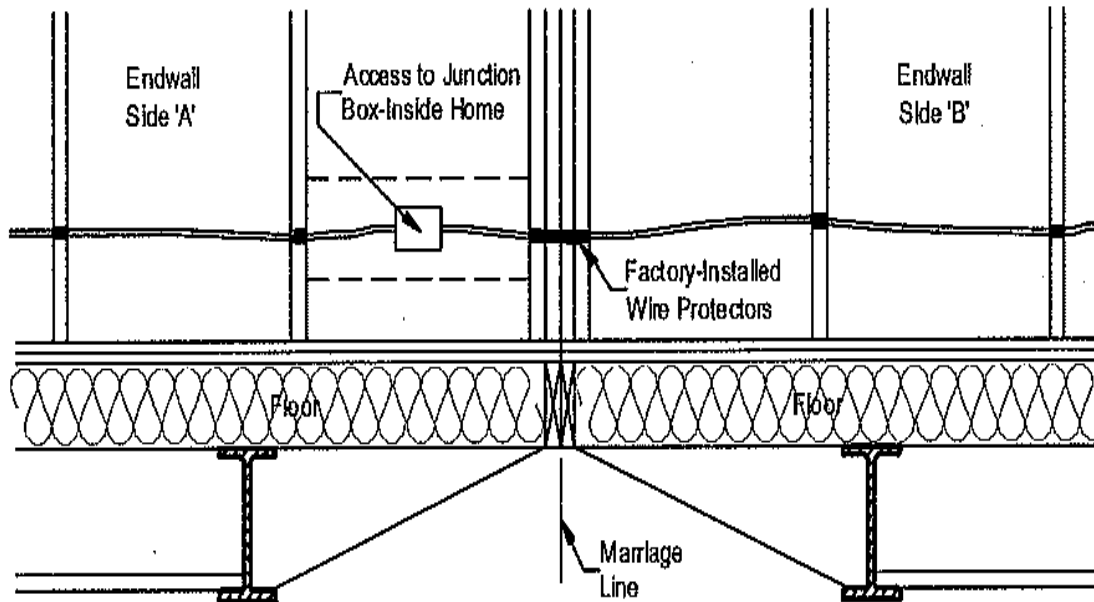
NOTE: NEC 550.15(H) & 24 C.F.R.MHCSS 3280.808(k) Where outdoor or under-chassis line voltage (120 volts, nominal, or higher) wiring is exposed, it shall be protected by a conduit or raceway identified for use in wet locations. The conductors shall be listed for use in wet locations. Where wiring is exposed to physical damage, it shall be protected by a raceway, conduit, or other means. The under-chassis wiring method is not restricted to rigid or intermediate conduit as long as the raceway is suitable for installation in wet locations and, if necessary, for locations where it is subject to physical damage. This allows for the standard practice in manufactured home construction of installing PVC conduit or RTRC under the chassis.

WALL CROSSOVERS

Connect electrical, phone, cable television, and stereo speaker wires in marriage walls and/or partition and end walls.

If access panels into the marriage walls are not provided, then the connection should have been made prior to bringing the home sections together. If access panels are provided in marriage, end or partition walls, remove the panels, join the wires as described above using the provided snap-connector, junction box, or at a receptacle, and re-attach the access panel.





ELECTRICAL SYSTEM TESTING

24 C.F.R. MHCSS 3280.810 HUD Code, Manufactured Home Construction and Safety Standards, describes electrical tests to be completed at the factory. WAC 296-150I-0310(1)(m) and NEC 550.17 requires electrical testing after site installation of the home to be completed to the manufacturer's installation instructions. The tests are in two groups: those to be done before and those done after power is connected to the home. The electrician who connects the power should do the tests that are required before energizing the home.

After completion of all electrical wiring and connections, including crossovers, appliances, lights, and ceiling fans, inspect and test the electrical system as follows:

1. Fill water heater. Fill water heater before turning on power to the home or switching on the circuit breaker.
2. Test continuity. Before turning on the electrical power to the home, conduct an electrical continuity test to ensure that exposed metallic parts of the home and the chassis are effectively bonded.
3. Test operation. After turning on the electrical power to the home, conduct operation tests of all devices to demonstrate that they are connected and in working order.
4. Test polarity. After turning on the electrical power to the home, conduct electrical polarity checks to determine that connections of electrical equipment installed or completed during installation have been made properly. Visual verification is an acceptable electrical polarity check for these on-site connections.

You may do the post-energizing tests, which are very simple. Test all outlets, including switched ones, with a plug-in outlet tester. This hand-held device has lights that indicate whether the outlet is wired correctly or if it has any problems such as reversed ground and neutral, open ground,

etc. Check the ground fault circuit interruption (GFCI) circuits by pressing the test buttons, resetting, and checking with outlet tester. Check 240-volt outlets with a pigtail light to see that both legs of the circuit are powered. Lastly, make sure all light fixtures work properly when light bulbs are installed and the lights are switched on.

WAC 296-150I-0310 (1)(I) Testing of all Systems

The testing of water lines, waste lines, gas lines, and electrical systems must comply with the manufacturer's installation instructions. If the manufacturer's installation instructions require testing of any of these systems, the local jurisdiction is responsible for verifying that the tests have been performed and passed. *Electrical connections and testing are the responsibility of the electrical section of Labor and Industries except where a city has assumed the electrical inspection responsibilities for their jurisdiction. In that case, the city's electrical inspectors are responsible for the electrical connections and testing.*

ENERGIZING THE HOME

Entrance cables connect the meter base to the entrance panel in the home. The electrician makes the connection. Most meter bases are on pedestals next to the home, but they can also be installed on the home if done in the factory.

After the electrician connects the power entrance cables, the electric company will energize the meter. The electrician need not be present at that time. You may energize the home. Before energizing the home, make sure all breakers are turned off. Energize the main panel by turning the switch at the meter base (or on the main panel if there is not a switch on the meter base). Then turn on breakers. If the water heater is electric, be sure it is filled with water by opening hot water faucets and getting water out of them before turning on its breaker. If the water heater is empty when energized, the elements will burn out.

PREPARE SMOKE ALARMS

The home has several factory installed smoke alarms that are wired to a 120 volt circuit. If the home was designed for placement on a basement, an additional alarm is provided for insulation at a pre-wired location under the home. Connect the basement smoke alarm and test all alarms as follows:

1. Check circuit. Ensure that the batteries are installed and the electrical power to the home is activated and that the smoke alarm circuit is on.
2. Test alarm. Press the "test" button on the alarm and hold for 5 seconds (or until the alarm sounds). When the alarm begins to sound, release and confirm that each alarm in the home is sounding. Replace (with the same brand as those installed elsewhere in the home) any alarms that do not sound and retest.
3. Disconnect AC. With the AC current disconnected and batteries installed, test for DC operation following the same procedure as shown in step 1.

Both steps 1 and 2 above must be conducted on each alarm installed in the home. If any alarm fails to sound during the test, turn off the power at the main panel box and check the wiring.

Make any necessary repairs and conduct a complete re-test. Repeat if necessary until all alarms are functioning properly.

CARBON MONOXIDE ALARMS

As of January 1, 2013, state law requires CO alarms to be installed in all new single family homes and residences. Existing dwellings shall be equipped with carbon monoxide alarms when alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created. For any owner-occupied single-family residence that is sold on or after July 26, 2009, the seller must equip the residence with carbon monoxide alarms in accordance with the requirements of the state building code before the buyer or any other person may legally occupy the residence following such sale.

NOTE: 3/15/2021 HUD Revision MHCSS §3280.211 Carbon monoxide alarm requirements

- a) Labeling. Carbon monoxide alarms shall be listed and must bear a label to evidence conformance with ANSI/UL 2034 (incorporated by reference, see §3280.4). Combination carbon monoxide and smoke alarms shall be listed and must bear a label to evidence conformance with ANSI/UL 2034 and UL 217 (incorporated by reference, see §3280.4).

WAC 296-150I-0310(1)(r) A carbon monoxide alarm shall be installed outside of each sleeping area in the immediate vicinity of the bedrooms in manufactured homes and on each level of the dwelling in accordance with the manufacturer's recommendation. Carbon monoxide alarms shall be listed in accordance with UL 2034. Combination carbon monoxide and smoke alarms shall be listed in accordance with UL 2034 and UL 217.

CO alarms Installation Requirement:

1. Alarms must be located outside of each sleeping area, in the immediate vicinity of the bedroom and on each level of the residence.
2. Single station carbon monoxide alarms must be listed as complying with UL 2034, and installed in accordance with the code and manufacturer's instructions.
3. Models are available that run entirely on batteries or the plug-in with battery backup.
4. Combination smoke alarms/CO alarm units are permitted.

Chapter 8

Skirting and Crawl Space Requirements

- **Skirting Requirements**
- **Skirting Construction**
 - Materials**
 - Frost Heave**
 - Supporting Walls**
- **Skirting Ventilation**
 - Ventilation Requirements**
- **Access Doors**
- **Water Heater Relief Valve Drain**
 - Pan Drain**
- **Condensate Drain**
- **Clothes Dryer Exhaust**

Skirting Requirements

In this chapter we will discuss the construction of skirting and all the items that have to be vented through it. The skirting installer is responsible for making sure these items are vented to the exterior properly.

The Washington Installation Code, WAC 296-150I-0310(1)(d), requires all manufactured homes in Washington State to have skirting around their entire perimeter. Skirting is the enclosure that surrounds the space under the home. It can also be called a foundation fascia, perimeter enclosure, or perimeter foundation wall. Manufactured home skirting can be made from a variety of materials such as pressure-treated plywood, concrete blocks, or prefabricated skirting. It can be either load-bearing or non-load-bearing. For the purposes of this course we include all types of perimeter foundation walls under the category of skirting. It is hard to tell if a concrete block wall is load-bearing by looking at it from the outside. If it is load bearing, it supports the exterior walls and therefore takes the place of any perimeter blocking required by the manufacturer.

RCW 43.22A defines manufactured home installation to include skirting. (See Appendix A.) When skirting installation is performed, a certified manufactured home installer must be present and supervising unless the homeowner is doing the work on his or her own residence.

The installation code requires skirting to be installed per the manufacturer's installation instructions. If the manufacturer's installation instructions are unavailable or not specific about the requirements for skirting, the skirting must be installed according to WAC 296-150I-0310(1)(d). See the excerpt below.

WAC 296-150I-0310 (1)(d), Sections i through iii

- (i) Skirting:
 - Must be made of materials suitable for ground contact.
 - Metal fasteners must be made of galvanized, stainless steel or other corrosion-resistant materials.
 - Ferrous metal members in contact with the earth, except those made of galvanized or stainless steel must be coated with an asphaltic emulsion.
 - Must not trap water between the skirting and siding or trim.
 - Must be recessed behind the siding or trim.
- (ii) Ventilation: For homes sited in a flood plain, contact the local jurisdiction regarding proper skirting ventilation. Except for those manufactured homes sited in a flood plain, all skirting and vent openings must:
 - Be covered with corrosion-resistant wire mesh to prevent the entrance of rodents. The size of the mesh opening cannot exceed 1/4 inch.

- Have a net area of not less than one square foot for each one hundred fifty square feet of under floor area.
- Be located as close to corners and high as practical and they must provide cross ventilation on at least two opposite sides.

(iii) Access:

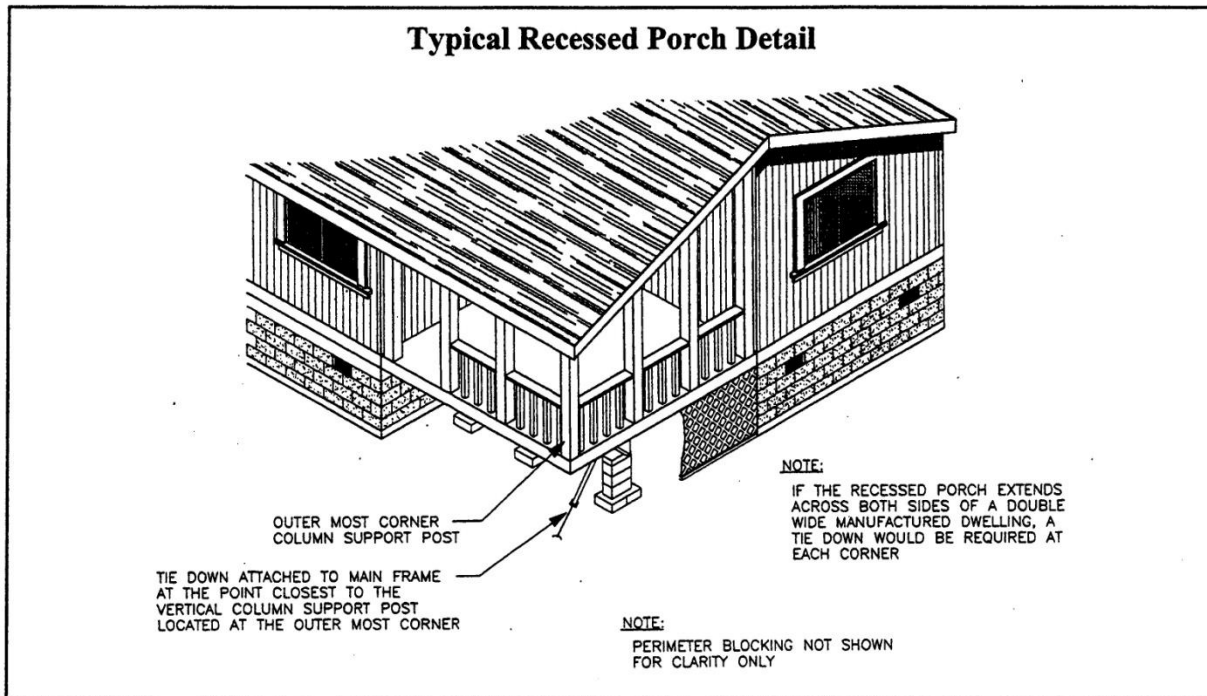
- The under floor area of a manufactured home must have a finished opening at least eighteen inches by twenty-four inches in size.
- Opening must be located so that all areas under a manufactured home are available for inspection.
- Opening must be covered and that cover must be made of metal, pressure treated wood or vinyl.

Always check the home manufacturer’s installation manual first to see what is included. Anything not covered by the home manufacturer requires installers to follow the provisions in the installation WAC.

In addition to enhanced appearance, energy conservation, and lessening the chance of water freezing in pipes, skirting is installed to keep animals out from under the home. Both domestic and wild animals are attracted to the warm heating crossover duct and frequently claw and rip the duct until it is useless for conducting air from one side of the home to another. For health reasons, it is important to keep all wild and domestic animals from getting under the home. The home should be skirted soon after inspection of the support structure by the local jurisdiction, and access panels should not be left off for any extended period.

Ensure the home is protected from excess moisture entering the crawl space. Check for possible sources of moisture including downspouts and lawn sprinklers; divert water away from the home. The ground must be sloped down away from the home in all directions to divert surface water. If the home is pit set, be sure the below-grade skirting or foundation wall has a vapor barrier on the outside to keep water vapor from coming in from the ground through the skirting.

If the home has an attached porch open to the weather, it is important to skirt under the exterior wall of the home, the perimeter of the heated portion of the home. The exterior of the porch may also be skirted, but do not cover the ground under the porch with a ground cover. Water must be allowed to soak into the ground and not collect under the home. See the example on the following page.



SKIRTING CONSTRUCTION

Materials

Skirting is usually made of metal, wood, concrete, or vinyl. Home manufacturers' installation manuals seldom discuss details of skirting construction or suitable materials. The installation WAC requires that skirting be of materials suitable for ground contact. Most building inspectors interpret this to mean that any wood within six inches of the ground must be treated, as called for in the International Building Code. Some manufactured cement boards may be allowed by the local jurisdiction as suitable for ground contact, although they don't formally have that rating. Check with the local jurisdiction prior to installing cement board.

State law does not require agencies to implement a system for approving installation materials. It is the responsibility of the local building department to approve installation materials. Always check with the local jurisdiction to be sure that the materials you are using will be approved. If you are installing a prefabricated skirting system, be prepared to provide the installation instructions and data to the local jurisdiction for approval.

Note: If you install a prefabricated skirting system, follow the product manufacturer's installation instructions.

Skirting materials may be regulated by local zoning ordinances or community covenants and restrictions. For instance, some manufactured housing communities require the skirting to be the same on all homes or be a color to match the home; some community ordinances require skirting to appear the same as foundations under site-built homes. In this case concrete block or treated wood with stucco finish would be appropriate, subject to approval by the park manager or local building official.

Frost Heave

An often overlooked aspect of skirting is that its foundation can heave with frost. If the foundation wall supports the exterior wall, frost heave can damage the home (See Chapter 4). If the skirting footing only supports the skirting, the skirting can rise and fall with the ground, something to be aware of in its installation. Some manufactured skirting materials, such as vinyl, are made so they can slip up and down with the frost heave. Follow the home manufacturer's instructions for addressing frost heave.

Supporting Walls

Perimeter foundations that either support the exterior walls of the home or support soil pressure such as in a pit-set home are more difficult to install. Be sure the design you are using meets all manufacturer and WAC requirements. Pressure-treated plywood can be supported with 2x4 studs diagonally braced from the outer I-beams; or they can be braced by the lower plate nailed or bolted into the concrete footing. Metal perimeter supports are available that are designed to be fastened to the concrete footing to support skirting as well as the exterior walls of the home.

IRC 404.2 Wood foundation walls. Wood foundation walls shall be constructed in accordance with the provisions of Sections R404.2.1 through R404.2.6 and with the details shown in Figures R403.1(2) and R403.1(3) See Table R404.2.3

IRC R405.2 Wood foundations enclosing habitable or usable spaces located below grade shall be adequately drained in accordance with Sections R405.2.1 through R405.2.3

IRC R405.1 Foundation Drainage. Drains shall be provided around concrete or masonry foundations that retain earth and enclose habitable or usable spaces located below grade.

SKIRTING VENTILATION

Skirting ventilation is usually specified as a ratio to the floor area. A common requirement or recommendation of home manufacturers is a ratio of 1/150. This means that ventilation area is the home floor area divided by 150. For example, if the floor area is 1,500 square feet, you would need to install 10 square feet, or 1,440 square inches of ventilation area. (1,500 divided by 150 equals 10.) The net ventilation area is the area after reductions for screens and louvers; it is called net free ventilation area, abbreviated NFVA. Manufactured vents are usually stamped with their NFVA in square inches. The NFVA of a manufactured vent may be only one third of the total area of the vent, after accounting for screens and louvers. There is no area reduction for one-quarter-inch screen, but there is a reduction for smaller size mesh.

Decorative masonry blocks with holes for ventilation must be screened. There is no reduction in net free ventilation if 1/4-inch screen is used. However, if 1/8-inch screen is used, the reduction in net free ventilation is 25%. See Appendix D, page D-5.

Ventilation Requirements

If the home manufacturer's instructions provide specific requirements for crawl-space ventilation, follow those instructions. The Washington installation code requires that if the manufacturer's skirting and access instructions are not specific, skirting, ventilation and access shall be installed per the installation code, WAC 296-150I-0310(1)(d). The WAC requires a ventilation ratio of 1/150. The vents must be located as close to corners and as high as practical and must provide cross ventilation on at least two opposite sides. Vent openings must be covered with corrosion-resistant wire mesh to prevent the entrance of rodents. The size of the mesh opening cannot exceed 1/4 inch.

Most manufacturers recommend venting at the 1/150 ratio.

For relocated homes with no installation manual, the requirement of 24 CFR Part 3285 Model HUD Code is very similar to the requirement of WAC 296-150I-0310: "Ventilation shall be provided for the crawl space at a minimum of one square foot of free area for every 150 square feet of the home's floor area. Ventilation openings shall be placed at or near each corner of the home and as high as practicable. Openings shall be located to provide cross-ventilation on at least two opposite sides.

Required net free ventilation may be determined by following the calculation process below or by using the chart on the following page.

Venting Calculation

1. Find the crawl space area (same as floor area) in square feet.
2. Divide by the denominator of the ventilation ratio to get the required vent area in square feet (for a 1/150 ratio, the denominator is 150).
3. Multiply by 144 to get the vent area in square inches.

- Divide by the net free ventilation area (NFVA) of each vent to get the required number of vents. Prefabricated vents will have the NFVA listed on the vent.

EXAMPLE: The example below assumes a home with 1680 square feet and prefabricated vents with 58 square inches of net free ventilation area per vent.

$$1680 \text{ sq. ft.} \div 150 = 11.2 \text{ (required ventilation in square feet)}$$

$$11.2 \text{ sq. ft.} \times 144 \text{ in} = 1613 \text{ in (required ventilation in square inches)}$$

$$1613 \text{ sq. in} \div 58 \text{ sq. in NFVA} = 27.8 \text{ -- } \mathbf{28 \text{ vents required}}$$

Net free ventilation area at a ratio of 1/150 can be determined by using the table below. Find the length of the home in the left column and read across to the right until you come to the width of the home.

Under Floor Ventilation Schedule
Total Required Net Area (square inches) of Under Floor Ventilation at 1/150

Length (feet)	Width of Manufactured Home (feet)									
	8	10	12	14	20	24	28	34	36	40
40	307	384	461	538	768	922	1075	1306	1382	1536
42	323	403	484	564	806	968	1129	1371	1452	1613
44	338	422	507	591	845	1014	1183	1436	1251	1690
46	353	442	530	618	883	1060	1236	1501	1590	1766
48	369	461	553	645	922	1106	1290	1567	1659	1843
50	384	480	576	672	960	1152	1344	1632	1728	1920
52	399	499	599	699	998	1198	1398	1697	1797	1997
54	415	518	622	726	1037	1244	1452	1763	1866	2074
56	430	538	645	753	1075	1290	1505	1828	1935	2150
58	445	557	668	780	1114	1336	1559	1893	2004	2227
60	461	576	691	806	1152	1382	1613	1958	2074	2304
62	476	595	714	833	1190	1428	1667	2024	2143	2381
64	492	614	737	860	1229	1475	1720	2089	2212	2458
66	507	634	760	887	1267	1521	1774	2154	2281	2534
68	522	653	783	914	1306	1567	1828	2220	2350	2611

NOTE: If the home is sited in a flood plain, the local building department may have increased requirements for skirting ventilation. Check for their requirements prior to setting the home.

ACCESS DOORS

If the home manufacturer's installation instructions are silent on details such as access doors, you must follow the requirements of the Washington installation code outlined below.

WAC 296-150I-0310(1)(d)(iii) requires at least one access door for the crawl space under the home. All areas under the home must be available for inspection. The door must be at least 18 inches by 24 inches in size. For a large home, more than one access door is desirable but not required.

Most manufacturers require hand holes for access to the main water shutoff valve and the sewer connection. Hand holes should also be provided wherever access is needed quickly and conveniently.

The HUD Code requires certain items to be available for easy access. They will be identified in the laws or installation manual as "accessible" or "readily accessible." Doors to readily accessible equipment must be able to be opened without the use of tools. Water shutoff valves must be accessible within 20 feet of the crawl space entrance. If there is a gas shutoff valve, it must be readily accessible. When installing skirting on a manufactured home, the skirting installer must first determine the location of items that need easy access and what type of access is required.

The access door needs to be designed to keep small animals from entering. A general rule is to eliminate holes or gaps anywhere in the skirting that are greater than 1/4 inch in size.

NOTE: The term "Crawl space" usually refers to the under floor area of the home, not the access door to the under floor area.

WATER HEATER RELIEF VALVE DRAIN

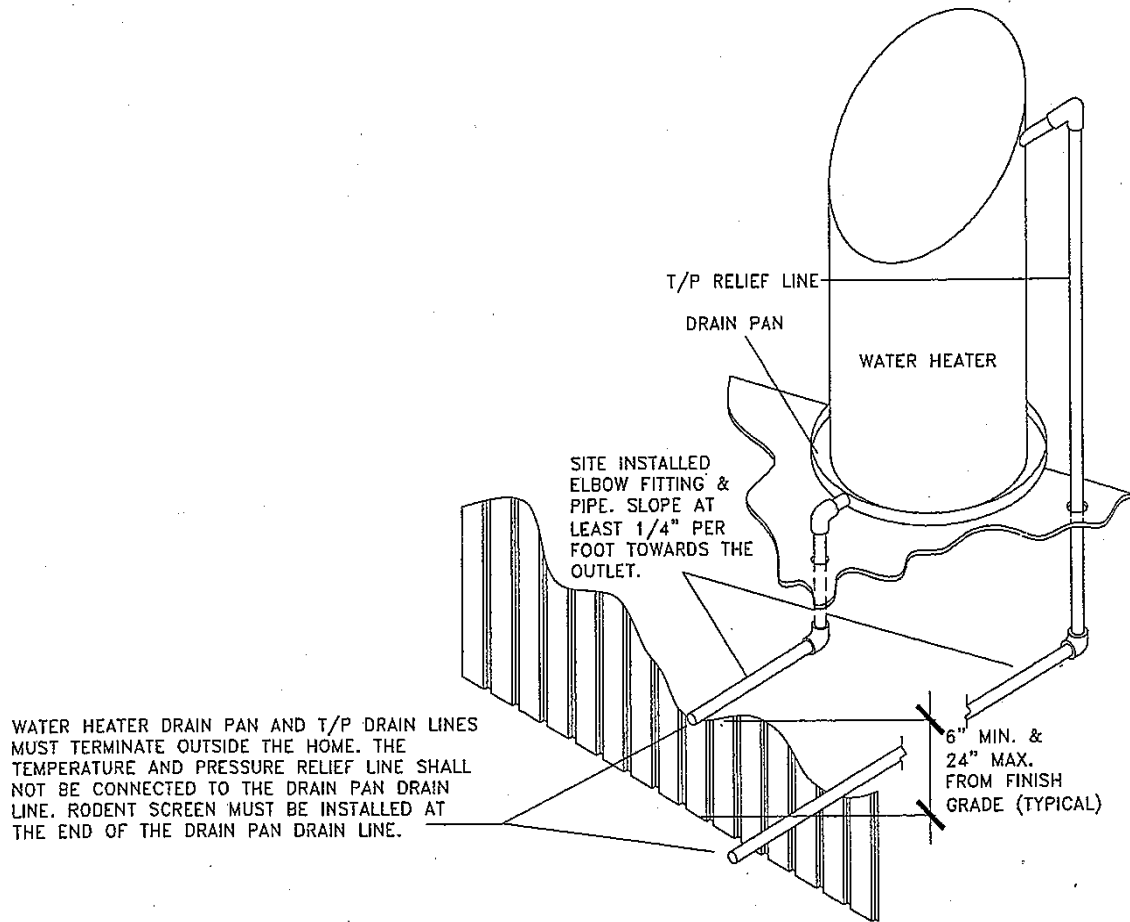
The HUD Code in Section 3280.609(c)(iii) requires the relief valve drain to be directed downward and discharge beneath the manufactured home. In Washington State, where all homes must have skirting around the entire perimeter, the state installation code, WAC 296-150I-0310(i), goes further to require that the relief valve drain must terminate to the exterior of the skirting and exhaust downward. The end of the pipe must be at least six inches but not more than two feet above the ground.

Section 608.5 of the Uniform Plumbing Code (UPC) lists the acceptable materials for the drain. It can be difficult to find a connection tube made of the acceptable materials to fit the factory-supplied tube. It may be necessary to remove the existing plastic pipe and add new tubing that extends from the relief valve to the outside. The pipe cannot be trapped and it must slope down continuously to the outside. There can be no terminal fittings.

NOTE: HUD Revision 3/15/2021: MHCSS §3280.609 Water distribution systems.

(iii) Relief valves must be provided with full-sized drains, with cross sectional areas equivalent to that of the relief valve outlet. The outlet of a pressure relief valve, temperature relief valve, or combination thereof, must not be directly connected to the drainage system. The discharge from the relief valve must be piped full size separately to the exterior of the manufactured home, not underneath the home, or to an indirect waste receptor located inside the manufactured home. Exterior relief drains shall be directed down and shall terminate between 6" and 24" above finished grade. Drain lines must be of a material listed for hot water distribution and must drain fully by gravity, must not be trapped, and must not have their outlets threaded, and the end of the drain must be visible for inspection.

For a pit-set home, it may be difficult to slope the line continuously downward to the outside, especially if the line has to go under an I-beam. Venting it into a small "window well" is not advisable. The well may clog with debris and not allow the vent to discharge quickly enough. The relief valve vent line may be plumbed through the rim joist or through the wall of the home. This action is within the intent of the state law to exhaust it outside. Another option is to route the PRV line inside the floor cavity terminating outside of the rim joist. This will allow a continuous slope downward to the outside. Water heater pans are required for all homes produced after June 2006. The pressure relief line must exit the skirting of the home as well as the relief line for any pan installed and not to be interconnected. Water heater pan drain can also be installed in the floor cavity and terminate to the exterior of the home through the rim joist.



CONDENSATE DRAIN

WAC 296-150I-0310(1)(p) requires heat pump and air conditioning condensation lines to be extended to the exterior of the manufactured home. This means they must terminate outside the skirting.

Section 310 of the Uniform Plumbing Code (UPC) specifies a continuous slope of at least 1/8 inch per foot. It can be difficult to achieve a continuous slope if the home is pit set. Your local inspector may be able to give you suggestions for solving this problem.

Section 310 of the UPC allows the condensate drain to be plumbed into an approved plumbing fixture. Do not plumb it into the sewer system as it may allow sewer gases to enter the home. This causes a serious problem when furnaces have the condensate drain on the negative side of the blower. Water in the condensate drain line trap evaporates in the winter, allowing sewer gases to enter.

NOTE: There is a trap in the line at the furnace. Avoid any dips in the line, double trapping is not recommended. It is important that the outlet is below the elevation of the pan under the furnace.

CLOTHES DRYER EXHAUST

WAC 296-150I-0310(1)(h) requires dryer vents to exhaust or terminate to the exterior side of the wall or skirting. Dryer ducts outside the manufactured home must comply with the dryer manufacturer's specifications or shall be made of metal with smooth interior surfaces. The HUD Code, in Section 708, says that dryer exhaust ducts must be installed in accordance with the dryer manufacturer's printed instructions. Always check the dryer manufacturer's instructions and follow them. They take priority over any other regulations.

Where possible, the dryer may be vented through the utility room exterior wall. If the dryer duct goes through the floor, it is the responsibility of the manufactured home installer to install the dryer duct through the floor and through the crawl space to the outside as part of installing the home and skirting.

If the dryer vent must be exhausted under the home and out to the skirting, it needs to be installed with the proper slope with no dips in the duct. Moisture and lint could be trapped in dips in the duct. The Super Good Cents specifications require the duct to be installed with no dips. However, avoiding dips in the duct is recommended for all homes. See Appendix C for the Super Good Cents Specifications.

As with the water heater relief valve drain, sloping the dryer vent continuously to the outside can be difficult in the case of pit-set homes, or if the vent goes through the floor inboard of an I-beam. Run the vent under the I-beam with as little dip as possible. Smooth pipe allows the duct to be longer. The illustration on page 8-12 shows the duct going under the I-beam and level out through the skirting. For difficult installations, check with the local building inspector to ensure the solution you propose will be accepted.

For homes where the dryer manufacturer's instructions are not available, you must follow the requirements of the installation code listed above and ducts should be installed in compliance with Section 504 of the International Mechanical Code (IMC) to ensure the installation will pass inspection by the local jurisdiction. The IMC requirements are as follows:

2015 IMC 504.1 Installation. Clothes dryers shall be exhausted in accordance with the manufacturer's instructions. Dryer exhaust systems shall be independent of all other systems and shall convey the moisture and any products of *combustion* to the outside of the building.

504.4 Exhaust installation. Dryer exhaust duct for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow. Clothes dryer exhaust ducts shall not be connected

to a vent connector, vent or chimney. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums.

504.5 Dryer exhaust duct power ventilators. Domestic dryer exhaust duct power ventilators shall be listed and labeled to UL 705 for use in dryer exhaust duct systems. The dryer exhaust duct power ventilator shall be installed in accordance with the manufacturer's instructions.

504.6 Domestic clothes dryer ducts. Exhaust ducts for domestic clothes dryers shall conform to the requirements of Sections 504.6.1 through 504.6.7.

504.7 Protection required. Protective shield plates shall be placed where nails or screws from finish or other work are likely to penetrate the clothes dryer exhaust duct. Shield plates shall be placed on the finish face of all framing members where there is less than 1 ¼ inches (32 mm) between the duct and the finish face of the framing member. Protective shield plates shall be constructed of steel, have a thickness of 0.062 inch (1.6 mm) and extend a minimum of 2 inches (51 mm) above sole plates and below the top plates.

504.8.1 Material and size. Exhaust ducts shall have a smooth interior finish and shall be constructed of metal a minimum 0.016 inch (0.4 mm) thick. The exhaust duct size shall be 4 inches (102 mm) nominal in diameter.

504.8.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than 1/8 inch (3.2mm) into the inside of the duct.

504.8.3 Transition ducts. Transition ducts used to connect the dryer to the exhaust duct system shall be a single length that is *listed* and *labeled* in accordance with UL 2158A. Transition ducts shall be a maximum of 8 feet (2438 mm) in length and shall not be concealed within construction.

504.8.4 Duct length. The maximum allowable exhaust duct length shall be determined by one of the methods specified in Section 504.8.4.1 or 504.8.4.3.

504.8.4.1 Specified length. The maximum length of the exhaust shall be 35 feet (10 668 mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used, the maximum length of the exhaust duct shall be reduced in accordance with Table 504.8.4.1.

504.8.4.2 Manufacturer's instructions. The maximum length of the exhaust duct shall be determined by the dryer manufacturer's installation instructions. The code official shall be provided with a copy of the installation instructions for the make and model of the dryer. Where the exhaust duct is to be concealed, the installation instructions shall be provided to the code official prior to the concealment inspection. In the absence of fitting equivalent length calculations from the clothes dryer manufacturer, Table 504.8.4.1 shall be used.

504.8.4.3 Dryer exhaust duct power ventilator length. The maximum length of the exhaust duct shall be determined by the dryer exhaust duct power ventilator manufacturer’s installation instructions.

504.8.5 Length identification. Where the exhaust duct equivalent length exceeds 35 feet (10 688mm), the equivalent length of the exhaust duct shall be identified on a permanent label or tag. The label or tag shall be located within 6 feet (1829 mm) of the exhaust duct connection.

504.8.6 Exhaust duct required. Where space for a clothes dryer is provided, an exhaust duct system shall be installed. Where the clothes dryer is not installed at the time of occupancy, the exhaust duct shall be capped at the location of the future dryer.

Exception: Where a listed condensing clothes dryer is installed prior to occupancy of structure.

**TABLE 504.6.4.1
DRYER EXHAUST DUCT FITTING EQUIVALENT LENGTH**

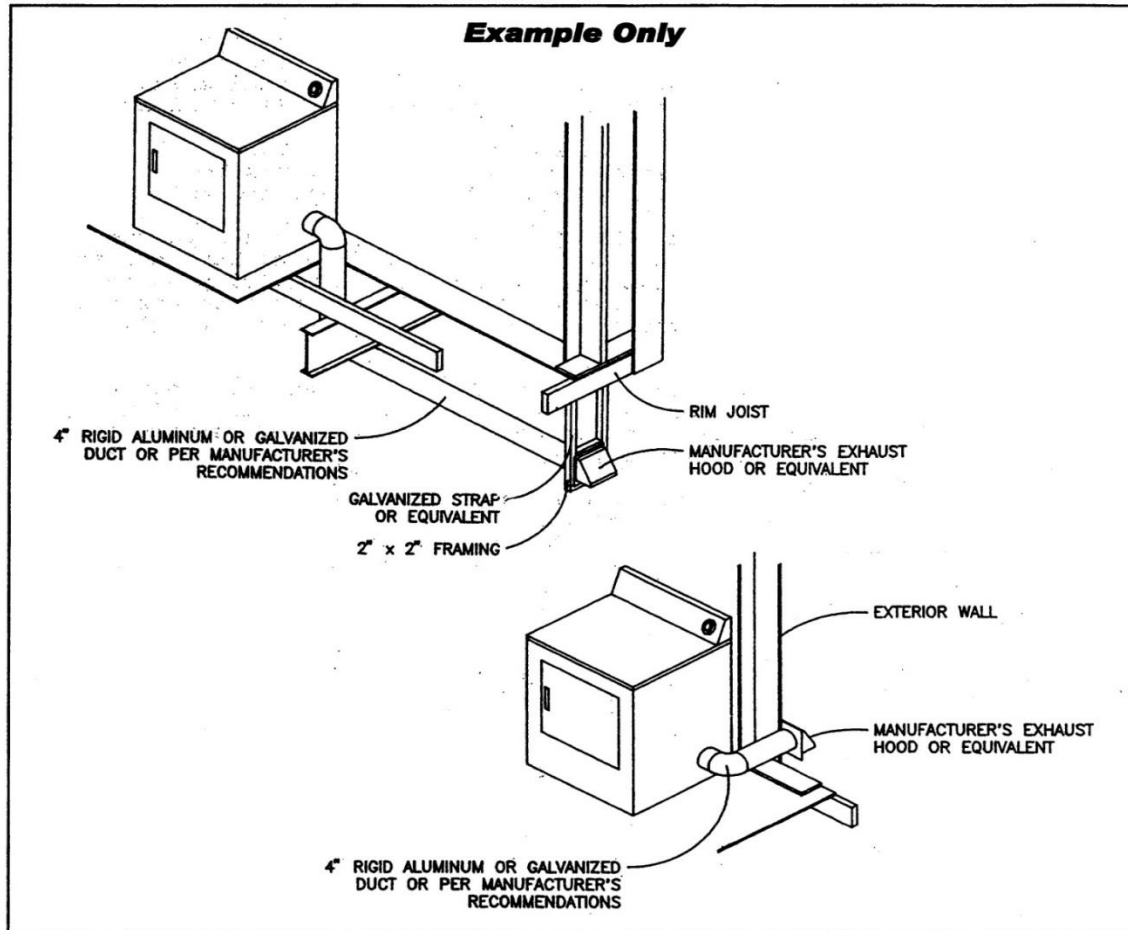
DRYER EXHAUST DUCT FITTING TYPE	EQUIVALENT LENGTH
4" radius mitered 45-degree elbow	2 feet 6 inches
4" radius mitered 90-degree elbow	5 feet
6" radius mitered 45-degree elbow	1 foot
6" radius mitered 90-degree elbow	1 foot 9 inches

For a manufactured home where the duct goes through the floor, the flexible connector may connect to the top of the smooth metal dryer exhaust duct that goes through the floor. *Flex duct may not be used through the floor or under the home.* The exhaust duct through the floor and through the crawl space must be smooth metal. The connector may be according to the duct manufacturer's requirements.

NOTE: Some home manufacturers ship flexible dryer exhaust connectors with the home; they are not to be used under the floor of the home. Refer to the requirements of WAC 296-150I-0310(1)(h) in Appendix A.

NOTE: Be aware that all site built homes require the dryer vent to be insulated per the WSEC. During the final inspection this may be identified by the LAHJ to be completed.

Washington State Energy Code R403.3.1 Insulation (Prescriptive). Ducts outside the building thermal envelope shall be insulated to a minimum of R-8.



Chapter 9

Finishing

- **Sealing**
 - Belly Fabric**
 - Interior Sealing**
 - Exterior Sealing**
- **Windows and Doors**
- **Ventilation Systems**
- **Appliances**
 - Furnace**
 - Smoke Alarms**
- **Dealer Lot Models**
- **Installation Checklist**
- **Inspections**
- **Inspection Checklist**
- **Auxiliary Structures and Alterations**
- **Cleaning**
- **Consumer Complaint Program**

FINISHING THE HOME

This chapter discusses finishing the interior and exterior of the home, including floors, walls, ceilings, and the roof. It also includes checks and adjustments, final checklist, and inspections.

SEALING

Belly Fabric (Bottom Covering)

Fastened to the underside of the floor of the home is a special covering designed to protect against rodents and moisture, as well as to isolate the floor cavity from outside air. Entry of outside air into the home's floor cavity is one of the most frequent causes of freezing water pipes.

Be sure to closely inspect this bottom covering for any loosening or for areas that might have been damaged or torn during transportation or installation. Reseal with tape any splits or tears and any openings around the perimeter of the floor covering or around pipes or pipe hangers. Also check to be sure that plumbing p-traps are well insulated and covered.

To repair tears or holes in belly fabric/bottom covering, use a vinyl tape specially designed for this purpose. Pull torn edges together and cover with tape, or apply a patch of belly fabric and tape to close up all sides. See Appendix D, page D-6.

INTERIOR SEALING

Repair all interior walls and ceiling cracks and make any other necessary repairs. Follow the home manufacturer's installation manual for instructions on interior close up.

It is not necessary to remove all trim and caulk that should have been sealed at the factory unless there is an obvious air leakage problem. Whenever trim is removed or left for installation on site, check the crack and caulk if necessary before adding the trim.

Homes with taped and textured drywall are usually better sealed because the plaster does a good job of air sealing. Patch all cracks and holes prior to texturing. Use drywall or patching tape on repairs, this will seal better and can reduce the number of return visits.

Experience with air leakage testing of manufactured homes has shown that it is difficult to seal homes with wallboard and trim (not taped and textured) well enough to meet the Super Good Cents air leakage standard. The solution is to caulk all cracks in the wallboard before putting on the finishing trim. Caulk all cracks where sections of wallboard meet, including seams in the wall, corners, where the wall meets the ceiling, and at the floor.

Check the marriage line seals before putting interior trim on the end walls, ceiling, and floor. If the initial seal is not sufficient, check the home manufacturer's installation instructions. If the gap does not require shimming, use closed-cell foam in a can for large cracks. If shimming is

required, follow the home manufacturer's installation instructions. Refer to Chapter 5 of this manual for more information about sealing gaps in the marriage line.

Carpet pad will not seal the floor marriage line sufficiently to prevent air leakage. Use foam, caulk, or cement to fill all cracks and holes in the floor before carpeting or vinyl is laid. Cement type material works best. Adding acrylic improves workability and ease of application.

Another place to check for air leaks is around plumbing and electrical holes. Seal penetrations under sinks. Use foam for large holes and caulk for smaller ones. Do not use pure silicone caulk around electrical wires because it may dissolve the plastic covering. Acrylic latex caulk with silicone, which is a Super Good Cents requirement, works well and is good practice for all homes.

EXTERIOR SEALING

In addition to your other responsibilities as a certified manufactured home installer, you are also a roofer. As a roofer you know the most important function of a roof is to keep rain from seeping into the home. It is important to install the ridge cap according to the home manufacturer's installation instructions. When installing the ridge cap, begin roofing at the *opposite* end of where the prevailing winds blow.

Before installing the ridge cap, check the roof thoroughly for any shingles that may have been loosened or damaged during transportation. Repair or replace roofing material as needed. Remove any fasteners used to hold protective covering for transport and seal all resulting holes. Check roof vents for damage and seal any edges that may have blown up during transport. Remove any protective covers and ensure that air passages are open. See Chapter 7 for combustion exhaust vents.

Roofing over the marriage line correctly is extremely important to keep rain from seeping into the home. It is not necessary, however, to seal the exterior marriage line to prevent air from entering the home. Air leakage should be sealed per the home manufacturer's instructions by using sill sealer or some other acceptable product during interior close up.

Before placing siding over marriage line in exterior walls, check the seal. Add foam or caulk as necessary to seal for weather protection before adding siding or close-up trim. If exterior siding was shipped-loose, install according to manufacturer's instructions. Be sure to remove protective polyethylene sheathing to prevent condensation buildup, resulting in damage to the home. Make sure the close-up strips of exterior siding material are fastened securely and the edges sealed with a waterproof sealant.

WINDOWS AND DOORS

Windows

Sliding windows sometimes need adjustment or cleaning. Remove blocks from sliding windows and check their operation. Clean dirt out of the tracks. Open the vents in the frame to allow the ventilation air to enter. These window frame vents are usually in each bedroom and in the main living areas.

Check alignment by opening the window a slight amount. The crack width should not be more than about an eighth of an inch different from one end to the other. If it exceeds this amount, the window may need adjustment. If the windows are not aligned properly, check to see if the home is level and re-level the home if necessary. If the home is level and the windows need adjustment, the adjustment should be done by the factory. To adjust a window, the exterior trim needs to be removed, the window removed and re-attached, and the trim replaced. Report window alignment problems to the retailer for correction.

Doors

Exterior doors are sometimes set completely and sometimes partially at the factory. In some cases, they are not set at all. Regardless of how the doors are set at the factory, it is your responsibility to see that they are installed, aligned, work properly, and seal tightly on site. The thresholds must be level and adjusted to seal to the bottom of the doors. Frames need to be square and plumb. Instructions for door installation should be located in the kitchen drawer.

A door attached in the factory with only a few screws indicates you should completely remove the door and frame and reset it. Clean out all debris from the area before reinstalling it.

Do not force the doors open before the home is leveled as they can be damaged. Remove trim as necessary and set the door properly. Ensure the threshold is caulked at the floor. Door adjustments must be made after the home is set, blocked, and leveled.

The seal at the bottom of the door usually has several rubber blades hanging down. These blades contact the top of the threshold to seal it. Adjust the threshold so the front blade turns out, allowing water to run off toward the outside. If it is too tight, all blades turn under and water will not run off as intended.

When the door is closed, make sure the weather-stripping is in contact all around and seals well. You should not be able to see daylight between the door and gasket when looking from inside to outside with the door closed.

One detail of proper door operation is the fit of the sliding bolt into the strike plate. If the bolt has a locking pin next to it, the pin should not go into the hole in the door jamb when the door is closed tightly. That pin must stay out of the hole for security. It prevents the bolt from being pushed into the door when locked. This is called a "card lock."

Chapter 9 - Finishing

Sliding glass doors usually have adjustable rollers so you can get the vertical gap the same from top to bottom. Be sure perimeter blocking is properly installed under each side of the opening (see Chapter 4).

VENTILATION SYSTEMS

In addition to insulation and air sealing, ventilation is important for energy efficient homes. Tight air sealing plus mechanical ventilation has proven to be the best way to ventilate a home. Seal the home completely. Leaving air paths allows the home to over-ventilate during winter and under-ventilate in spring and fall.

The following ventilation systems are used in all manufactured homes:

1. Spot ventilation, consisting of exhaust fans in the kitchen, bath, and utility rooms;
and
2. Whole house ventilation incorporated into the central furnace or whole house exhaust fans with labeled switches.

Ensure all ventilation systems work properly by following the equipment manufacturer's instructions for testing the system. When relocating older homes, make sure all ventilation systems are working properly; inform the homeowner about systems that need to be replaced.

APPLIANCES

Appliance checks must be performed after the electricity has been connected.

Check that the water heater is working by opening a hot water faucet. Both thermostats should be set at the same temperature. These are factory set, however, and may be set to the proper temperature. *WA State Energy code requires that the temperature of the water heater shall be set at 120 degrees F.*

Unpack and check the operation of all appliances. Remember to remove the paperwork from inside the dishwasher before running it. Place paperwork for appliances in a kitchen drawer.

Ensure that the formaldehyde warning label is attached to the kitchen counter (see HUD Code, Section 309). This label must remain in place until completion of the sales transaction. (*When a retailer installs a home, the sales transaction is complete when the installation is completed. See Part 3282, Section 252(b).*) If the label is misplaced in transit or at the retailer's lot, you need to get a replacement label and attach it to the kitchen counter. This is an important legal requirement from HUD.

FURNACE

Turn on the central furnace and make sure it heats the house. Check to see that air comes out of all heating registers. If there is lack of air in home sections away from the furnace, check for blockage in the crossover ducts. Also check the tape at the riser trunk connection.

Check that the heating thermostat works. Often it is replaced with a new one if air conditioning or a heat pump is later added.

SMOKE ALARMS

Section 208 of the HUD Code; Smoke Alarm Requirements, gives general requirements for smoke alarms, their required locations, labeling, and installation. Check the operation of all smoke alarms by pressing the test button.

DEALER LOT MODELS

Homes that are sold off dealer lots may contain shortages due to removing items to repair or replace in other customer sold homes. Check entire home to verify if any shortages exist such as removing plumbing and electrical items.

WAC 296-150I-0330 What are the requirements for temporary placement of manufactured homes? Manufactured homes placed on temporary display or in storage by a manufacturer, dealer or distributor in excess of thirty days shall be:

- 1) Supported under each main frame I-beam by supports located within two feet of each end and within four feet of the front and rear axle and other supports so that no span shall exceed sixteen feet; and
- 2) Made weather tight at any marriage line joint at the roof and wall lines.
- 3) In addition to (1) & (2), manufactured homes in storage or on display longer than 90 days must also be supported at each centerline column and along each rim joist at the manufacturers identified support points.

INSTALLATION CHECKLIST

As a certified installer, you should have a checklist covering each element of installation you perform. In addition to the items you need to complete, your checklist should contain items that need attention from the dealer, the factory, things to point out to the homeowner, and any required inspections.

The following sample checklist has been provided as a guide in creating your own checklist, or it may be reproduced for your use.

MANUFACTURED HOME INSTALLATION CHECKLIST EXAMPLE

FOUNDATION SUPPORT

- Footings properly sized and constructed for the soil conditions
- Pier spacing per data plate and applicable table and roof load zone
- Piers properly constructed and vertical
- Perimeter blocking installed
- Piers at each side of openings 48" inches or larger
- Piers beneath all outside exterior doors (except when over header beam)
- Centerline piers installed at columns
- Shims in place and tight

ANCHORS

- Approved anchors are used
- Proper anchors installed based on soil conditions
- Anchors are installed at correct angles
- Anchor spacing and installation correct
- Longitudinal ties installed (if required)
- Anchor straps are tensioned

UNDER THE HOME

- Moisture retarder installed (six-mil polyethylene sheeting)
- The ground under and around the home has been properly graded to prevent water from collecting or flowing beneath the home
- HVAC ducts are supported off the ground and connected tightly to collars at all ends
- Fireplace combustion air intake free and unrestricted
- No holes or tears in bottom board
- Skirting has been installed per manufacturer's instructions with proper venting and provision for frost heave
- Skirting has been attached in a manner that does not cause water to be trapped between the siding and trim and cannot be forced up into the wall cavity
- Dryer vent, range/cook top exhaust, water heater temperature and pressure relief overflow pipe and AC condensate drain installed to perimeter of crawl space

EXTERIORS

- Shingled roofs are free of visible damage and serious defects and there are no missing or loose shingles
- Shingle close-up and ridge cap have been completed per applicable details
- All hold down straps on shingled roofs have been removed and holes have been properly sealed

Chapter 9 - Finishing

- ___ Penetrations at roof stacks, vents and chimneys have been properly sealed
- ___ Siding and trim is free of gaps, voids, missing fasteners, damage and serious defects
- ___ Gutters and downspouts are installed properly such that water is diverted away from the home
- ___ Trees and bushes have been trimmed to prevent brushing against the home in windy conditions or under snow loads
- ___ The HUD label is exposed, intact and legible
- ___ The exterior of the home and immediate surroundings is clean, clear of construction materials, dust and debris

INTERIOR

- ___ Ceilings, walls and floor coverings are free from damage and serious defects
- ___ Carpeting is properly stretched and seamed
- ___ All trim and moldings is installed properly and free of damage and defects
- ___ All cabinets, countertops, plumbing fixtures, appliances, furnishings and window coverings are free of damage or serious defects
- ___ All cabinet doors and drawers work properly
- ___ All interior and exterior doors and windows open, close and latch properly
- ___ One window in each bedroom meets emergency egress requirements, has operating instructions labels on it and operates properly
- ___ All temporary shipping hardware has been removed
- ___ Floors are level
- ___ The data plate is intact and legible
- ___ Smoke alarms have been tested
- ___ The interior of the home is clean, clear of materials, dust and debris

WATER AND DRAIN SYSTEMS

- ___ Crossover and service connection and splices have been properly made with correct materials
- ___ Water and drain lines are insulated or otherwise protected from freezing
- ___ Pipe supports are installed and properly spaced
- ___ Proper slope has been maintained on all drain lines
- ___ All necessary inspections and tests have been performed
- ___ 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

- ___ The panel amperage matches the connection to the home
- ___ The home has been properly grounded
- ___ The main power supply has been properly connected and tested by a licensed electrician
- ___ Continuity test have been conducted
- ___ Polarity test have been conducted
- ___ Operational test have been conducted
- ___ All electrical crossovers have been connected
- ___ All receptacles, switches and light fixtures operate properly
- ___ Ground fault circuit interrupters operate properly
- ___ All exterior lights have been properly installed
- ___ Smoke alarms have been tested

GAS/FUEL OIL SYSTEMS

- ___ The gas system pressure test has been conducted
- ___ Connections between units are properly made with access as required
- ___ The main fuel line has been properly connected and tested by a qualified technician

APPLIANCE OPERATING AND VENTING

- ___ All appliances are working properly
- ___ Appliance venting is in accordance with the manufacturer's instructions
- ___ Fresh air intakes are properly installed
- ___ Whole house, kitchen and bath exhaust fan operation are correct
- ___ Fireplace chimney stack extension and roof cap have been installed in accordance with the manufacturer's instructions
- ___ Air conditioner/heat pump is sized properly

MISCELLANEOUS

- ___ Installation/anchoring certificates or seals have been issued and installed (if required)
- ___ Owner's and operation manuals are available for all appliances
- ___ This installation manual is left with the home
- ___ Marriage line gasket has been installed and inspected

INSPECTIONS

The number of inspections will vary with the local jurisdiction. Generally there are at least three inspections by the local building department: (1) set back and forms before concrete is poured for footings, (2) after installation of the home but before skirting is installed, and (3) final. You need to schedule these inspections with the building department. In addition, some jurisdictions inspect the site prior to issuing the placement permit. *Washington State law, RCW43.22.440, requires local jurisdictions to charge fees and enforce manufactured home installations in the same manner they enforce the state building code.*

Inspection Checklist

The Manufactured Home Installation inspection Checklist on the following pages was developed in cooperation with the Washington Association of Building Officials. The inspection checklist is designed to standardize installation inspections across the state as well for use as a training tool. You are encouraged to reproduce the checklist for use in the field. You may also contact L&I at (800) 705-1411 option 3 to obtain a copy.

Installation Instructions – Required Location

WAC 296-150I-0380 requires that the home manufacturer's installation manual shall be located between the I-beam and the bottom board (belly fabric). It shall be located within five feet of the main electrical feeder when the skirting has not been installed and within five feet of the access opening when the skirting has been installed. The location of the manufacturer's installation instructions is particularly important because the WAC requires its use in home installation. The local inspectors need to have the installation manual readily available outside the home for use in the inspection process.

OTHER INSPECTIONS

The electrical inspector must inspect the entrance cables, ground rod, etc. before the home can be energized. Normally you do not have any direct responsibility with the electrical inspector. Electrical inspection is the electrician's responsibility. The electrical inspection is usually performed by Labor and Industries Electrical program; however, some cities in Washington have their own electrical program and inspectors.



Manufactured Home Installation Inspection Checklist

- Yes No **Installer Certification**
- If present during inspection, has the supervising installer shown proof of certification?
- One or more Installer Certification Tags attached to the home indicating all installation work performed by a certified installer? *(Not required for work performed by homeowner.)*
- Yes No **Site Preparation**
- Is the home site properly graded and sloped to prevent water from collecting under the home? (e.g. 1/2 inch per foot for minimum of 10 feet around home.)
- If home is pit set and/or on a sloping site, is natural drainage adequately diverted to prevent water from collecting under home?
- Yes No **Installation Instructions**
- Are the manufacturer's installation instructions, instructions of an engineer or architect, or 24 CFR Part 3285 HUD Model Installation Code. (For relocated homes) available for use during inspection?
- Yes No **Foundation & Support Piers**
- Do clearances under the home meet the requirements of WAC 296-150I-0310(1)(I)? (18 inches beneath at least 75% of the lowest member of the main frame and no less than 12 inches anywhere under the home.)
- If applicable, are pre-poured concrete runners or full slabs placed to the minimum thickness required by: 1) home manufacturer's instructions, 2) instructions of an engineer or architect, or 3) 24 CFR Part 3285 HUD Model Installation Code. (for relocated homes)?
- Do footings (individual pads, runners, or slabs) meet the local frost-depth requirements?
- Are foundation pier pads and support piers sized and placed according to the specifications set forth in the: 1) home manufacturer's instructions, 2) instructions of an engineer or architect, or 3) 24 CFR Part 3285 HUD Model Installation Code. (for relocated homes)?
- If prefabricated piers are used, are the piers installed according to the pier manufacturer's instructions? Has engineering documentation been provided?
- Are concrete piers shimmed and wedged so all piers make equal contact with the home? Or, are metal piers adjusted and connected so all piers make equal contact with the home?
- Is the home level?
- If an engineered full foundation system is installed, is the installation according to the system manufacturer's instructions? Has engineering data been supplied?
- Yes No **Anchoring**
- Are anchors spaced according to: 1) home manufacturer's installation instructions, 2) the instructions of an engineer or architect, or 3) 24 CFR Part 3285 HUD Model Installation Code. (for relocated homes); **and** are they installed according to the equipment manufacturer's instructions?
- If an earthquake resistant bracing system is installed, is the installation according to the equipment manufacturer's instructions? Has engineering data been supplied? *(The requirement to use earthquake resistant bracing systems is set by the local jurisdiction.)*

Chapter 9 - Finishing

Yes No

Skirting

- Are skirting vents installed according to the home manufacturer's instructions? Or, do vents have a net area of not less than one square foot for each 150 square feet of under floor area as set out in WAC 296-150I-0310(1)(d)(ii)? (*Homes sited in flood plains: Local jurisdictions determine venting requirements.*)
- Is skirting made of material suitable for ground contact?
- Is skirting recessed behind the siding or trim?
- Run the skirting along the perimeter of the home's heated, conditioned space.
- Is an access opening of not less than 18 x 24 inches located so that all areas under the home are available for inspection? Is it covered with a sufficient access cover?

Yes No

Other

- Is a ground cover installed (Minimum 6 mil black polyethylene or equivalent per WAC 296-150I-0310 (1)(k))?
- Are the structural connections of the home sections made per the manufacturer's instructions?
- Is the heating crossover duct connected properly?
- Is the heating crossover duct supported off the ground?
- Are the plumbing water and waste crossovers connected properly?
- Is the drain pipe supported according to the manufacturer's installation instructions?
- If under floor plumbing was shipped-loose, is it installed according to the instructions provided by the home manufacturer? *NOTE: Any deviation from the home manufacturer's original design and instructions is considered an alteration to be permitted and inspected by Department of Labor and Industries and must be completed by a certified plumber.*
- If jurisdiction completes electrical inspection, is the electrical crossover connected properly?
- Are all holes and tears in the belly fabric patched in an approved manner?
- If required, where a wood or pellet stove is installed, is it blocked? Is the combustion air vented from the crawl space or exterior of the home?
- Is the dryer vented to the exterior and 1) does it comply with the dryer manufacturer's specifications; or 2) is metal with smooth interior surfaces used?
- Has the testing of water lines, waste lines, and gas lines been verified with the installer?
- Are heat pump and air conditioning condensation lines extended to the exterior of the home?
- Are the water heater pressure relief valve and pan relief line terminated to the exterior and then down?
- Is water piping protected against freezing per the home manufacturer's instructions? Or is a heat tape listed for use with manufactured homes installed per the tape manufacturer's instructions?

This check list was prepared by the Department of Labor and Industries, PO Box 44420, Olympia, Washington 98504-4420. If you have comments regarding this check list, or have questions regarding installation of manufactured homes in Washington State, please contact the Manufactured Home Installer Training and Certification Program at 800-705-1411 (option 3).

AUXILIARY STRUCTURES & ALTERATIONS

Two terms have important definitions for manufactured homes. One is *auxiliary structure* and the other is *alteration*. The difference between the two is very important since each requires a different permitting and inspection process.

Auxiliary structures are buildings, enclosures, or other structures that are self-supporting, not supported by the home. If the structures use any of the systems in the manufactured home, such as connecting to the electrical system, an alterations permit and inspection must be obtained from L&I. Auxiliary structures can include garages, carports, exterior stairs, porches, walkways, and landings.

An addition or repair that affects or uses the structure or mechanical equipment of the home is called an alteration. Examples are changes to the heating or cooling system, added windows or sliding glass doors, and any structure that is supported fully or partially by the home.

Auxiliary Structures

Self-supporting awnings and carports may be connected to the home by flashing but may not be supported by the home or use any of the mechanical systems in the home. Fasteners that attach an auxiliary structure to the home would hold only nominal force since the auxiliary structure must be self-supporting. If the home is moved to another site, the auxiliary structure could be separated for transport.

Auxiliary structures are under the codes and jurisdiction of the local building department. The International Building Code is the primary governing code. The local building inspector must inspect and approve all auxiliary structures. Auxiliary structures may also be governed by zoning ordinances, and community covenants and restrictions. Fire separation may be required between the manufactured home and auxiliary structures. It is your responsibility to check with the local jurisdiction for their requirements before installing an auxiliary structure.

The footings for auxiliary structures must be protected from frost heave unless the structure is not attached to the home and is designed to rise and fall with the freezing ground. If the auxiliary structure is attached, even if not supported by the home, the movement of the auxiliary structure from frost heave will place stress at the point of attachment and can cause damage to the home.

Alterations

Alterations are governed by the Washington State Department of Labor and Industries. Alterations require an alteration permit and must be inspected and approved by a representative of that department. (See RCW 43.22.360.) Alterations may also be governed by local ordinances, covenants, or other restrictions. Contact the local jurisdictions to determine what restrictions, if any, apply to the work you will be doing. For example, an outdoor air conditioning coil would have to meet applicable setback, visual, noise, or other local standards.

The Department of Labor and Industries published a brochure that identifies work that requires an alteration permit and inspection. The brochure is titled, *Your Manufactured/Mobile Home: What Homeowners and Contractors should know when altering a home.* Contact your local Labor and Industries office to obtain a copy of the brochure or call their toll-free number, 1-800-547-8367. The brochure also lists work that is exempt from the alteration permit and inspection process.

Work to the home that is considered an alteration includes but is not limited to the following:

- Installing a central air conditioner or heat pump (*Even if the home is shipped heat-pump ready.*)
- Electrical system changes,
- Changing from electric to gas appliances,
- Furnace, water heater, air conditioner, or heat pump replacement,
- Any changes to the structure of the home,
- Re-roofing and truss repairs,
- Installing a wood or pellet stove, and
- Changes to the plumbing system.

CLEANING

You need to clean the home to the extent of construction cleaning. Cleaning of the home is often misunderstood between the new homeowner and the retailer. There should be a specific agreement or at least understanding between the homeowner and retailer about the degree of cleaning the retailer is responsible for.

Check the heating ducts with a mirror and flashlight and clean out all debris and drywall dust.

Before touching up exterior paint, clean off all road dirt that has accumulated on the outside of the home, especially at the hitch end.

CONSUMER COMPLAINT PROGRAM (HUD's SAA Program)

Installers may refer Washington State homeowners to the Manufactured Home Consumer Complaint Program at Labor and Industries. L&I staff will work with manufacturers to resolve manufactured home problems that originated in the manufacturing process. This program has two major purposes. The first is to ensure that serious home defects that may endanger consumers' health and safety are corrected quickly. The second is to help manufacturers identify and correct serious product or structural defects that may exist in a group of homes.

To initiate the process, a homeowner calls the State Administrative Agency (SAA) staff to discuss problems with the home. Program staff provides technical assistance and send the homeowner a Request for Assistance form. Upon receipt of the homeowner's completed form, it is sent to the manufacturer, who is required to investigate the complaint(s), make a determination as to the severity of each complaint item, investigate for repeated nonconformance's, and decide on the action to be taken. The manufacturer has 20 days to report this information back to the Consumer Complaint Program staff. In cases where more serious problems are not being resolved, staff may schedule a visit to the home with all of the parties concerned to inspect the complaints and mediate a resolution.

Homeowners may contact program staff by calling 1-800-705-1411 option 3, or by contacting or writing too:

Department of Labor and Industries
Installer/SAA Program
Attention Charles Parton
PO Box 44420
Olympia, WA 98504-4420
pacs235@lni.wa.gov
(509) 454-3785

Chapter 10
Glossary

*Terms Used in
Manufactured
Home Installation*

The following terms are defined and clarified as they are used in relation to the installation of manufactured homes.

Accessible - When applied to a fixture, connection, appliance, or equipment, having access thereto, but which may require removal of an access panel or opening of a door (HUD Code Section 3280.602 and UPC). See also Readily Accessible.

Accessible, Readily - Signifies access without the necessity for removing a panel or similar obstruction.

Air Sealing - Sealing the home to reduce air exchange from outside.

Alteration - Is the replacement, addition, modification, or removal of any equipment or installation that affects the construction, planning considerations, fire safety, or the plumbing, mechanical, and electrical systems of a manufactured home. Any structure that puts weight on the home is an alteration. In Washington State, alterations must be approved and inspected by Labor and Industries.

Alternate Construction - Alternative construction of a manufactured home is construction which does not comply completely with the Federal Manufactured Home Construction and Safety Standards but has been approved under Section 3282.14 of the HUD regulations. The purpose of this section is to encourage innovation and the use of technology in manufactured homes. The section establishes certain criteria and procedures for specific HUD approval of alternative construction. Such construction items requiring specific approval could include designs for basement, non-insulated floors for basement installation, tankless water heater, installation of whole house fans for homes designed for over 2,571, accessible showers installed after home is set-up.

Anchoring Equipment - Straps, cables, turnbuckles, and chains, including tensioning devices to secure a home to ground anchors or anchors in concrete footings. This equipment when installed will resist the uplift, overturning, and lateral forces on the manufactured home and on its support and foundation system.

Approved Homeowner – Is an individual person who owns a manufactured home and who also has passed the departments’ installer training class and test, with the intention of installing their home and residing in that home upon completion of the installation work.

ASTM - American Society of Testing and Materials.

Authorized Representative – Means an employee of a state agency, city, or county acting on behalf of the department.

Auxiliary Structure - A carport, building, shed or enclosure that is next to but not supported by the manufactured home. Auxiliary structures may or may not touch the home. They may be flashed or connected to the home, but cannot be held up by the home. Auxiliary structures must be approved and inspected by the local jurisdiction.

Base Flood Elevation (BFE) - The elevation of the base flood, including wave height, relative to the data specified on a LAHJ's flood hazard map.

Bonding - Permanent joining of metallic parts to form an electrically conductive path that will ensure electrical continuity and the capacity to conduct safely any current likely to be imposed.

Bottom Board – Means the close up material on the bottom side of the manufactured home floor that protects it from rodents and transportation damage and meets the requirements of 24 CFR 3280.305(g)(6). Also known as belly board, belly fabric, belly blanket, and bottom covering.

Building Sewer - That part of the drainage system that extends from the end of the building drain and conveys its discharge to a public sewer, private sewer, individual sewage-disposal system or other point of disposal.

BTU - British Thermal Unit. A measure of heat or energy, equal to the amount of heat needed to raise the temperature of one pound of water one degree Fahrenheit.

Cantilever - Extending beyond the weight-bearing support in such a way as to bend the horizontal support. For example, the weight of exterior walls is cantilevered on the floor joists past the I-beams.

Chassis - The steel frame, which is part of the entire transportable system comprising the following subsystems: drawbar and coupling mechanism, frame, running gear assembly, and lights.

Column - Load-bearing post. Usually along the marriage line, these may or may not be concealed within walls. See ridge beam column.

Combustion Air - Air required for burning wood in a stove, or gas in a gas system. It must be taken from outside the heated space. It may sometimes be taken from under the home, and is sometimes required to be taken from outside the skirting.

Concrete Block - A structural concrete block conforming to ASTM Standard C90 for hollow core blocks or ASTM Standard C145 for solid blocks. Nominal dimensions are eight inches wide by 16 inches long by eight inches high. Concrete blocks are traditionally used to construct piers to support the home, although metal stands are also used. Hollow-core blocks have a generally-accepted working strength of 8,000 pounds in a single stack.

Crawl Space - The space under the manufactured home between the underbelly and the ground, and enclosed by the skirting. The crawl space is not the crawl space access hatch.

Crossovers - Utility connections in multiple section manufactured/mobile homes that are located where the sections are joined. Crossover connections include heating and cooling ducts, electrical circuits, potable hot and cold water supply, plumbing drain, and gas lines.

DAPIA: Design Approval Primary Inspection Agency – Is a Design Approval Primary Inspection Agency as approved by the United States Department of Housing and Urban Development and defined by 24 CFR 3286.3.

Data Certificate - Every manufacturer shall identify on a data plate in readily accessible and visible location (usually found under the kitchen sink, a utility room closet, or bedroom closet). Information containing the name and address of the manufacturing plant in which the home was manufactured. The serial number and model designation and the date the home was manufactured. A statement that reads that “this manufactured home is designed to comply with the federal Manufactured Home Construction and Safety Standards in force at the time of manufacture. A list of the certification label number(s) that are affixed to each transportable manufactured section. A list of major factory-installed equipment, including the manufacturer’s name and the model designation of each appliance. Reference to the roof load and wind load zones, along with the heating/cooling certificate and insulation zone map required by 3280.510 and 3280.511. The Design approval agency that approved the design.

Dead Loads - The weight of all materials of construction incorporated into the building, including but not limited to walls, floors, roofs, ceilings, stairways, built-in partitions, finishes, cladding, and other similarly incorporated architectural and structural items, and fixed service equipment.

Design Load - A general term that refers to the maximum load that would occur during design conditions. It is the load that is used for design purposes in calculations to size the structure or equipment.

Diagonal Tie - A tie designed to provide horizontal and vertical resistance to wind load. A diagonal tie is normally placed at a 45-degree angle from the vertical, plus or minus five degrees.

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 (HUD Code Section 3280.602).

Drain Outlet - The lowest end of the main or secondary drain to which a sewer connection is made (HUD Code Section 3280.602).

Earthquake-Resistant Bracing System - A certified and approved anchoring, bracing, or support system designed and constructed to protect the health and safety of the occupants of, and reducing damage to a manufactured dwelling in the event of an earthquake.

Effective Footing Area - The part of a footing that is capable of supporting the structure above it. Usually measured in square inches.

Fascia - In architecture, a flat, horizontal band. Skirting in manufactured homes is sometimes referred to as foundation fascia.

Federal Emergency Management Agency (FEMA) - Federal Emergency Management Agency (FEMA) is part of the U.S. Department of Homeland Security (DHS). The primary mission of the Federal Emergency Management Agency is to reduce the loss of life and property and protect the Nation from all hazards, including natural disasters, acts of terrorism, and other man-made disasters, by leading and supporting the Nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.

Final Infraction – Means an infraction that was not appealed during the time period required by 43.22A.200, or was unsuccessfully contested via the appeal process allowed by law. 20140-8000

Flame Spread - The propagation of flame over a surface.

Footing - That portion of the support system that transmits loads from the manufactured home directly to the ground.

Foundation System - A system of support that is capable of transferring all design loads to the ground, including elements of the support system, as defined in this section, or a site-built permanent foundation that meets the requirements of 24 CFR 3282.12.

Frame - The fabricated, rigid substructure that provides support to the affixed manufactured dwelling structure, both during transport and on-site; and provides a platform for securement of the running gear assembly and the draw bar and coupling mechanism.

Free-Standing - Standing alone; not connected to or supported by the manufactured home.

Frost Heave - The rising and falling of the ground surface as moisture in the ground freezes and thaws.

Frost Line - Also frost depth. The maximum probable depth that undisturbed soil will freeze. Typically measured in inches. Varies from six to 42 inches in Washington. Determined by local jurisdiction.

Gas Supply Connector - A listed connector designed for connecting the home to the gas supply source.

Heat Tape - Electrical wire designed to provide freeze protection to pipes. Heat tape does not require cutting.

HUD - The United States Department of Housing and Urban Development with headquarters located in Washington, D.C.

HUD Certification Label - means the approved form of certification by the manufacturer that, under §3280.8, is a 2"x4" metal label permanently affixed to each transportable section of each manufactured home manufactured for sale in the United States.

HUD Code – 24 CFR 3280 – 3288 Manufactured Home Construction and Safety Standards

IAMPO - International Association of Mechanical and Plumbing Officials.

I-Beam - Main frame. Each section has two I-beams running the length of the home.

IBTS – The Institute for Building Technology and Safety, 45207 Research Place, Ashburn, VA. 20147.

Installation – Means all on-site work necessary for the setting up and completion of a manufactured or mobile home, starting with the preparation of the building site through final permit approval by the local enforcement agency. Some categories of installation work may be exempt from certification requirements.

Installation Instructions - Instructions provided by the home manufacturer or by an architect or engineer for containing specific instructions for installation of a home.

Installation Manual - A manual provided by the home manufacturer which contains DAPIA-approved engineering specifications specific for the installation of the home. Or CFR 24 MHCSS 3285 to assure that a manufactured home is set up in accordance with the applicable installation standards.

Installation Permit - The required permit for placement of a home. Must be obtained from the local enforcement agency before the home may be delivered to the site.

IPIA - The Primary Inspection Agency approved by the United States Department of Housing and Urban Development to audit manufactured home production factories. The Department of Labor and Industries is HUD's designated IPIA for Washington State.

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.

Live Loads - Those loads and weights that can move around that are produced by the use and occupancy of the building or other structure and do not include construction or environmental loads such as wind load, snow load, rain load, earthquake load, flood load or dead load.

Local Enforcement Agency – Is the governing body of each city, town or county with the power to enforce local regulations governing the use, location and construction of buildings in that jurisdiction.

Longitudinal - Running the length of the home, such as longitudinal floor joists.

Manufactured Home - A structure, transportable in one or more sections, designed for residential use and built according to the June 1976, HUD Code. See HUD Code Section 3280.2 and WAC 296-150I-0020 for full definitions.

Marriage Line - Where two or more sections of a multi-section home are joined, also referred to as centerline and mating line.

Mil - A measure of length, or thickness. A mil is equal to one-thousandth of an inch. For example, a six-mil plastic ground cover is 0.006 inch thick.

Mobile Home – Means a factory-built dwelling, built before June 15, 1976, to standards other than the national manufactured housing construction and safety standards act of 1974 (42 U.S.C. 5401 et esq.), and acceptable under applicable state codes in affect at the time of construction or introduction of the home into this state.

Modular Home - Modular homes are not manufactured homes. Modular homes are built to the International Building Code and transported to the site to be assembled on a permanent foundation. They may or may not have a permanent chassis.

NEC - National Electric Code.

NFVA - Net free ventilation area. This is the area for air flow of a vent after subtracting for screens and louvers. Screens and louvers may reduce the NFVA of a vent by 2/3. The NFVA is stamped on prefabricated vents. NFVA is usually measured in square inches.

Notice of Infraction – Means a form used by the department to notify contractors, manufacturers, dealers and developers that an infraction under this chapter has been filed against them.

Outrigger - Metal brace that extends from the main frame to support the long exterior walls of each section of the home.

Perimeter Blocking - Piers installed to support the outside long wall of the home.

Permanent Foundation - A foundation system similar to that which would be built under a site-built home. Permanent foundation is defined on Page 1-1 of the HUD publication “Permanent Foundations Guide for Manufactured Housing,” HUD-7584. See the HUD User web site www.huduser.org/ for information on how to order this publication.

Pier - That portion of the support system between the footing and the manufactured home, exclusive of shims. Types of piers include, but are not limited to: Manufactured steel stands; pressure-treated wood; manufactured concrete stands; concrete blocks; and portions of foundation walls.

Pit Set - A type of installation in which the home is set low, requiring the crawl space to be excavated below grade to allow room for adequate clearance under the home.

Potable Water - Water free from impurities present in amounts sufficient to cause disease or harmful physiological effects and conforming in bacteriological and chemical quality to the requirements of the public health authority having jurisdiction.

Preemptive - Overruling from a higher authority. For example, the HUD Code is preemptive over state and local codes.

Prefabricated Pier - A listed or approved individual pier which is manufactured at an off-site location but does not include concrete masonry units or earthquake-resistant bracing systems.

PVC - Polyvinyl chloride. A type of plastic used for water supply pipe, electrical conduit, and clothes dryer duct. As of a 1986 rule, HUD will not allow PVC electrical conduit under a manufactured home except in the vertical direction. PVC plumbing pipe is not allowed in or under any buildings by the UPC. Flexible PVC duct may be used as a connector from the clothes dryer to a duct if allowed by the dryer manufacturer, but not under the home.

Ramada - A freestanding roof structure erected above a manufactured home, to protect it from excessive snow loads greater than what the home was designed to support.

Registered Design Professional - Engineer or Architect 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.

Retailer/Dealer – A business who represents one or more manufacturer's in selling manufactured/mobile homes to consumers or to another business.

Ridge Beam - Structural beam that runs along the top of the home at the marriage line.

Ridge Beam Column - Post at each end of a span where there is no load-bearing wall at the marriage line.

Rim Joist - The wood joist the same size as the floor joist that goes around the home section. When two sections of a home are joined, the rim joists are fastened together side by side.

Seismic - Relating to or caused by an earthquake or ground vibration.

Serial Number - A number assigned by the manufacturer to each home. A double-wide or triple-wide may have the same serial number for each section except they may end -A or -B or -C, or -X, -Y, or -Z. The serial number is stamped permanently on the foremost cross member and is also on the Data Plate inside the home.

Shim - A spacer. It may be constant thickness or tapered. If it is tapered, it is called a wedge. Shims are made of hardwood and used to level the home.

Site Completion - Any work required by the home design that cannot be completed in the factory, or when the manufacturer authorizes the retailer to provide an add-on, not including an attached garage, to the home during installation, when that work would take the home out of conformance with the construction and safety standards and then bring it back into conformance;

Site Preparation - The process of getting a site ready for installation of a home.

Skirting - A weather-resistant material used to enclose the perimeter crawl space, under the living area of the manufactured/mobile home, from the bottom of the manufactured/mobile home to grade. Sometimes referred to as foundation fascia, skirting can be load bearing or decorative.

Snow Load - The weight of snow on the roof. Usually refers to the maximum probable weight that the roof may experience. Typically measured in pounds per square foot of roof area. Snow load is a separate load from dead load and live load.

Soil Bearing Capacity - The ability of the ground to support a load, usually measured in pounds per square foot.

Soil Compaction - The process of mechanically compressing fill to the required 90 percent relative density to form a solid base for footings under the home.

State Administrative Agency (SAA) - An agency of the state (Labor and Industries) which has been approved by HUD to carry out the state plan for enforcement of the standards pursuant to Section 604 of the Act (42 U.S.C., and Part of the Federal Regulations).

Support System - Pilings, columns, footings, piers, foundation walls, shims, and any combination thereof that, when properly installed, support the home.

Tensile Strength - The ability of a material to resist pulling apart. Usually measured in pounds.

Transverse - Going across. For example, most manufactured homes have transverse floor joints that go across the home.

Tributary Span - The standard structural term for spans. The tributary span for a given post extends in each direction half way to the next post.

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

Vapor Retarder - Means a ground cover material of 6-mil black polyethylene sheeting or equivalent. A material that slows the transfer of water vapor. Plastic ground cover has low vapor permeability and therefore is a vapor retarder.

Vertical Tie - A tie designed to resist vertical uplift and overturning forces of the home. A vertical tie goes from a reinforced part of the outside wall directly down to a ground anchor. Vertical ties are normally not needed in Wind Zone I.

WAC - Washington Administrative Code. Rules written by a state agency to carry out a state law.

WAINS Tag - A tag issues by the department to certified manufactured/mobile home installers that are placed on the home upon completion of the installation for verification of work performed.

Wedge - A tapered shim, used for adjusting the space between the top of a pier and the home.

Wind Load - The force on the home caused by the wind.

Wind Zone - Established by HUD, there are three wind zones in the United States. All of Washington State is in Wind Zone I. The areas designated on the Basic Wind Zone Map, as further defined in MHCSS 3280.305(c) of the Manufactured Home Construction and Safety Standards in this chapter, which delineate the wind design load requirements.

Appendix A

Manufactured/Mobile Home Installer Certification and Installation Laws

- **RCW 43.22A**
- **RCW 43.22.440**
- **WAC 296-150I**

Chapter 43.22A RCW
MOBILE AND MANUFACTURED HOME INSTALLATION

Certified on 9/1/2023

Sections

- 43.22A.005 Purpose.
- 43.22A.010 Definitions.
- 43.22A.020 Manufactured housing—Department duties.
- 43.22A.030 Manufactured housing—Federal standards—Enforcement.
- 43.22A.040 Installer certification—Application—Training.
- 43.22A.050 Installer certification—Training course—Examination.
- 43.22A.060 Installer certification—Alternative to department training course—Rules.
- 43.22A.070 Installer certification—Issuance of certificate—Renewal —Suspension of license or certificate for noncompliance with support order.
- 43.22A.080 Installer certification—Revocation.
- 43.22A.090 Certification program fees.
- 43.22A.100 Manufactured home installation training account.
- 43.22A.110 Local government installation application and permit requirements.
- 43.22A.120 Certified installer required on-site—Infraction— Exceptions.
- 43.22A.130 Certified installer required on-site—Infraction—Notice.
- 43.22A.140 Violations—Investigations—Inspections.
- 43.22A.150 Violations—Separate infraction for each day, each worksite.
- 43.22A.160 Violation—Use of uncertified installer.
- 43.22A.170 Notice of infraction.
- 43.22A.180 Notice as determination.
- 43.22A.190 Penalty.
- 43.22A.200 Appeals.
- 43.22A.210 Manufactured homes—Warranty disputes.
- 43.22A.220 Rule adoption—Enforcement.
- 43.22A.901 Effective date—1994 c 284.

RCW 43.22A.005 Purpose.

The purpose of this chapter is to ensure that all manufactured and mobile homes are installed by a certified manufactured home installer in accordance with the state installation requirements, chapter 296-150I WAC, in order to provide greater protections to consumers and make the warranty requirement of *RCW 46.70.134 easier to achieve.

[2023 c 36 § 2. Prior: 1994 c 284 § 14. Formerly RCW 43.63B.005.]

***Reviser's note:** The reference in 1994 c 284 § 14 to "section 2 of this act" was erroneous. Section 10 of that act, codified as RCW 46.70.134, was apparently intended.

Dispute mediation: RCW 43.22A.210.

RCW 43.22A.010 Definitions.

Unless the context clearly requires otherwise, the definitions in this section apply throughout this chapter.

- (1) "Authorized representative" means an employee of a state agency, city, or county acting on behalf of the department.
- (2) "Certified manufactured home installer" means a person who is in the business of installing manufactured or mobile homes and who has been issued a certificate by the department as provided in this chapter.
- (3) "Department" means the department of labor and industries.
- (4) "Director" means the director of labor and industries.
- (5) "Manufactured home" means a single-family dwelling built in accordance with the department of housing and urban development manufactured home construction and safety standards act, which is a national, preemptive building code.
- (6) "Manufactured or mobile home installation" means all on-site work necessary for the setting up and completion of a manufactured or mobile home, starting with the preparation of the building site through the final permit approval.
- (7) "Manufactured home standards" means the manufactured home construction and safety standards as promulgated by the United States department of housing and urban development (HUD).
- (8) "Mobile home" means a factory-built dwelling built prior to June 15, 1976, to standards other than the HUD code, and acceptable under applicable state codes in effect at the time of construction or introduction of the home into the state. Mobile homes have not been built since introduction of the HUD manufactured home construction and safety standards act.
- (9) "Training course" means the education program administered by the department, or the education course administered by an approved educational provider, as a prerequisite to taking the examination for certification.
- (10) "Approved educational provider" means an organization approved by the department to provide education and training of manufactured home installers and local inspectors.

[2023 c 36 § 3; 2007 c 432 § 3; 1998 c 124 § 6; 1994 c 284 § 15. Formerly RCW 43.63B.010.]

RCW 43.22A.020 Manufactured housing—Department duties.

Beginning on July 1, 2007, the department shall perform all the consumer complaint and related functions of the state administrative agency that are required for purposes of complying with the regulations established by the federal department of housing and urban development for manufactured housing, including the preparation and submission of the state administrative plan. The department may enter into state or local interagency agreements to coordinate site inspection activities with record monitoring and complaint handling. The interagency agreement may also provide for the reimbursement for cost of work that an agency performs. The department may include other related areas in any interagency agreements which are necessary for the efficient provision of services.

[2023 c 36 § 4; 2007 c 432 § 1; 1993 c 280 § 76; 1990 c 176 § 2. Formerly RCW 43.63A.460.]

Effective date—1993 c 280: See RCW 43.330.902.

RCW 43.22A.030 Manufactured housing—Federal standards—Enforcement. (Contingent expiration date.)

The director shall enforce manufactured housing safety and construction standards adopted by the secretary of housing and urban development under the national manufactured housing construction and safety standards act of 1974 (800 Stat. 700; 42 U.S.C. Secs. 5401-5426). Furthermore, the director may make agreements with the United States government, state agencies, or private inspection organizations to implement the development and enforcement of applicable provisions of this chapter and the national manufactured housing construction and safety standards act of 1974 (800 Stat. 700; 42 U.S.C. Secs. 5401-5426) regarding the state administrative agency program.

[2007 c 432 § 2; 1995 c 399 § 74; 1993 c 124 § 1. Formerly RCW 43.63A.465.]

Contingent expiration date—2007 c 432 § 2: "Section 2 of this act expires if the contingency in RCW 43.63A.490 occurs."

[2007 c 432 § 15.]

Contingent expiration date—RCW 43.22A.030 and 43.63A.470 through 43.63A.490: See RCW 43.63A.490.

Contingent expiration date—1995 c 399 § 74: "The 1995 amendments to RCW 43.63A.465 shall expire and be of no force and effect on January 1 in any year following the failure of the United States department of housing and urban development to reimburse the state for the duties described in chapter 124, Laws of 1993."

[1995 c 399 § 219. Formerly RCW 43.63A.4651.]

RCW 43.22A.040 Installer certification—Application—Training.

A person desiring to be issued a certificate of manufactured home installation as provided in this chapter shall make application to the department, in such a form as required by the department.

Upon receipt of the application and evidence required in this chapter, the director shall review the information and make a determination as to whether the applicant is eligible to take the training course and examination for the certificate of manufactured home installation. An applicant must furnish written evidence of six months of experience under the direct supervision of a certified manufactured home installer, or other equivalent experience, in order to be eligible to take the training course and examination. The director shall establish reasonable rules for the training course and examinations to be given to applicants for certificates of manufactured home installation. Upon determining that the applicant is eligible to take the training course and examination, the director shall notify the applicant, indicating the time and place for taking the training course and examination.

The requirement that an applicant must be under the direct supervision of a certified manufactured home installer for six months only applies to applications made on or after July 1, 1996. For applications made before July 1, 1996, the department shall require evidence of experience to satisfy this requirement.

The director may allow other persons to take the training course and examination on manufactured home installation, without certification.

[1994 c 284 § 17. Formerly RCW 43.63B.020.]

RCW 43.22A.050 Installer certification—Training course—Examination.

The department shall prepare a written training course and examination to be administered to applicants for manufactured home installer certification. The examination shall be constructed to determine whether the applicant:

- (1) Possesses general knowledge of the technical information and practical procedures that are necessary for manufactured home installation;
- (2) Is familiar with the federal and state codes and administrative rules pertaining to manufactured homes; and
- (3) Is familiar with the local government regulations as related to manufactured home installations.

The department shall certify the results of the examination and shall notify the applicant in writing whether the applicant has passed or failed the examination. An applicant who failed the examination may retake the training course and examination. The director may not limit the number of times that a person may take the training course and examination.

[1994 c 284 § 18. Formerly RCW 43.63B.030.]

RCW 43.22A.060 Installer certification—Alternative to department training course—Rules.

The department shall adopt rules to establish and administer a process of approving educational providers as an alternative to the department training course for installers and local inspectors.

[1998 c 124 § 7. Formerly RCW 43.63B.035.]

RCW 43.22A.070 Installer certification—Issuance of certificate—Renewal—Suspension of license or certificate for noncompliance with support order.

(1) The department shall issue a certificate of manufactured home installation to an applicant who has taken the training course, passed the examination, paid the fees, and in all other respects meets the qualifications. The certificate shall bear the date of issuance, a certification identification number, and is renewable every three years upon application and completion of a continuing education program as determined by the department. A renewal fee shall be assessed for each certificate. If a person fails to renew a certificate by the renewal date, the person must retake the examination and pay the examination fee.

(2) The certificate of manufactured home installation provided for in this chapter grants the holder the right to engage in manufactured home installation throughout the state, without any other installer certification.

(3) The department shall immediately suspend the license or certificate of a person who has been certified pursuant to RCW 74.20A.320 by the department of social and health services as a person who is not in compliance with a support order or a *residential or visitation order. If the person has continued to meet all other requirements for reinstatement during the suspension, reissuance of the license or certificate shall be automatic upon the department's receipt of a release issued by the department of social and health services stating that the licensee is in compliance with the order.

[1997 c 58 § 874; 1994 c 284 § 19. Formerly RCW 43.63B.040.]

***Reviser's note:** 1997 c 58 § 886 requiring a court to order certification of noncompliance with residential provisions of a court ordered parenting plan was vetoed. Provisions ordering the department of social and health services to certify a responsible parent based on a court order to certify for noncompliance with residential provisions of a parenting plan were vetoed. See RCW 74.20A.320.

Short title—Part headings, captions, table of contents not law—Exemptions and waivers from federal law—Conflict with federal requirements—Severability—1997 c 58: See RCW 74.08A.900 through 74.08A.904.

Effective dates—Intent—1997 c 58: See notes following RCW 74.20A.320.

RCW 43.22A.080 Installer certification—Revocation.

(1) The department may revoke a certificate of manufactured home installation upon the following grounds:

- (a) The certificate was obtained through error or fraud;
- (b) The holder of the certificate is judged to be incompetent as a result of multiple infractions of the state installation requirements, WAC 296-150I-0300 through 296-150I-0410; or
- (c) The holder has violated a provision of this chapter or a rule adopted to implement this chapter.

(2) Before a certificate of manufactured home installation is revoked, the holder must be given written notice of the department's intention to revoke the certificate, sent using a method by which the mailing can be tracked or the delivery can be confirmed to the holder's last known address. The notice shall enumerate the allegations against the holder, and shall give the holder the opportunity to request a hearing. At the hearing, the department and the holder may produce witnesses and give testimony. The hearing shall be conducted in accordance with the provisions of chapter 34.05 RCW.

[2023 c 36 § 5; 2011 c 301 § 11; 1994 c 284 § 21. Formerly RCW 43.63B.050.]

RCW 43.22A.090 Certification program fees.

(1) The department shall charge reasonable fees to cover the costs to administer the certification program which shall include but not be limited to the issuance, renewal, and reinstatement of all certificates, training courses, and examinations required under this chapter. All fees collected under this chapter shall be deposited in the manufactured home installation training account created in RCW 43.22A.100 and used only for the purposes specified in this chapter. The fees shall be limited to covering the direct cost of issuing the certificates, administering the examinations, and administering and enforcing this chapter. The costs shall include only essential travel, per diem, and administrative support costs.

(2) For the purposes of implementing chapter 432, Laws of 2007, until July 1, 2008, the department may increase fees for the certification program in excess of the fiscal growth factor under chapter 43.135 RCW.

[2007 c 432 § 11; 1994 c 284 § 22. Formerly RCW 43.63B.070.]

RCW 43.22A.100 Manufactured home installation training account.

The manufactured home installation training account is created in the state treasury. All receipts collected under this chapter and RCW 46.17.150 and any legislative appropriations for manufactured home installation training shall be deposited into the account. Moneys in the account may only be spent after appropriation. Expenditures from the account may only be used for the purposes of this chapter. Unexpended and unencumbered moneys that remain in the account at the end of the fiscal year do not revert to the state general fund but remain in the account, separately accounted for, as a contingency reserve.

[2011 c 158 § 3; 1994 c 284 § 23. Formerly RCW 43.63B.080.]

Transfer of residual funds to manufactured home installation training account—2011 c 158: "Any residual balance of funds remaining in the manufactured housing account must be transferred to the manufactured home installation training account created in RCW 43.22A.100. The treasurer shall make the transfer after being notified by the office of financial management that it has completed the financial statement for fiscal year 2011, and no later than December 31, 2011."

[2011 c 158 § 8.]

RCW 43.22A.110 Local government installation application and permit requirements.

Any local government manufactured or mobile home installation application and permit shall state either the name and registration number of the contractor or licensed manufactured home dealer or the certification identification number of the certified manufactured home installer supervising such installation. A local government may not issue final approval for the installation of a manufactured home unless the certified installer or the installer's agent has posted at the set-up site the manufactured home installer's certification number and has identified the work being performed on the manufactured home installation on a form prescribed by the department.

[2023 c 36 § 6; 1998 c 124 § 8; 1994 c 284 § 20. Formerly RCW 43.63B.060.]

RCW 43.22A.120 Certified installer required on-site—Infraction—Exceptions.

After July 1, 1995, a manufactured or mobile home may not be installed without a certified manufactured home installer providing on-site supervision whenever installation work is being performed. The certified manufactured home installer is responsible for the reading, understanding, and following of the manufacturer's installation instructions and performance of noncertified workers engaged in the installation of the home. There shall be at least one certified manufactured home installer on the installation site whenever installation work is being performed.

A manufactured home installer certification shall not be required for:

- (1) Site preparation;
- (2) Sewer and water connections outside of the building site;
- (3) Specialty trades that are responsible for constructing accessory structures such as garages, carports, and decks;
- (4) Pouring concrete into forms;
- (5) Painting and dry wall finishing;
- (6) Carpet installation;
- (7) Specialty work performed within the scope of their license by licensed plumbers or electricians. This provision does not waive or lessen any state regulations related to licensing or permits required for electricians or plumbers;
- (8) A manufactured or mobile homeowner performing installation work on their own home; and
- (9) A manufacturer's home installation crew installing a manufactured or mobile home sold by the manufacturer except for the on-site supervisor.

Violation of this section is an infraction.

[2023 c 36 § 7; 1994 c 284 § 16. Formerly RCW 43.63B.090.]

RCW 43.22A.130 Certified installer required on-site—Infraction—Notice.

An authorized representative of the department may issue a notice of infraction if the person supervising the manufactured home installation work fails to produce evidence of having a certificate issued by the department in accordance with this chapter. A notice of infraction issued under this chapter shall be personally served on or sent using a method by which the mailing can be tracked or the delivery can be confirmed to the person named in the notice by the authorized representative.

[2011 c 301 § 12; 1994 c 284 § 25. Formerly RCW 43.63B.100.]

RCW 43.22A.140 Violations—Investigations—Inspections.

An authorized representative may investigate alleged or apparent violations of this chapter. Upon presentation of credentials, an authorized representative, including a local government building official, may inspect sites at which manufactured home installation work is undertaken to determine whether such work is being done under the supervision of a certified manufactured home installer and conforms with the state installation requirements. Upon request of the authorized representative, a person performing manufactured home installation work shall identify the person holding the certificate issued by the department in accordance with this chapter.

[2023 c 36 § 8; 1994 c 284 § 24. Formerly RCW 43.63B.110.]

RCW 43.22A.150 Violations—Separate infraction for each day, each worksite.

Each day in which a person engages in the installation of manufactured homes in violation of this chapter is a separate infraction. Each worksite at which a person engages in the trade of manufactured home installation in violation of this chapter is a separate infraction.

[1994 c 284 § 27. Formerly RCW 43.63B.120.]

RCW 43.22A.160 Violation—Use of uncertified installer.

It is a violation of this chapter for any contractor, manufactured home dealer, manufacturer, or home dealer's or manufacturer's agent to engage any person to install a manufactured home who is not certified in accordance with this chapter.

[1994 c 284 § 28. Formerly RCW 43.63B.130.]

RCW 43.22A.170 Notice of infraction.

- (1) The department shall prescribe the form of the notice of infraction issued under this chapter.
- (2) The notice of infraction shall include the following:
 - (a) A statement that the notice represents a determination that the infraction has been committed by the person named in the notice and that the determination is final unless contested as provided in this chapter;
 - (b) A statement that the infraction is a noncriminal offense for which imprisonment may not be imposed as a sanction;
 - (c) A statement of the specific infraction for which the notice was issued;
 - (d) A statement of a monetary penalty that has been established for the infraction;
 - (e) A statement of the options provided in this chapter for responding to the notice and the procedures necessary to exercise these options;
 - (f) A statement that, at a hearing to contest the determination, the state has the burden of proving, by a preponderance of the evidence, that the infraction was committed, and that the person may subpoena witnesses including the authorized representative who issued and served the notice of the infraction; and
 - (g) A statement that failure to respond to a notice of infraction is a misdemeanor and may be punished by a fine or imprisonment in jail.

[2006 c 270 § 11; 1994 c 284 § 26. Formerly RCW 43.63B.140.]

RCW 43.22A.180 Notice as determination.

Unless contested in accordance with this chapter, the notice of infraction represents a determination that the person to whom the notice was issued committed the infraction.

[1994 c 284 § 30. Formerly RCW 43.63B.160.]

RCW 43.22A.190 Penalty.

(1) A person found to have committed an infraction under this chapter may be assessed a monetary penalty of two hundred fifty dollars for the first infraction and not more than one thousand dollars for a second or subsequent infraction. The department shall set by rule a schedule of monetary penalties for infractions imposed under this chapter.

(2) The administrative law judge may waive, reduce, or suspend the monetary penalty imposed for the infraction.

(3) Monetary penalties collected under this chapter shall be deposited into the manufactured home installation training account created in RCW 43.22A.100 for the purposes specified in this chapter.

[2017 c 10 § 1; 2007 c 432 § 5; 1994 c 284 § 31. Formerly RCW 43.63B.170.]

RCW 43.22A.200 Appeals.

If a party desires to contest a notice of infraction and civil penalty issued under this chapter, the party must file a notice of appeal with the department within twenty days of the department mailing the notice of civil penalty. An administrative law judge of the office of administrative hearings shall hear and determine the appeal. Appeal proceedings must be conducted under chapter 34.05 RCW. An appeal of the administrative law judge's determination or order must be to the superior court. The superior court's decision is subject only to discretionary review under the rules of appellate procedure.

[2007 c 432 § 4; 1994 c 284 § 29. Formerly RCW 43.63B.150.]

RCW 43.22A.210 Manufactured homes—Warranty disputes.

The department may mediate disputes that arise regarding any warranty required in chapter 46.70 RCW pertaining to the purchase or installation of a manufactured home. The department may charge reasonable fees for this service and shall deposit the moneys collected in accordance with RCW 43.22A.100.

[2007 c 432 § 8; 1994 c 284 § 12. Formerly RCW 46.70.136.]

Effective date—1994 c 284: See RCW 43.22A.901.

RCW 43.22A.220 Rule adoption—Enforcement.

The director may adopt rules in accordance with chapter 34.05 RCW, make specific decisions, orders, and rulings, include demands and findings within the decisions, orders, and rulings, and take other necessary action for the implementation and enforcement of duties under this chapter.

[1994 c 284 § 32. Formerly RCW 43.63B.800.]

RCW 43.22A.901 Effective date—1994 c 284.

This act is necessary for the immediate preservation of the public peace, health, or safety, or support of the state government and its existing public institutions, and shall take effect immediately [April 1, 1994].

[1994 c 284 § 35. Formerly RCW 43.63B.901.]

Chapter 43.22.440 RCW
DEPARTMENT OF LABOR AND INDUSTRIES

RCW 43.22.440 Manufactured and mobile home installation service and warranty service standards—Enforcement.

(1) The legislature finds that inspections of manufactured and mobile home installation are not done on a consistent basis. Manufactured and mobile homes provide housing for many people in the state, and improperly installed manufactured or mobile homes are a serious health and safety risk. Where possible and practical, manufactured and mobile homes should be treated the same as any housing inhabited or to be inhabited by persons in this state, including housing built according to the state building code.

(2) In consultation with the factory assembled structures advisory board for manufactured homes, the director of labor and industries shall by rule establish uniform standards for the performance and workmanship of installation service and warranty service by persons or entities engaged in performing the services within this state for all manufactured and mobile homes, as defined in RCW 46.04.302. The standards shall conform, where applicable, with statutes, rules, and recommendations established under the national manufactured home construction and safety standards act of 1974 (42 U.S.C. Sec. 5401 et seq.). These rules regarding the installation of manufactured and mobile homes shall be enforced and fees charged by the counties and cities in the same manner the state building code is enforced under RCW 19.27.050.

(3) In addition to and in conjunction with the remedies provided in this chapter, failure to remedy any breach of the standards and rules so established, upon adequate notice and within a reasonable time, is a violation of the consumer protection act, chapter 19.86 RCW and subject to the remedies provided in that chapter.

[2001 c 335 § 6; 1988 c 239 § 5; 1980 c 153 § 1.]

Application—2001 c 335: See note following RCW 43.22.335.

Chapter 296-150I WAC
MANUFACTURED AND MOBILE HOME INSTALLATION

Last Update: 10/17/23

WAC

- 296-150I-0010 Authority, purpose, scope.
 296-150I-0020 Definitions that apply to this chapter.

MANUFACTURED HOME INSTALLER REQUIREMENTS

- 296-150I-0030 The manufactured home installer training program requirements.
 296-150I-0040 Examination—Failure—Retaking.
 296-150I-0050 Manufactured home installer certification—Application process.
 296-150I-0060 Manufactured home installer—Continuing education requirements.
 296-150I-0070 Manufactured home installer certification renewal-Application process.
 296-150I-0080 Installer certification—Revocation.
 296-150I-0090 Requirement for applicable licenses and registrations.
 296-150I-0100 Manufactured home installation—Manufactured home installer certification required.
 296-150I-0105 Manufactured home installation—Specialty work by licensed electricians and plumbers.
 296-150I-0110 Manufactured home installation—Homeowner performing work on their own home—Exceptions.
 296-150I-0120 Manufactured home installation permit and inspections—Obligation of the dealer and certified installer.
 296-150I-0130 Manufactured home installer—Responsibilities to the consumer.
 296-150I-0140 Manufactured home installation—Installer certification tags required.
 296-150I-0160 Installer certification tag—Placement—Removal.
 296-150I-0170 Monthly certification tag report.
 296-150I-0180 Alternative education providers—Approval process and compliance.
 296-150I-0190 Legal action—Installer certification required.
 296-150I-0200 Departmental assurance of installer compliance with the requirements of chapter 43.22A RCW.
 296-150I-0210 Violations of RCW 43.22A.130 that can result in the issuance of a notice of infraction.
 296-150I-0220 Information that must be included in a notice of infraction.
 296-150I-0230 Issuance of a notice of infraction.
 296-150I-0240 Appealing a notice of infraction.
 296-150I-0250 Appeal hearings.
 296-150I-0260 Representation at the appeal hearings.

- 296-150I-0270 Appeal hearing process.
 296-150I-0280 Departmental review and consideration of appeal notices.
 296-150I-0290 Payment of assessed monetary penalties.

MANUFACTURED HOME INSTALLATION REQUIREMENTS

- 296-150I-0300 Installation standards for manufactured homes.
 296-150I-0310 Instructions for manufactured home installation.
 296-150I-0320 How to obtain a copy of the Model Manufactured Home Installation Standards 24 C.F.R. Part 3285.
 296-150I-0330 Requirements for temporary placement of manufactured homes.
 296-150I-0340 Special requirements of local enforcement agencies for installing manufactured homes in hazardous areas.
 296-150I-0350 Certification requirements for installing a manufactured home.
 296-150I-0360 Manufactured home installation permit requirements.
 296-150I-0370 Manufactured home installation inspections.
 296-150I-0375 State monitoring of manufactured home installations and inspections.
 296-150I-0380 Manufacturer's installation instructions.
 296-150I-0390 Requirements for structures adjacent to manufactured homes and who regulates them.
 296-150I-0400 Dispute concerning an installation requirement.
 296-150I-0410 Requirements if a home is damaged prior to, or during installation.
 296-150I-3000 Penalties, fees, and refunds.

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

- 296-150I-0150 Installer certification tag—Issuance by local enforcement agency.

[Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0150, filed 5/30/08, effective 6/30/08.] Repealed by WSR 22-01-193, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapters 43.22 and 43.22A RCW.

WAC 296-150I-0010 Authority, purpose, scope.

This chapter is authorized by chapter 43.22A RCW, which requires the department to train and certify manufactured home installers and by chapter 43.22 RCW which authorizes the director of L&I to set installation standards for manufactured and mobile homes. For the purposes of this chapter references to manufactured homes include mobile homes.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0010, filed 12/21/21, effective 1/31/22. Statutory Authority: Certified on 1/13/2022 Page 1 Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0010, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0020 Definitions that apply to this chapter.

- (1) "**Administrative law judge**" is any person appointed by the chief administrative law judge (as defined in RCW 34.12.020(1)) to preside at a notice of infraction appeal hearing convened under chapter 43.22A RCW.
- (2) "**Appeal hearing**" is any proceeding in which an administrative law judge is empowered to determine legal rights, duties or privileges of specific parties on behalf of the director.
- (3) "**Appellant**" means any person, contractor, firm, partnership, corporation, or other entity that has filed an appeal.
- (4) "**Approved homeowner**" is an individual person who owns a manufactured home and who also has passed the departments' installer training class and test, with the intention of installing their home and residing in that home upon completion of the installation work.
- (5) "**Authorized representative**" means an employee of a state agency, city, or county acting on behalf of the department.
- (6) "**Bottom board**" means the close up material on the bottom side of the manufactured home floor that protects it from rodents and transportation damage and meets the requirements of 24 C.F.R. Part 3280.305(g)(6).
- (7) "**Certified manufactured home installer**" means a person who is in the business of installing manufactured or mobile homes and who has been issued a certificate by the department as provided in this chapter.
- (8) "**Contractor**" is as defined in chapters 18.27, 18.106, and 19.28 RCW.
- (9) "**DAPIA**" is a design approval primary inspection agency as approved by the United States Department of Housing and Urban Development and defined by 24 C.F.R. Part 3286.3.
- (10) "**Dealer**" is the same as "manufactured/mobile home dealer" below.
- (11) "**Department**" refers to the department of labor and industries.
- (12) "**Final infraction**" means an infraction that was not appealed during the time period required by RCW 43.22A.200, or was affirmed by an administrative law judge or any court.
- (13) "**HUD**" is the U.S. Department of Housing and Urban Development, Office of Manufactured Housing Programs, Washington D.C. 20140-8000.

- (14) **"IBTS"** is the Institute for Building Technology and Safety, 45207 Research Place, Ashburn, VA 20147.
- (15) **"Infraction"** means a violation of chapter 43.22A RCW.
- (16) **"Installation"** means all on-site work necessary for the setting up and completion of a manufactured or mobile home, starting with the preparation of the building site through final permit approval by the local enforcement agency.
- (17) **"Local enforcement agency"** means any agency of the governing body of any city, county, or state which enforces laws or ordinances governing the construction of buildings.
- (18) **"Manufactured home"** means a single-family dwelling built in accordance with the Department of Housing and Urban Development Manufactured Home Construction and Safety Standards Act, which is a national, preemptive building code. Certified on 1/13/2022
- (19) **"Manufactured/mobile home dealer"** is a vehicle dealer as defined in RCW 46.70.011.
- (20) **"Manufacturer"** refers to a manufacturer of single-family dwellings built according to the Department of Housing and Urban Development Manufactured Home Construction and Safety Standards Act, which is a national, preemptive building code.
- (21) **"Mobile home"** means a factory-built dwelling built before June 15, 1976, to standards other than the National Manufactured Housing Construction and Safety Standards Act of 1974 (42 U.S.C. 5401 et seq.), and acceptable under applicable state codes in effect at the time of construction or introduction of the home into this state.
- (22) **"Notice of infraction"** means a form used by the department to notify contractors or homeowners that an infraction under this chapter has been filed against them.
- (23) **"Other equivalent experience"** means six months of hands-on experience installing manufactured homes under the guidance of a reputable, recognized manufactured home installer; or two years experience in residential or commercial construction.
- (24) **"Retailer"** means the same as "dealer" for the purposes of this section.
- (25) **"Site"** means the parcel of land approved by the local enforcement agency to accommodate the dwelling and auxiliary structures.
- (26) **"Vapor retarder"** means a ground cover material of 6 mil black polyethylene sheeting or equivalent.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0020, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0020, filed 5/30/08, effective 6/30/08.]

MANUFACTURED HOME INSTALLER REQUIREMENTS

WAC 296-150I-0030 The manufactured home installer training program requirements.

The training program must contain instruction and a written examination. The program curriculum includes, but is not limited to, the following topics:

- Relevant federal, state and local laws and standards;
- Supports, footings, anchors, site preparation, placement, closing in, plumbing, electrical, combustion appliances, skirting, interior, and exterior finishing;
- Operational checks and adjustments;
- Auxiliary or adjacent structures; and
- Alterations. As part of the training program, the department will provide a training manual to each applicant, with the contents of the above curriculum.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0030, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0030, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0040 Examination—Failure—Retaking.

The examination will only include topics covered in the training program. In order to pass the examination, applicants must answer seventy percent of the questions correctly. An applicant who fails the examination will be permitted to retake the training course and/or the examination as often as is necessary to secure a passing rate of seventy percent.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0040, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0040, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0050 Manufactured home installer certification—Application process.

A person wanting to be certified as a manufactured home installer under chapter 43.22A RCW must submit a signed application form and the fee specified in WAC 296-150I-3000 to the department. The application must contain the following information:

- (1) The applicant's full name, date of birth, driver's license number or other government identification number, and Social Security number. Social Security numbers are required on applications for professional licenses pursuant to RCW 26.23.150 and federal law PL 104-193, The Personal Responsibility and Work Opportunity Reconciliation Act of 1996.
- (2) Written affidavit documenting evidence of experience as required under RCW 43.22A.040.
- (3) Business name, phone number, and contractor registration number, if applicable. Status of applicant, i.e., owner or employee.
- (4) Training/examination location and date preference.

(5) If the application is denied by the department as a result of the applicant's failure to meet the requirements of chapter 43.22A RCW and this chapter, the department will attempt to notify the applicant prior to the date the applicant is scheduled to attend the training and examination.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0050, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2009 c 464 [564]. WSR 10-06-043, § 296-150I-0050, filed 2/23/10, effective 4/1/10. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0050, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0060 Manufactured home installer—Continuing education requirements.

Certified manufactured home installers must complete a minimum of four credit hours of continuing education every three years. The continuing education credit hours may be satisfied by attending an annual class offered by the department or a class offered by an alternative education provider approved by the department pursuant to chapter 296-150I WAC. All fees required by WAC 296-150I-3000 for continuing education classes must be paid to the department in advance.

- (1) Continuing education class curriculum will include statute, code, or rule changes and common installation problems.
- (2) If a certified installer is unable to attend the continuing education classes offered by the department or alternative education provider, the installer may attend a regularly scheduled installer certification training course.

[Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0060, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0070 Manufactured home installer certification renewal—Application process.

- (1) A certified installer may renew their certification as a manufactured home installer under chapter 43.22A RCW by filing a certification renewal application with the department.
- (2) The application must:
 - (a) Be received by the department on or before the installer's certification expiration date.
 - (b) Be accompanied by the certification renewal fee specified in WAC 296-150I-3000.
- (3) If a certified installer fails to apply for renewal and provide proof of continuing education within ninety days prior to the expiration of the installer's current certification, the installer must reapply for installer certification and meet all requirements for installer certification as set forth in chapter 43.22A RCW and this chapter.
- (4) Before a certification renewal will be issued, the certified installer must provide proof to the department that the certified installer has met the continuing education requirements set forth in this chapter.

(5) The department will attempt to notify installers prior to expiration; however, it is the installer's responsibility to ensure timely renewal.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0070, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2009 c 464 [564]. WSR 10-06-043, § 296-150I-0070, filed 2/23/10, effective 4/1/10. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0070, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0080 Installer certification—Revocation.

(1) The department may revoke an installer's certification if they receive three or more "final infractions" during their current three-year certification period. The department may judge the installer to be incompetent due to multiple infractions of the state manufactured home installer requirements and the manufactured home installation requirements. Revocation of the installer certification will be valid for two years from the effective date of the revocation.

(2) Where applicable, the department must send notice to the certificate holder's employer regarding revocation of an installer certification.

(3) A person may reapply for a manufactured home installer certification two years after the effective date of the revocation by submitting a completed application and payment for training and examination. Upon passing the written examination, a new manufactured home installer certification will be issued.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0080, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2009 c 464 [564]. WSR 10-06-043, § 296-150I-0080, filed 2/23/10, effective 4/1/10. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0080, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0090 Requirement for applicable licenses and registrations.

The issuance of a manufactured home installer certification by the department under chapter 43.22A RCW and these rules does not exempt the certified installer from compliance with any local, state, or federal requirements relative to any business or occupational licenses or registrations.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0090, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0090, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0100 Manufactured home installation—Manufactured home installer certification required.

Manufactured home installation work which falls within the scope set forth in RCW 43.22A.010(6) shall not be performed on a manufactured home without the on-site supervision of a certified manufactured home installer. Some categories of installation work are exempt from certification requirements in accordance with RCW 43.22A.120, WAC 296-150I-0105 and 296-150I-0110.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0100, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0100, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0105 Manufactured home installation—Specialty work by licensed electricians and plumbers.

Specialty work performed within the scope of their licenses by licensed plumbers and electricians is exempt from the installer certification requirements of this chapter.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0105, filed 12/21/21, effective 1/31/22.]

WAC 296-150I-0110 Manufactured home installation—Homeowner performing work on their own home—Exceptions.

- (1) The owner of a manufactured home may install or perform installation work on his or her own home without obtaining certification from the department as a certified manufactured home installer if the home is intended for use as the homeowner's primary residence. For the installation of a manufactured home the homeowner must attend and pass an installer training class prior to starting the work.
- (2) The installation work must be performed in compliance with this chapter and be permitted and inspected by the local enforcement agency.
- (3) If the owner of a manufactured home hires any individual or business to assist the owner in the installation work, a certified installer is required to be on-site supervising such work and must meet all the requirements of this chapter.
- (4) For the purposes of this chapter, an "owner" of a manufactured home does not include a manufactured/mobile home dealer, distributor, park owner or manager, contractor, or developer who installs or performs installation work on a manufactured home intended for resale or rental.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0110, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0110, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0120 Manufactured home installation permit and inspections—Obligation of the dealer and certified installer.

- (1) A certified installer must assure that a placement permit for the manufactured home installation has been purchased from the local enforcement agency. The certified installer shall ensure that all required installation inspections, relative to the work performed by the certified installer, are completed.
- (2) Installer certification does not eliminate any contractor registration requirements of chapter 18.27 RCW.
- (3) An out-of-state manufactured/mobile home dealer who performs installation work must comply with the contractor registration requirements of chapter 18.27 RCW. The manufactured/mobile home dealer must employ at least one certified installer to supervise the installation.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0120, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2009 c 464 [564]. WSR 10-06-043, § 296-150I-0120, filed 2/23/10, effective 4/1/10. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0120, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0130 Manufactured home installer—Responsibilities to the consumer.

A certified manufactured home installer shall:

- (1) Verify the acceptability of the site preparation before beginning any installation work;
- (2) Ensure all phases of the installation work performed by the installer or crew being supervised are complete and in compliance with this chapter;
- (3) Notify the local enforcement agency upon completion of the installation work; and
- (4) Correct all nonconforming aspects of the installation identified by the local enforcement agency or by an authorized representative of the department within thirty days of issuance of notice of the same.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0130, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0130, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0140 Manufactured home installation—Installer certification tags required.

Prior to installing or performing installation work on a manufactured home, certified manufactured home installers or the retailers by whom they are employed must obtain an "installer certification tag" from the department. The installer certification tag shall be in the form approved by the department. No manufactured home may be installed by a certified installer without the installer affixing their certification tag thereto. The certified installer must indicate the installation work they have performed or supervised on the installer tag. Only currently certified manufactured home installers will be issued installer certification tags. Approved homeowners performing the installation work on their own

manufactured home are required to purchase an installer certification tag for use on their home.

(1) Installer certification tags may only be purchased by a certified manufactured home installer, an approved homeowner, or by a manufactured home retailer licensed by the Washington state department of licensing.

(a) The certified manufactured home installer, approved homeowner, or manufactured home retailer purchasing the installer certification tag is responsible for complying with the security, use, and reporting requirements of this chapter.

(b) Manufactured home retailers may purchase installer certification tags and issue them to certified manufactured home installers employed by the manufactured home retailer.

(2) In order to purchase installer certification tags, the certified manufactured home installer, approved homeowner, or manufactured home retailer must submit an application to the department on a form approved by the department. The application shall be accompanied by the appropriate installer certification tag fee as set forth in WAC 296-150I-3000.

(3) The department may issue a maximum of thirty certification tags to a certified manufactured home installer. A certified manufactured home installer may not have more than thirty installer certification tags issued at any one time for which the reporting requirements of this section have not been met.

(4) Installer certification tags cannot be transferred or assigned without the written approval of the department. Fees paid for installer certification tags are not refundable.

(a) If a certified manufactured home installer's certification is suspended, revoked, or expires, all unused installer certification tags assigned to the certified manufactured home installer must be returned to the department.

(b) If a certified manufactured home installer or manufactured home retailer ceases to do business, all unused installer certification tags must be returned to the department.

(c) If a manufactured home retailer changes ownership, unused installer certification tags may be transferred to the new ownership if the department approves the transfer following receipt of a written request for transfer from the manufactured home retailer.

(5) Issuance of installer certification tags may be denied if:

(a) The certified manufactured home installer's certification has been revoked or suspended pursuant to chapter 43.22A RCW;

(b) The certified manufactured home installer has failed to comply with the reporting requirements of this chapter;

(c) The department has evidence that the certified manufactured home installer has misused the installer certification tag by not complying with the requirements of this chapter;

- (d) The certified manufactured home installer possesses installer certification tags in excess of the quantity authorized by subsection (3) of this section for which the reporting requirements of this chapter have not been met; or
- (e) The certified manufactured home installer is not an active registered contractor or an employee of a manufactured home retailer or active registered contractor licensed in Washington.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0140, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2009 c 464 [564]. WSR 10-06-043, § 296-150I-0140, filed 2/23/10, effective 4/1/10. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0140, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0160 Installer certification tag—Placement—Removal.

- (1) The installer certification tag must be placed on the home upon completion of each installer's portion of the work and prior to inspection by the local enforcement agency.
- (2) The installer certification tags must be placed on the end of a home section directly above or below the HUD certification tag or placed on the chassis main I-beam directly adjacent to and visible from the crawl space access.
- (3) The local enforcement agency may not issue final approval of a home installation until one or more installer certification tags have been affixed to the home indicating all installation work was performed by a certified manufactured home installer or approved homeowner.
- (4) The installer certification tag may only be removed by the owner of the home following final approval of the installation of the home by the local enforcement agency.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0160, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0160, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0170 Monthly certification tag report.

Certified manufactured home installers, approved homeowners, and manufactured home retailers who purchase installer certification tags from the department must submit a monthly report to the department on a form approved by the department relative to all installer certification tags issued.

- (1) The report is due no later than the **15th day of each month** following the month of installation work being performed on a home. A certification tag report is not required for those months in which no installation work was performed.
- (2) A manufactured home retailer who assigns tags to a certified manufactured home installer is responsible for ensuring completion of the monthly report. The manufactured home retailer must file a separate report for each certified manufactured home installer to whom the manufactured home retailer assigned installer certification tag(s).

(3) The installer certification tag report must contain the following information for each installation:

- (a) The installer certification tag number;
- (b) The address of the installation;
- (c) The date of the installation;
- (d) The name and certification number of the certified manufactured home installer; and
- (e) Any other information required by the department.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0170, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0170, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0180 Alternative education providers—Approval process and compliance.

Pursuant to RCW 43.22A.060, the department may approve education providers to offer the certification training and/or continuing education required by RCW 43.22A.050, 43.22A.070 and this chapter. The factory assembled structures board will review each installer training course and will recommend approval or disapproval of the course to the department. The department will either approve or disapprove the course.

(1) To be considered for approval, an installer certification course must:

- Consist of not less than twelve hours of instruction for new applicants;
- Consist of not less than four hours for continuing education; and
- Be open to monitoring by a representative of the department. If the department determines that the continuing education course does not meet or exceed the minimum requirements for approval, the department may deny the course approval or reduce the number of credited hours.

(2) The education provider must submit to the department a written proposal including the following:

- (a) The education and experience of proposed instructors;
- (b) A detailed description of course content and materials; and
- (c) The proposed course schedule.

(3) All instructors identified by the education providers must meet the following requirements:

- (a) Two years' experience in one or more of the following areas:
 - (i) Supervising manufactured home installation, service, or repair;
 - (ii) Design, engineering, or architectural work related to building construction;
 - (iii) Inspecting manufactured home installation or construction for a local, state, or federal agency;
 - (iv) Completion of a two-year educational program in a construction-related field; or
 - (v) A combination of any of the above to meet the two-year requirement; and

- (b) Complete the department-sponsored training and pass the certification exam with a score of ninety percent or higher.
- (4) The curriculum proposed by the education provider must meet or exceed the department-sponsored training curriculum.
- (5) The department must provide the education service provider written notice of approval or rejection as an alternative education service provider within sixty days of submittal of the complete proposal.
- (6) All approved alternative education providers must:
 - (a) Make all necessary arrangements (scheduling class dates/times and facilities) and provide all educational materials for the classes presented;
 - (b) Provide to the department a list of participants within ten days of each class;
 - (c) Provide to the participant a certificate of completion. Each certificate must indicate:
 - (i) The name of participant;
 - (ii) The date of training;
 - (iii) A statement indicating the participant has completed the training as required by chapter 43.22A RCW.
- (7) The alternative education provider must notify the department in writing fourteen days prior to the scheduled class date of the date, time and location of each class. Department representatives must be permitted to audit any class without fee.
- (8) Curriculum changes must be submitted to and approved by the department prior to implementation.
- (9) If the application is not approved, the rejection notice will include an explanation of the reason(s) for rejection. If the course sponsor disagrees with the board's decision, the course sponsor may request a reconsideration hearing by the full factory assembled structures advisory board. A request to appeal course rejection must be received by the department forty-five days before a regularly scheduled board meeting. The course sponsor must submit, to the department, any additional information to be considered during the hearing, in writing, at least thirty days before the board hearing. The course sponsor must provide at least twenty copies of any written information to be submitted to the board.

[Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0180, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0190 Legal action—Installer certification required.

No person may file a lien against a homeowner, or bring or maintain in any court of this state a suit or action, that seeks compensation for the performance of any work requiring certification under chapter 43.22A RCW or for the breach of any contract for installation work which is subject to chapter 43.22A RCW unless:

- (1) The manufactured home installer was certified under chapter 43.22A RCW at the time the installer entered into contract for performance of the work and was certified continuously while performing the work for which compensation is sought; or
- (2) The supervising manufactured home installer was the employee of the contractor or retailer seeking compensation and was certified under chapter 43.22A RCW continuously during performance of the work for which compensation is sought.

[Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0190, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0200 Departmental assurance of installer compliance with the requirements of chapter 43.22A RCW.

The department of labor and industries will ensure installers comply with the requirements of RCW 43.22A.130 which requires a certified manufactured home installer to be present for each phase of the installation being performed by all members of the installation crew by:

- (1) Random site inspections of manufactured home installations and verification of installer certification and supervision;
- (2) Investigations of complaints and violations reported to the department; and
- (3) Audit of installers certification tag reports and usage.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0200, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2009 c 464 [564]. WSR 10-06-043, § 296-150I-0200, filed 2/23/10, effective 4/1/10. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0200, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0210 Violations of RCW 43.22A.130 that can result in the issuance of a notice of infraction.

- (1) Under RCW 43.22A.130, the department can issue a notice of infraction to a person, contractor, manufactured/mobile home dealer, manufacturer, or home dealer's or manufacturer's agent for:
 - (a) Failure to have a certified installer on the installation site whenever installation work is being performed;
 - (b) Failure to correct all nonconforming aspects of the installation identified by the local enforcement agency or by an authorized representative of the department within thirty days of issuance of notice of the same;
 - (c) Failure by a certified installer to affix a certification tag to an installed manufactured home;

- (d) Transfer of certification tag(s) from a certified installer to another certified installer without prior written approval of the department;
 - (e) Transfer of certification tag(s) from a certified installer to a noncertified installer.
- (2) Each worksite and day at which a violation occurs constitutes a separate infraction.
- (3) Once a violation of chapter 43.22A RCW or this chapter becomes final, any additional violations within three years become a "second," "third," or "additional" violation subject to an increased penalty as set forth in WAC 296-150I-3000.
- (4) See WAC 296-150I-3000 for the specific monetary penalties associated with each of the violations discussed in this section.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0210, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW. WSR 17-23-173, § 296-150I-0210, filed 11/21/17, effective 1/1/18. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0210, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0220 Information that must be included in a notice of infraction.

When an installer violates chapter 43.22A RCW, the department may issue a notice of infraction.

- (1) The department shall prescribe the form of the notice of infraction issued under this chapter.
- (2) The notice of infraction must include the following:
 - (a) A statement that the notice represents a determination that the infraction has been committed by the person named in the notice and that the determination is final unless contested as provided in this chapter;
 - (b) A statement that the infraction is a noncriminal offense for which imprisonment may not be imposed as a sanction;
 - (c) A statement of the specific infraction for which the notice was issued;
 - (d) A statement of a monetary penalty that has been established for the infraction;
 - (e) A statement of the options provided in this chapter for responding to the notice and the procedures necessary to exercise these options;
 - (f) A statement that, at a hearing to contest the determination, the state has the burden of proving, by a preponderance of the evidence, that the infraction was committed, and that the person may subpoena witnesses including the authorized representative who issued and served the notice of the infraction; and
 - (g) A statement that failure to respond to a notice of infraction is a misdemeanor and may be punished by a fine or imprisonment in jail.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0220, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0220, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0230 Issuance of a notice of infraction.

A person, firm, contractor, partnership, or corporation may be issued a notice of infraction for violations of chapter 43.22A RCW and this chapter. The department must send the written notice, by certified mail, of civil penalties imposed under chapter 43.22A RCW and this chapter to the last known address of the party named in the notice.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0230, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0230, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0240 Appealing a notice of infraction.

A person, firm, contractor, partnership, corporation or certified installer may appeal a notice of infraction by:

- (1) Filing two copies of an appeal notice, specifying the reasons for the appeal, at the office designated on the notice of infraction; and
- (2) Filing the appeal notice within twenty days of the date the infraction is mailed.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0240, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0240, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0250 Appeal hearings.

An administrative law judge from the office of administrative hearings will preside over the hearing and give a decision. The hearing shall be conducted in the county where the infraction occurred. However, both the appellant and the department have a right to ask the administrative law judge to change the hearing's location.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0250, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0250, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0260 Representation at the appeal hearings.

Appellants may either represent themselves or be represented by an attorney. The department will be represented by the office of the attorney general.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0260, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0260, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0270 Appeal hearing process.

The hearing process shall be conducted according to chapter 34.05 RCW, Administrative Procedure Act and chapter 10-08 WAC. All appeals of the hearing decision shall be to the superior court according to chapter 34.05 RCW.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0270, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0270, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0280 Departmental review and consideration of appeal notices.

- (1) Appeal notices that are received timely are first reviewed by the department for purposes of reconsideration.
- (2) Appeal notices that are not received timely will be returned to the appellant with appeal rights stated.
- (3) Appeal notices that are received timely and are not reconsidered according to subsection (1) of this section are recorded and forwarded to the office of the attorney general, then to the office of administrative hearings.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0280, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0280, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0290 Payment of assessed monetary penalties.

- (1) If a person, contractor, manufactured/mobile home dealer, manufacturer, or home dealer's or manufacturer's agent named in a notice of infraction does not choose to appeal the notice, then they must pay the department the amount of the penalty prescribed for the infraction.
- (2) After an administrative law judge decides that an infraction has been committed, a person, contractor, manufactured/mobile home dealer, manufacturer, or home dealer's or manufacturer's agent who does not appeal the decision to a superior court has thirty days to pay any outstanding monetary penalties.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0290, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0290, filed 5/30/08, effective 6/30/08.]

MANUFACTURED HOME INSTALLATION REQUIREMENTS

WAC 296-150I-0300 Installation standards for manufactured homes.

(1) The director of labor and industries is responsible for establishing uniform standards and requirements for the installation of manufactured homes within the state.

(2) Local jurisdictions may adopt additional installation requirements only for those installation situations not covered by federal standards. For example, local jurisdictions may impose fire sprinkler requirements, noise control construction ordinances, prescribe the frost depth and soil bearing capacity at the installation site, and adopt requirements to protect manufactured homes in hazardous areas (see WAC 296-150I-0340). Also, local jurisdictions may impose their requirements for snow loads as long as all structures within their jurisdiction are required to comply with the same standard and provided those installing the manufactured home are given options in satisfying that standard. Such an option might include, but not be limited to, allowing an installer to erect an additional structure, which meets local standards, and protects the manufactured home. For example, an installer could erect a freestanding roof structure over a manufactured home to protect it from local snow loads. Local jurisdictions **may not:**

- (a) Dictate alternate foundation design and construction when a foundation is built according to either the manufacturer's installation instructions or a design created by an engineer or architect licensed in Washington state.
- (b) Impose regulations on smoke detectors and carbon monoxide detectors because they are regulated by federal standards.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0300, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0300, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0310 Instructions for manufactured home installation.

The installation of all manufactured homes shall comply with the requirements of this section.

(1) Installation of a new manufactured home.

- (a) The installation of a new manufactured home must be conducted according to the manufacturer's instructions.
- (b) If the manufacturer's instructions do not address an aspect of the installation, you may request:
 - (i) Specific instructions from the manufacturer; or
 - (ii) Specific instructions from a professional engineer or architect licensed in Washington state. For example:
 - A manufactured home is installed over a basement and the manufacturer's instructions do not address this application;

- A manufactured home is installed on a site where the specific soil bearing capacity is not addressed in the manufacturer's instructions.

(c) All manufactured homes installed in Washington state must be permanently anchored except for those installed on dealer lots. On dealer lots, temporary sets are permitted without anchoring being installed. A manufactured home must be anchored according to the manufacturer's installation instructions or according to the design of a professional engineer or architect licensed in Washington state. Local jurisdictions **may not** prescribe anchoring methods.

(d) A manufactured home must have a skirting around its entire perimeter. Skirting must be installed in accordance with the manufacturer's installation instructions or if the manufacturer is not specific, to the standards in this section. Do not enclose with skirting, areas under recessed entries, porches or decks, (whether constructed as part of the home or added on site) unless skirting is of the fully vented type and installed so as to allow water to freely flow out from under the home. Porch areas open to the crawl space area of the home must have the vapor retarder removed and the ground directly below the porch must slope away from the home. Skirting must be vented and allow access to the under floor area in accordance with the manufacturer's installation instructions or as required below if the manufacturer's instructions are not available. If the manufacturer's skirting and access instructions are not specific, skirting, ventilation and access shall be installed as follows:

(i) Skirting:

- Must be made of materials suitable for ground contact.
- Metal fasteners must be made of galvanized, stainless steel or other corrosion-resistant material.
- Ferrous metal members in contact with the earth, except those made of galvanized or stainless steel, must be coated with an asphaltic emulsion.
- Must not trap water between the skirting and siding or trim.
- Must be recessed behind the siding or trim.

(ii) Ventilation: For homes sited in a flood plain, contact the local jurisdiction regarding proper skirting ventilation. Except for those manufactured homes sited in a flood plain, all skirting and vent openings must:

- Be covered with corrosion-resistant wire mesh to prevent the entrance of rodents. The size of the mesh opening cannot exceed 1/4 inch.
- Have a net area of not less than one square foot for each one hundred fifty square feet of under floor area.

- Be located as close to corners and as high as practical and provide cross ventilation on at least two opposite sides.

(iii) Access:

- The under floor area of a manufactured home must have a finished opening at least eighteen inches by twenty-four inches in size.
- Opening must be located so that all areas under a manufactured home are available for inspection.
- Opening must be covered. The cover must be made of material suitable for skirting or venting as required in this chapter.

(e) A manufactured home site must be prepared in accordance with the manufacturer's installation manual or to the requirements of the Model Manufactured Home Installation Standards 24 C.F.R. Part 3285, Subpart C.

(f) If the home is pit set, a drainage system must be installed to divert groundwater from the underside of the home.

(g) Heat duct crossovers must be installed in accordance with the manufacturer's installation instruction manual or if the manufacturer's instructions are not available, to the requirements in the Model Manufactured Home Installation Standards 24 C.F.R. Part 3285.606. Heat duct crossovers must be installed to avoid standing water and installed to prevent compression, sharp bends, and to minimize stress at the connections. In all cases, the duct must be supported at least one inch off the ground (exception to the Model Manufactured Home Installation Standards 24 C.F.R. Part 3285).

(h) Dryer vents must exhaust to the exterior side of the wall or skirting. Dryer ducts outside the manufactured home shall comply with the dryer manufacturer's specifications or shall be made of metal with smooth interior surfaces.

(i) Water heater pans are only required where the installation instructions specifically require a pan for warranty or the home was produced after May 31, 2006. The water heater pan drain line must drain to the exterior of the home. The water heater pan drain line and the PRV drain line must not be interconnected.

(j) Water heater expansion tanks are not required by the department; however, you should check with your local jurisdiction for their requirements prior to installation.

(k) Water piping must be protected against freezing in accordance with the manufacturer's installation instructions or by use of a heat tape listed for use with manufactured homes and installed as required by the heat tape manufacturer's installation instructions.

(l) The testing of water lines, waste lines, gas lines, and electrical systems must comply with the manufacturer's installation instructions. If the

manufacturer's installation instructions require testing of any of these systems, the local jurisdiction is responsible for verifying that the tests have been performed and passed. Electrical connections and testing are the responsibility of the electrical section of labor and industries except where a city has assumed the electrical inspection responsibilities for their jurisdiction. In that case, the city's electrical inspectors are responsible for the electrical connections and testing.

(m) A vapor retarder must be installed under all manufactured homes. Joints in vapor retarders must overlap a minimum of twelve inches. Voids, cuts, and tears in the vapor retarder must be patched or repaired with an approved method.

(n) Clearances underneath manufactured homes must be maintained at a minimum of eighteen inches beneath at least seventy-five percent of the lowest member of the main frame (I-beam or channel beam) and the ground or footing. In no case shall clearance be less than twelve inches anywhere under the home and eighteen inches at the heat duct cross over locations.

(o) Heat pump and air conditioning condensation lines must be extended to the exterior of the manufactured home.

(p) Roof ridge cap or ridge vent must be installed as required by the manufacturer's installation instructions.

(2) Installation of a relocated manufactured home.

(a) A relocated manufactured home must be installed according to the manufacturer's installation instructions.

(b) If the manufacturer's instructions are not available, you may use either:

(i) The Model Manufactured Home Installation Standards 24 C.F.R. Part 3285; or

(ii) The instructions of a professional engineer or architect licensed in Washington state.

(c) For the installation of a relocated manufactured home, all of the requirements of subsection (1)(c) through (p) of this section must also be followed.

(d) Hot water tank pressure relief valve (PRV) drain lines must be installed in accordance with Sec. 3280.609 of the Manufactured Home Construction and Safety Standards Act (Title 24 C.F.R. Part 3280).

(e) Carbon monoxide alarms shall be installed in accordance with Sec. 3280.211 of the Manufactured Home Construction and Safety Standards Act (Title 24 C.F.R. Part 3280). Carbon monoxide detectors installed in relocated homes are permitted to be battery operated.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0310, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2009 c 464 [564]. WSR 10-06-043, § 296-150I-0310, filed 2/23/10, effective 4/1/10. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0310, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0320 How to obtain a copy of the Model Manufactured Home Installation Standards 24 C.F.R. Part 3285.

The standard may be obtained from the Institute for Building Technology and Safety (IBTS) or the U.S. Government Publishing Office (GPO).

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0320, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0320, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0330 Requirements for temporary placement of manufactured homes.

Manufactured homes placed on temporary display or in storage by a manufacturer, dealer or distributor in excess of thirty days shall be:

- (1) Supported under each main frame beam by supports located within two feet of each end and within four feet of the front and rear axle and other supports so that no span shall exceed sixteen feet;
- (2) Made weather tight at any marriage line joint at the roof and wall lines; and
- (3) In addition to subsections (1) and (2) of this section, manufactured homes in storage or on display longer than ninety days must also be supported at each centerline column and along each rim joist at the manufacturer's identified support points.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0330, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0330, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0340 Special requirements of local enforcement agencies for installing manufactured homes in hazardous areas.

- (1) Local enforcement agencies may have special installation requirements for manufactured homes installed in hazardous areas.
- (2) A hazardous area is:
 - (a) An area recognized as a flood plain by the local jurisdiction; or
 - (b) An area considered hazardous due to the probability of earthquake. In such areas, local jurisdictions may require an earthquake resistant bracing system designed for the earthquake zone in which the home is located by the home manufacturer or by a registered professional engineer or architect.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0340, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0340, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0350 Certification requirements for installing a manufactured home.

- (1) A manufactured home may be installed by:
 - An approved homeowner;
 - A certified installer;
 - An individual who is supervised by an on-site certified installer; or
 - A specialty trades person as specified in WAC 296-150I-0105.
- (2) A certified installer must be a registered contractor, an employee of a registered contractor, or an employee of a licensed dealership.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0350, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2009 c 464 [564]. WSR 10-06-043, § 296-150I-0350, filed 2/23/10, effective 4/1/10. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0350, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0360 Manufactured home installation permit requirements.

- (1) A dealer, owner or agent must not deliver a manufactured home to its site without verifying that an installation permit has been obtained;
- (2) Manufactured home installation work shall not be performed until a permit for such work has been issued by the local enforcement agency; and
- (3) Any permit fees set by the local enforcement agency must be paid in full and included with the permit application.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0360, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0360, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0370 Manufactured home installation inspections.

All manufactured home installations must be inspected and approved by the local enforcement agency as required by regulations established by HUD for manufactured housing. Local enforcement agencies may enter into interagency agreements with the department to perform installation inspections on their behalf. A permit must be purchased with the department for these inspections.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0370, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2009 c 464 [564]. WSR 10-06-043, § 296-150I-0370, filed 2/23/10, effective 4/1/10. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0370, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0375 State monitoring of manufactured home installations and inspections.

The department monitors the installation and inspection of manufactured homes within the state to assure compliance with the regulations established by HUD, for manufactured housing.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0375, filed 12/21/21, effective 1/31/22.]

WAC 296-150I-0380 Manufacturer's installation instructions.

A manufacturer's installation manual must be provided for the inspecting jurisdiction when the manufacturer's original installation instructions are not available for a secondary installation, the installer shall provide an affidavit in lieu of the installation instruction manual, that the home is installed to the provisions of this chapter.

- (1) The installation instructions must be located between the I-beam and the bottom board within five feet of the main electrical feeder when the skirting has not been installed.
- (2) When the skirting has been installed, the installation instructions shall be located between the I-beam and the bottom board within five feet of the access opening.
- (3) Instructions must be returned to this location when the inspection is completed.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0380, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0380, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0390 Requirements for structures adjacent to manufactured homes and who regulates them.

Adjacent structures such as, but not limited to, additions, decks, porches, and awnings should be self-supporting, unless the manufacturer has designed the manufactured home to support an "attached accessory building or structure" as indicated on the HUD data plate posted in the home.

- (1) Local enforcement agency jurisdiction.
 - (a) Adjacent self-supporting structures that do not use any of the systems in the manufactured home are under the authority of the local enforcement agency for all permitting, review and inspections. Adjacent self-supporting structures may be attached and flashed to the manufactured home and do not require an L&I permit.
 - (b) Accessory structure ready homes:
 - (i) When a manufactured home is designed to support an "attached accessory building or structure," typically a garage or carport, the manufacturer's installation instructions will address the requirements for fire separation, protection of openings, duct

penetrations, allowable loads, attachment points, support and anchorage requirements. The garage or carport may be either site built or built in the factory. The design and construction of a site built accessory structure is subject to regulation by the local enforcement agency.

(ii) Extension of one or more of the systems of the manufactured home, and other alterations to the home not covered by the installation instructions require a permit and inspection by the department in accordance with chapter 296-150M WAC.

(2) Department of labor and industries jurisdiction. Adjacent structures that are supported by the manufactured home, use one or more of the systems of the manufactured home, or have other structural alterations to the home, require a permit and inspection by the department in accordance with chapter 296-150M WAC. They may also require permits, review and inspection by the local enforcement agency.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0390, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0390, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0400 Dispute concerning an installation requirement.

(1) If a dispute arises between any person, business, or local enforcement agency concerning an installation requirement of the Model Manufactured Home Installation Standards 24 C.F.R. Part 3285 or this chapter, the issue may be submitted to the factory assembled structures advisory (FAS) board.

(2) The board may provide an opinion on the requirement.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0400, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0400, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-0410 Requirements if a home is damaged prior to, or during installation.

(1) Manufactured homes that are damaged prior to, or during installation and are repaired at a location other than the manufacturer's facility require permits, inspections, and approval of the repairs from labor and industries. Permits are not required for the repair of minor damage such as shingle repairs, broken window(s), paint damage, minor siding damage and damaged bottom board or similar. Electrical and plumbing repairs to the damaged home shall be performed by a Washington state licensed electrician and/or plumber, except as exempted by RCW 18.27.090 and 18.106.150. The repair and inspection shall be performed to either:

(a) Plans approved by the manufacturer's DAPIA and verified by the FAS plan review section; or

- (b) Plans approved by an engineer or architect licensed in Washington and approved by the FAS plan review section.
- (2) Manufactured homes that are repaired at the manufacturer's facility do not require an L&I permit.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150I-0410, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22A RCW and 2009 c 464 [564]. WSR 10-06-043, § 296-150I-0410, filed 2/23/10, effective 4/1/10. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-0410, filed 5/30/08, effective 6/30/08.]

WAC 296-150I-3000 Penalties, fees, and refunds.

Penalties

(1) Monetary penalties for infractions listed in WAC 296-150I-0210 may be assessed for each violation of chapter 43.22A RCW in the following amount:

(a) Failure to have a certified installer on the installation site whenever installation work is being performed:

First Final Violation	\$250.00
Each Additional Final Violation	\$1,000.00

(b) Failure to correct all nonconforming aspects of the installation identified by the local enforcement agency or by an authorized representative of the department within thirty days of issuance of notice of the same:

First Final Violation	Warning
Second Final Violation	\$250.00
Third Final Violation	\$500.00
Each Additional Final Violation	\$1,000.00

(c) Failure by a certified installer to affix a certification tag to an installed manufactured or mobile home:

First Final Violation	Warning
Second Final Violation	\$250.00
Third Final Violation	\$500.00
Each Additional Final Violation	\$1,000.00

(d) Transfer of certification tag(s) from a certified installer to another certified installer without prior written approval of the department:

First Final Violation	Warning
Each Additional Final Violation	\$250.00

(e) Transfer of certification tag(s) from a certified installer to a noncertified installer:

First Final Violation to Each Contractor in Violation	\$250.00
Each Additional Final Violation to Each Contractor in Violation	\$1,000.00

Fees and Refunds

The following fees are payable to the department in advance:

Installer test and certification	\$321.80
Homeowner test and approval	\$160.80
Manufactured home installation inspector test and certificate	\$160.80
Refund	\$31.90
Certification renewal	\$160.80
Continuing education class	\$64.10
Retake failed examination and training at scheduled class	\$48.10
Manufactured home installer training manual (on thumb drive)	\$15.90
Installer certification tag	\$11.00
L&I manufactured home installation inspection permit*	See WAC 296-150M-3000 for fee

* Only available when L&I has an interagency agreement with the local enforcement agency in accordance with WAC 296-150I-0370.

(2) The department shall refund fees paid for training and certification or certification renewal as a manufactured home installer if the application is denied for failure of the applicant to comply with the requirements of chapter 43.22A RCW or these rules.

(3) If an applicant has paid fees to attend training or to take an examination and is unable to attend the scheduled training or examination, the applicant may:

- (a) Change to another scheduled training and examination; or
- (b) Request a refund.

(4) An applicant who fails the examination shall not be entitled to a refund.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 23-21-084, § 296-150I-3000, filed 10/17/23, effective 12/1/23; WSR 22-19-074, § 296-150I-3000, filed 9/20/22, effective 11/1/22; WSR 22-01-193, § 296-150I-3000, filed 12/21/21, effective 1/31/22; WSR 21-07-126, § 296-150I-3000, filed 3/23/21, effective 4/23/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-150I-3000, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 43.22A RCW. WSR 17-23-173, § 296-150I-3000, filed 11/21/17, effective 1/1/18. Statutory Authority: Chapter 43.22A RCW and 2009 c 464 [564]. WSR 10-06-043, § 296-150I-3000, filed 2/23/10, effective 4/1/10. Statutory Authority: Chapter 43.22A RCW and 2007 c 432. WSR 08-12-040, § 296-150I-3000, filed 5/30/08, effective 6/30/08.]

Appendix B

Manufactured/Mobile Home Alteration Laws

- **WAC 296-150M**

Chapter 296-150M WAC MANUFACTURED HOMES

Last Update: 10/17/23

WAC

296-150M-0010	Authority, purpose, and scope.
296-150M-0020	What definitions apply to this chapter?
296-150M-0040	Will you keep my manufacturing information confidential?
296-150M-0049	What must be done prior to the sale of an installed manufactured or mobile home by a homeowner?
296-150M-0050	When can a manufactured home be posted with a prohibited sale or lease notice?
296-150M-0051	Can I sell or lease a manufactured home that has been posted with a prohibited sale or lease notice?
296-150M-0060	Who handles consumer complaints about manufactured homes?
296-150M-0100	What happens if I disagree with your decision regarding my compliance with the federal standards, or this chapter?
296-150M-0120	Where can I obtain technical assistance regarding manufactured (mobile) homes?
296-150M-0140	Do you allow a variance from these rules for the use of alternate materials, alternate design and methods of construction?

INSIGNIA

296-150M-0200	What labels or insignia are required on my manufactured home?
296-150M-0250	How do I replace a lost or damaged insignia?
296-150M-0260	Who do I contact for replacement HUD labels?

ALTERATIONS AND INSPECTIONS

Alteration Approval

296-150M-0300	What approval do I need to alter a manufactured home?
296-150M-0302	What are some examples of work to manufactured or mobile homes that either require or do not require a permit and inspection?
296-150M-0306	What codes and requirements are applicable when altering a manufactured/mobile home?
296-150M-0307	How may I obtain a copy of the Manufactured Home Construction and Safety Standards, Part 24, C.F.R. 3280?
296-150M-0309	How do I apply for alteration approval and obtain an alteration insignia?

- 296-150M-0310 What happens if I fail to get your approval prior to altering a manufactured home?
- 296-150M-0320 What must I provide to request approval of an alteration?
- 296-150M-0322 Data requirements for the identification of indigent persons.
- 296-150M-0323 What is the requirement for energy conservation inspection?
- 296-150M-0330 How do I obtain alteration insignia information and the forms you require?
- 296-150M-0331 Does my alteration permit expire?
- 296-150M-0340 What must an engineering analysis for design plans include?
- 296-150M-0350 What must the test procedures and results for design plans include?
- 296-150M-0360 When is design plan approval required for an alteration?
- 296-150M-0370 How do I obtain alteration design plan approval?
- 296-150M-0380 How will I know whether you have approved my design plan?
- 296-150M-0390 If my design plan is not approved, how much time do I have to submit a corrected plan?
- 296-150M-0410 What are the requirements for altering mobile/manufactured homes?

Inspection

- 296-150M-0500 When must an inspection be requested?
- 296-150M-0530 Am I charged if I request an inspection but am not prepared when you arrive?
- 296-150M-0540 How do I obtain a fire safety certificate to site my pre-HUD home?
- 296-150M-0550 What is required to meet the fire safety certificate requirements?

AUDIT

- 296-150M-0705 Definitions applicable to this part.
- 296-150M-0715 May the department audit the records of a contractor?
- 296-150M-0725 What procedures will the department follow when auditing the records of construction, plumbing and electrical contractors?

PENALTIES

- 296-150M-0800 Definitions applicable to this part.
- 296-150M-0805 How does the department ensure that a contractor, firm, partnership, or corporation complies with the requirements of chapter 43.22 RCW?
- 296-150M-0810 What violations of chapter 43.22 RCW can result in the issuance of a notice of infraction?
- 296-150M-0815 What information must be included in a notice of correction?
- 296-150M-0820 Who can be issued a notice of infraction?

- 296-150M-0830 How does a contractor, firm, partnership, or corporation appeal a notice of infraction?
- 296-150M-0835 Who presides over an appeal hearing and where is it held?
- 296-150M-0840 Who will represent the appellant and the department at the appeal hearing?
- 296-150M-0845 How is the appeal hearing conducted?
- 296-150M-0855 What does the department do with the appeal notices that they receive?
- 296-150M-0860 What monetary penalties will be assessed for an infraction issued for violations of chapter 43.22 RCW and this chapter?
- 296-150M-0865 When must a contractor, firm, partnership, or corporation pay assessed monetary penalties?

MANUFACTURED HOME FEES

- 296-150M-3000 Manufactured/mobile home fees.

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

- 296-150M-0400 How do I apply for alteration approval and obtain an alteration insignia?
 [Statutory Authority: Chapter 43.22 RCW. WSR 98-14-078, § 296-150M-0400, filed 6/30/98, effective 7/31/98. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0400, filed 10/23/96, effective 11/25/96.] Repealed by WSR 99-13-010, filed 6/4/99, effective 7/5/99. Statutory Authority: RCW 43.22.340 and 43.22.480.
- 296-150M-0600 Who establishes standards for installation of manufactured homes?
 [Statutory Authority: Chapter 43.22 RCW. WSR 07-05-063, § 296-150M-0600, filed 2/20/07, effective 4/1/07. Statutory Authority: RCW 43.22.340 and 43.22.480. WSR 99-13-010, § 296-150M-0600, filed 6/4/99, effective 7/5/99. Statutory Authority: Chapter 43.22 RCW. WSR 98-14-078, § 296-150M-0600, filed 6/30/98, effective 7/31/98. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0600, filed 10/23/96, effective 11/25/96.] Repealed by WSR 08-22-081, filed 11/4/08, effective 12/5/08. Statutory Authority: Chapter 43.22 RCW. Later promulgation, see chapter 296-150I WAC.
- 296-150M-0610 What instructions are used for a manufactured home installation?
 [Statutory Authority: RCW 43.22.340 and 43.22.480. WSR 99-13-010, § 296-150M-0610, filed 6/4/99, effective 7/5/99. Statutory Authority: Chapter 43.22 RCW. WSR 98-14-078, § 296-150M-0610, filed 6/30/98, effective 7/31/98. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0610, filed 10/23/96, effective 11/25/96.] Repealed by WSR 08-22-081, filed 11/4/08, effective 12/5/08. Statutory Authority: Chapter 43.22 RCW. Later promulgation, see chapter 296-150I WAC.
- 296-150M-0614 How may I obtain a copy of the American National Standards Institute (ANSI) A225.1-Manufactured Homes Installation?
 [Statutory Authority: Chapter 43.22 RCW. WSR 07-05-063, § 296-150M-0614, filed 2/20/07, effective 4/1/07. Statutory Authority: Chapter 43.22 RCW and 2003 c 291. WSR 05-01-102, § 296-150M-0614, filed 12/14/04, effective 2/1/05. Statutory Authority: RCW 43.22.340 and 43.22.480. WSR 99-13-010, § 296-150M-0614, filed 6/4/99, effective 7/5/99.] Repealed by WSR 08-22-081,

filed 11/4/08, effective 12/5/08. Statutory Authority: Chapter 43.22 RCW. Later promulgation, see chapter 296-150I WAC.

- 296-150M-0615 What are the requirements for temporary placement of manufactured (mobile) homes?
[Statutory Authority: RCW 43.22.340 and 43.22.480. WSR 99-13-010, § 296-150M-0615, filed 6/4/99, effective 7/5/99.] Repealed by WSR 08-22-081, filed 11/4/08, effective 12/5/08. Statutory Authority: Chapter 43.22 RCW. Later promulgation, see chapter 296-150I WAC.
- 296-150M-0620 Do local enforcement agencies have special requirements for installing manufactured homes in hazardous areas?
[Statutory Authority: Chapter 43.22 RCW. WSR 98-14-078, § 296-150M-0620, filed 6/30/98, effective 7/31/98. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0620, filed 10/23/96, effective 11/25/96.] Repealed by WSR 08-22-081, filed 11/4/08, effective 12/5/08. Statutory Authority: Chapter 43.22 RCW. Later promulgation, see chapter 296-150I WAC.
- 296-150M-0630 Who may install a manufactured home?
[Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0630, filed 10/23/96, effective 11/25/96.] Repealed by WSR 08-22-081, filed 11/4/08, effective 12/5/08. Statutory Authority: Chapter 43.22 RCW. Later promulgation, see chapter 296-150I WAC.
- 296-150M-0640 Does a person who installs a manufactured home need an installation permit?
[Statutory Authority: RCW 43.22.340 and 43.22.480. WSR 99-13-010, § 296-150M-0640, filed 6/4/99, effective 7/5/99. Statutory Authority: Chapter 43.22 RCW. WSR 98-14-078, § 296-150M-0640, filed 6/30/98, effective 7/31/98. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0640, filed 10/23/96, effective 11/25/96.] Repealed by WSR 08-22-081, filed 11/4/08, effective 12/5/08. Statutory Authority: Chapter 43.22 RCW. Later promulgation, see chapter 296-150I WAC.
- 296-150M-0650 Does a manufactured home installation require an inspection?
[Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0650, filed 10/23/96, effective 11/25/96.] Repealed by WSR 08-22-081, filed 11/4/08, effective 12/5/08. Statutory Authority: Chapter 43.22 RCW. Later promulgation, see chapter 296-150I WAC.
- 296-150M-0655 How does the local enforcement agency gain access to the manufacturer's installation instructions?
[Statutory Authority: RCW 43.22.340 and 43.22.480. WSR 99-13-010, § 296-150M-0655, filed 6/4/99, effective 7/5/99.] Repealed by WSR 08-22-081, filed 11/4/08, effective 12/5/08. Statutory Authority: Chapter 43.22 RCW. Later promulgation, see chapter 296-150I WAC.
- 296-150M-0660 What are the requirements for on-site structures and who regulates them?
[Statutory Authority: Chapter 43.22 RCW. WSR 98-14-078, § 296-150M-0660, filed 6/30/98, effective 7/31/98. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0660, filed 10/23/96, effective 11/25/96.] Repealed by WSR 08-22-081, filed 11/4/08, effective 12/5/08. Statutory Authority: Chapter 43.22 RCW. Later promulgation, see chapter 296-150I WAC.

- 296-150M-0670 What happens if a dispute arises concerning an installation requirement?
 [Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0670, filed 10/23/96, effective 11/25/96.] Repealed by WSR 08-22-081, filed 11/4/08, effective 12/5/08. Statutory Authority: Chapter 43.22 RCW. Later promulgation, see chapter 296-150I WAC.
- 296-150M-0700 Acceptable types of ground cover.
 [Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0700, filed 10/23/96, effective 11/25/96.] Repealed by WSR 98-14-078, filed 6/30/98, effective 7/31/98. Statutory Authority: Chapter 43.22 RCW.
- 296-150M-0710 Clearance under manufactured homes.
 [Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0710, filed 10/23/96, effective 11/25/96.] Repealed by WSR 98-14-078, filed 6/30/98, effective 7/31/98. Statutory Authority: Chapter 43.22 RCW.
- 296-150M-0720 Water heater relief lines.
 [Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0720, filed 10/23/96, effective 11/25/96.] Repealed by WSR 98-18-036, filed 8/27/98, effective 9/27/98. Statutory Authority: Chapters 43.22 and 34.05 RCW and Executive Order 97-02.
- 296-150M-0730 Heat pump.
 [Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0730, filed 10/23/96, effective 11/25/96.] Repealed by WSR 98-14-078, filed 6/30/98, effective 7/31/98. Statutory Authority: Chapter 43.22 RCW.

WAC 296-150M-0010 Authority, purpose, and scope.

- (1) This chapter is authorized by RCW 43.22.340 through 43.22.445. The law requires that any alteration to a manufactured home be approved by the department. A manufactured home with an approved alteration requires an alteration insignia. Alteration insignia can be purchased from us.
- (2) The United States Department of Housing and Urban Development (HUD), manufactured housing standards division, has given us the authority to act as a manufactured home production Inspection Primary Inspection Agency (IPIA) and enforce 24 C.F.R. 3280. As an IPIA:
- (a) We are required to inspect every manufactured home built in Washington state sometime during production;
 - (b) We are authorized to audit the quality control program and the performance of quality control inspectors of manufactured home factories located in Washington state;
 - (c) We are authorized to supply a HUD label to the manufacturer following our inspection and approval of the manufactured home and the manufacturer's quality control program; and
 - (d) We are authorized to remove HUD labels according to the guidelines stated in the IPIA inspector's manual.

Note: A copy of our IPIA approval letter is on file at the department.

[Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0010, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0020 What definitions apply to this chapter?

"Alteration" is the replacement, addition, modification, or removal of any equipment or installation that affects the construction, planning considerations, fire safety, or the plumbing, mechanical, and electrical systems of a manufactured home. The installation of whole-house water treatment equipment that requires cutting into the existing plumbing is considered an alteration and requires a permit, an inspection and an alteration insignia.

"Alteration insignia" is an insignia issued by the department of labor and industries to verify that an alteration to a manufactured home meets the requirements of federal law 24 C.F.R. 3280 and this chapter.

"Anchoring system" is the means used to secure a mobile home to ground anchors or to other approved fastening devices. It may include straps, cables, turnbuckles, bolts, fasteners, and other components.

"ANSI" is the American National Standards Institute, Inc., 1899 L Street, N.W., 11th Floor, Washington D.C. 20036.

"Authority having jurisdiction" means that either the department of labor and industries or the local jurisdiction is responsible for Certified on 10/12/2022 Page 3 establishing specific manufactured home standards. The authority for specific manufactured home standards is divided as follows:

- The department of labor and industries establishes standards for manufactured home installation and alterations and performs alteration inspections;
- The local jurisdiction establishes standards for manufactured homes governing the building site and performs installation inspections.

"Building site" is a tract, parcel, or subdivision of land on which a manufactured home is installed.

"DAPIA" is a Design Approval Primary Inspection Agency as approved by the United States Department of Housing and Urban Development.

"Department" is the department of labor and industries. The department may be referred to as "we" or "us" in this chapter. Note: You may contact us at: Department of Labor and Industries, Factory Assembled Structures, P.O. Box 44430, Olympia, WA 98504-4430.

"Design plan" is a design submitted to the department for approval of a manufactured home structural alteration. This also includes other types of work and installations (plumbing, electrical, etc.) that are incidental to the structural alteration.

"Equipment" means the appliances used in the alteration or installation of a manufactured home.

Examples that require an alteration inspection include:

- Furnace;
- Water heater;
- Air conditioner;
- Heat pump; and
- New and extended electrical circuits.

Examples that do not require an alteration inspection include:

- Washer;
- Dryer; and
- Dishwasher and range that are connected to their source of power by a plug-in cord.

"Equivalent air conditioning/heat pump components" is equipment that performs the same function and is compatible with the equipment of another manufacturer, sometimes referred to as mix and match.

"Footing" is the portion of a support system that transmits loads from the manufactured home to the ground.

"Foundation skirting" or **"skirting"** is the material that surrounds and encloses the space under the manufactured home.

"Homeowner" is an individual who owns a manufactured home. Dealers, distributors, and developers are not regarded as homeowners.

"HUD" is the United States Department of Housing and Urban Development with headquarters located in Washington, D.C.

"Indigent" means a person receiving an annual income, after taxes, of one hundred twenty-five percent or less of the most recently published federal poverty level.

"Installation" is the activity needed to prepare a building site and to set a manufactured home within that site. Site means a tract, parcel, or subdivision of land including a mobile home park.

"Installed manufactured or mobile home" is a manufactured or mobile home that has been placed on either private property or in a park and has been installed for occupancy. Installation includes the approval of the blocking of the home, and the connection of the home to all of the utilities, including water, sewer and electrical.

"IPIA" is a manufactured home production Inspection Primary Inspection Agency approved by the United States Department of Housing and Urban Development. The department of labor and industries is the IPIA for Washington state.

"Local enforcement agency" is an agency of city or county government with power to enforce local regulations governing the building site and installation of a manufactured home.

"Manufactured home" is a single-family dwelling built according to the Department of Housing and Urban Development Manufactured Home Construction and Safety Standards Act, which is a national, preemptive building code. A manufactured home also:

- Includes plumbing, heating, air conditioning, and electrical systems;
- Is built on a permanent chassis; and
- Can be transported in one or more sections with each section at least eight feet wide and forty feet long when transported; or when installed on the site is three hundred twenty square feet or greater (see RCW 46.04.302).

Note: Total square feet is based on exterior dimensions measured after installation using the longest horizontal projections. Dimensions may not include bay windows but may include projections containing interior space such as cabinets and expandable rooms.

Exception: A structure that meets the requirements of a manufactured home as set out in 24 C.F.R. 3282.7(u), except the size requirements is considered a manufactured home, if the manufacturer files with the secretary of HUD a certificate noted in C.F.R. 3282.13.

"Mobile home" is a factory-built dwelling built prior to June 15, 1976, to standards other than the HUD Code, and acceptable under applicable state codes in effect at the time of construction or introduction of the home into the state. Mobile homes have not been built since the introduction of the HUD Manufactured Home Construction and Safety Standards Act. For the purposes of this chapter references to manufactured homes include mobile homes.

"Park site" is the installation location of a manufactured home within a residential area for manufactured homes.

"Repair" is to restore an item to sound condition, to fix.

"Replacement" is the act or process of replacing, to substitute.

"State administrative agency (SAA)" the department of labor and industries shall perform all the consumer complaint and related functions that are required for purposes of complying with the regulations established by the federal department of housing and urban development for manufactured housing including the preparation and submission of the state administrative plan.

"Structural alteration-custom design" is a design that can only be used once.

"Structural alteration-master design" is a design plan that can be used more than once. The master plan expires when there is a code change applicable to the design.

"System" is part of a manufactured home designed to serve a particular function such as structural, plumbing, mechanical, or electrical functions.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150M-0020, filed 12/21/21, effective 1/31/22. Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0020, filed 12/22/15, effective 2/1/16; Chapter 43.22 RCW. WSR 08-12-041, § 296-150M-0020, filed 5/30/08, effective 6/30/08. Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0020, filed 5/30/03, effective 5/30/03. Statutory Authority: RCW 43.22.340, 43.22.350, 43.22.432, 43.22.434, 43.22.440, and 2001 c 335. WSR 02-03-048, § 296-150M-0020, filed 1/9/02, effective 1/9/02. Statutory Authority: RCW 43.22.340, 43.22.350, 43.22.355, 43.22.360, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.450, 43.22.480, and 43.22.485. WSR 00-17-148, § 296-150M-0020, filed 8/22/00, effective 9/30/00. Statutory Authority: RCW 43.22.340 and 43.22.480. WSR 99-13-010, § 296-150M-0020, filed 6/4/99, effective 7/5/99. Statutory Authority: Chapter 43.22 RCW. WSR 98-14-078, § 296-150M-0020, filed 6/30/98, effective 7/31/98. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0020, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0040 Will you keep my manufacturing information confidential? We will only release manufacturing information such as design plans for structural alterations according to the requirements of the Public Records Act (see RCW 42.17.310 (1)(h)) unless we are ordered to do so by a court or otherwise required by law.

[Statutory Authority: RCW 43.22.340 and 43.22.420. WSR 97-16-043, § 296-150M-0040, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0040, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0049 What must be done prior to the sale of an installed manufactured or mobile home by a homeowner?

- (1) Prior to the sale of any installed manufactured or mobile home, the homeowner must:
 - (a) Deliver to the buyer a completed property transfer disclosure statement in accordance with chapter 64.06 RCW, unless the seller is exempt or the buyer waives his or her rights pursuant to chapter 64.06 RCW. The disclosure statement must include all the criteria specified in RCW 64.06.020 and any variance(s) granted according to WAC 296-150M-0140. In addition, the homeowner must:
 - (i) Have all department insignia required by this chapter; or
 - (ii) Have all department insignia required by this chapter for alterations performed during ownership of the home and include in the property transfer disclosure statement all alterations that were known to have been performed by any previous owner or occupant of the home.
 - (b) Nothing in subsection (1) of this section shall have any effect on any written warranty(ies) required by RCW 46.70.135.

(c) Subsection (1)(a)(ii) of this section does not permit the sale of an unsafe manufactured or mobile home when the use of which may constitute a hazard to life, safety, or health.

(2) The homeowner may enter into a conditional sale of an altered manufactured or mobile home. A conditional sales agreement may be executed only if, prior to execution, the seller has complied with subsection (1) of this section. For purposes of this subsection "conditional sale" means an agreement between the seller and the purchaser which is contingent on the seller fulfilling the conditions established by the purchaser (i.e., the sale of the home is contingent on the seller ensuring that alterations performed to the manufactured or mobile home are in compliance with these rules).

(3) The homeowner may request an inspection by the department. If after the inspection the department determines that an alteration may constitute a hazard to life, safety, or health, the department must notify the homeowner in writing within thirty days of completing the inspection. The department may also notify the local official responsible for enforcing the fire code adopted under chapter 19.27 RCW and/or the local health officer.

Note: In addition to the homeowner requesting an inspection by the department, any party including the buyer and/or party financing the sale may also request an inspection. The department will conduct the inspection and if after the inspection the department determines that an alteration may constitute a hazard to life, safety, or health, the department shall notify the interested parties identified by the requesting party in writing within thirty days of completing the inspection. The department may also notify the local official responsible for enforcing the fire code adopted under chapter 19.27 RCW and/or the local health officer.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0049, filed 5/30/03, effective 5/30/03. Statutory Authority: RCW 43.22.340, 43.22.350, 43.22.432, 43.22.434, 43.22.440, and 2001 c 335. WSR 02-03-048, § 296-150M-0049, filed 1/9/02, effective 1/9/02.]

WAC 296-150M-0050 When can a manufactured home be posted with a prohibited sale or lease notice?

(1) A manufactured home may be posted with a prohibited sale notice when:

- (a) The home is being sold or offered for sale by a retailer, dealer, distributor or manufacturer and we find that the home is not an installed manufactured or mobile home per WAC 296-150M-0020 and the home has alterations without required insignia or approval; or
- (b) The home is being sold or offered for sale by a homeowner and it is not an installed manufactured or mobile home per WAC 296-150M-0020.

(2) A manufactured home may be posted with a prohibited lease notice whenever the home is offered for lease by any party and we find that the home has alterations that constitute a hazard to life, safety, or health.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0050, filed 5/30/03, effective 5/30/03. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0050, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0051 Can I sell or lease a manufactured home that has been posted with a prohibited sale or lease notice?

- (1) You may not sell, lease, or offer for sale a manufactured home that is posted with a prohibited sale or lease notice.
- (2) A prohibited sale or lease notice shall remain posted until the code violation(s) are corrected, we inspect and approve the correction, and you pay the required fees. (See WAC 296-150M-3000.)

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0051, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0060 Who handles consumer complaints about manufactured homes? The Washington state department of labor and industries (L&I), factory assembled structures program, handles consumer complaints about manufactured homes. Labor and industries, factory assembled structures program is the state administrative agency (SAA) for the United States Department of Housing and Urban Development for the federal manufactured home program.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0060, filed 12/22/15, effective 2/1/16. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0060, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0100 What happens if I disagree with your decision regarding my compliance with the federal standards, or this chapter?

- (1) If we determine that you are in violation with the federal standards, or this chapter, you will receive a notice of noncompliance.
- (2) If you disagree with our decision, you can submit a written request for a hearing, stating why you disagree.
- (3) After we receive your hearing request, we will:
 - (a) Schedule a hearing within thirty days after we receive your request.
 - (b) Notify you of the time, date, and place for the hearing. If you fail to appear, your case will be dismissed.
 - (c) Hear your case.
 - (d) Send you written notice of our decision. If you disagree with our decision, you may appeal it under the Administrative Procedure Act (chapter 34.05 RCW).

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 22-01-193, § 296-150M-0100, filed 12/21/21, effective 1/31/22. Statutory Authority: RCW 43.22.340 and 43.22.420. WSR 97-16-043, § 296-150M-0100, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0100, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0120 Where can I obtain technical assistance regarding manufactured (mobile) homes? We provide field technical service upon written request, on manufactured (mobile) homes for an hourly fee. Field technical service may include an evaluation, consultation, plan examination, interpretation, and clarification of technical data relating to the application of our rules.

[Statutory Authority: Chapter 43.22 RCW and 2003 c 291. WSR 05-01-102, § 296-150M-0120, filed 12/14/04, effective 2/1/05. Statutory Authority: RCW 43.22.340 and 43.22.480. WSR 99-13-010, § 296-150M-0120, filed 6/4/99, effective 7/5/99.]

WAC 296-150M-0140 Do you allow a variance from these rules for the use of alternate materials, alternate design and methods of construction? An applicant may apply to the director or designee for an order for a variance from the requirements of this chapter for alterations initiated after the expiration of any written warranty(ies) required by RCW 46.70.135 that use alternate materials, alternate design and methods of construction, by filing a written request with the department.

(1) Responsibilities of applicant. The applicant must submit the following information on a form approved by the department and pay the inspection fee in WAC 296-150M-3000.

- (a) The applicant's name, address and phone number;
- (b) The specific requirement or requirements from which the alternate material, alternate design or method of construction is requested;
- (c) Justification why the requirements of this chapter cannot be or were not met; and
- (d) How the use of alternate materials, alternate design or method of construction will achieve or has achieved a level of protection that does not constitute a hazard to life, safety or health. Contact the department at the address shown in the definition section for a copy of the approved form.

(2) Responsibilities of the department. The department will conduct an inspection and provide a written response to the applicant within thirty days of receipt of the written request. The written response will state the acceptance or denial of the request, including the reasons for the department's decision. At a minimum the department will base its decision based on:

- (a) The applicant's request as described in subsection (1) of this section;
- (b) Research into the request;
- (c) Expert advice.

(3) Applicant's response to denials. The applicant may appeal the department's decision by following the procedure in WAC 296-150M-0100.

[Statutory Authority: RCW 43.22.340, 43.22.350, 43.22.432, 43.22.434, 43.22.440, and 2001 c 335. WSR 02-03-048, § 296-150M-0140, filed 1/9/02, effective 1/9/02. Statutory Authority: RCW 43.22.340, 43.22.350, 43.22.355, 43.22.360, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.450, 43.22.480, and 43.22.485. WSR 00-17-148, § 296-150M-0140, filed 8/22/00, effective 9/30/00. Statutory Authority: RCW 43.22.340 and 43.22.480. WSR 99-13-010, § 296-150M-0140, filed 6/4/99, effective 7/5/99.]

INSIGNIA

WAC 296-150M-0200 What labels or insignia are required on my manufactured home?

(1) A HUD label must be attached to the exterior of each section of a manufactured home built on or after June 15, 1976.

(2) An alteration insignia must be attached to the exterior of a manufactured home. It should be placed next to the HUD label or to the Washington state insignia.

(3) If your manufactured home does not have a HUD label or a Washington state insignia, we will attach the alteration insignia to the exterior end wall opposite the hitch end of the manufactured home. It must be placed approximately one foot above the floor line and one foot from the edge of the manufactured home.

[Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0200, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0250 How do I replace a lost or damaged insignia?

(1) If an alteration insignia or a Washington state insignia is lost or damaged after it is placed on a manufactured home, you should notify us in writing immediately. You should provide the following information:

- (a) Your name, address, and telephone number;
- (b) The name and address of the previous owner and date of approval, if you are replacing an alteration insignia that was obtained before you purchased the manufactured home;
- (c) The vehicle identification number or serial number and model;
- (d) The insignia or label number if available;
- (e) The design plan approval number, if available; and
- (f) The insignia replacement fee and any inspection fees. (See WAC 296-150M-3000.)

Note: Washington state insignia (not HUD insignia) were attached to manufactured homes prior to June 15, 1976.

(2) After we receive your notice and payment for replacing the insignia, we may inspect your manufactured home to assure that the replacement insignia reflects compliance with your original insignia.

(3) If your home complies with your original insignia approval, we will attach a replacement alteration insignia or Washington state insignia to your manufactured home.

[Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0250, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0260 Who do I contact for replacement HUD labels? The HUD labels have been removed from my home. I can't sell/refinance my home without the HUD label. You must contact the Department of Housing and Urban Development (HUD). HUD does not reissue labels for manufactured homes. However, HUD can issue a letter verifying a label for the unit for which it can locate the necessary historical information. The label numbers can be found on a data plate inside the home in one of three locations:

- On or near the main electrical panel;
- In a kitchen cabinet; or
- In a bedroom closet.

The data plate has a map of the United States to let the consumer know the land zone and snow load for which their home was built. You can use the following information to request label verification:

Office of Manufactured Housing

Fax: 202-708-4213

Email: mhs@hud.gov

Phone: 202-708-6423.

[Statutory Authority: Chapter 43.22 RCW and 2003 c 291. WSR 05-01-102, § 296-150M-0260, filed 12/14/04, effective 2/1/05. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0260, filed 10/23/96, effective 11/25/96.]

ALTERATIONS AND INSPECTIONS

Alteration Approval

WAC 296-150M-0300 What approval do I need to alter a manufactured home? If you alter a manufactured home in Washington state, you must purchase permits prior to making an alteration. This includes:

- (1) Alterations made by a contractor working for a homeowner;
- (2) Alterations made by a homeowner to their own home;
- (3) Alterations made by a dealer after a manufactured home is sold; and
- (4) The person or contractor performing the work is responsible for purchasing the permit and abatement of corrections, if applicable.

Note: The homeowner can't purchase a permit on behalf of the contractor.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0300, filed 12/22/15, effective 2/1/16; WSR 08-12-041, § 296-150M-0300, filed 5/30/08, effective 6/30/08. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0300, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0302 What are some examples of work to manufactured or mobile homes that either require or do not require a permit and inspection?

TYPE OF WORK	ALTERATION PERMIT AND INSPECTION REQUIRED?	
	YES	NO
(1) Air Conditioner/Heat Pump		
(a) New installation	X	
(b) Replacement	X	
(c) Reconnection after moving home	X	
(d) Repair		X
(e) Adjustment and/or maintenance		X
(2) Bottom Board - Repair		X
(3) Clothes Washer		
(a) New installation		X
(b) Replacement		X
(c) Repair with approved parts		X
(d) Adjustment and/or maintenance		X
(4) Clothes Dryer (Electric)		
(a) New installation (Prewired electrical)		X
(b) Replacement		X
(c) Repair with approved parts		X
(d) Adjustment and/or maintenance		X
(e) Replacement with gas clothes dryer when modifications to electrical or gas systems are performed	X	

TYPE OF WORK	ALTERATION PERMIT AND INSPECTION REQUIRED?	
	YES	NO
(5) Clothes Dryer (Gas)		
(a) New installation (Preplumbed gas)		X
(b) Replacement		X
(c) Repair with approved parts		X
(d) Adjustment and/or maintenance		X
(e) Replacement with electric clothes dryer when modifications to electrical or gas systems are performed	X	
(6) Dishwasher		
(a) New installation	X	
(b) Replacement		
(i) Cord connected		X
(ii) Direct wired	X	
(c) Repair		X
(d) Adjustment and/or maintenance		X
(7) Doors (Interior and Exterior)		
(a) Additional*	X	
(b) Replacement of door that fits into the same opening		X
(8) Electrical		
(a) Replacing main electrical panel*****	X	
(b) Adding circuits	X	
(c) Extending existing circuit(s)	X	
(d) Replacing lighting fixtures****		X
(e) Replacing circuit breakers/fuses		X
(f) Replacing switches, receptacles, light bulbs, fluorescent tubes and glass or plastic shades		X
(g) Repairing bath exhaust fans		X
(h) Repairing fans in kitchen range hoods		X
(9) Exterior Finish		
(a) Painting		X
(b) Replacement of siding	X	
(10) Furnace (Electric)		
(a) New installation	X	
(b) Replacement	X	
(c) Repair		X
(d) Adjustment and/or maintenance		X
(e) Replacement with gas furnace	X	
(11) Furnace (Gas)		
(a) New installation	X	
(b) Replacement	X	
(c) Repair		X
(d) Change from LP Gas to Natural Gas or from Natural Gas to LP gas per its listing		X
(e) Adjustment and/or maintenance		X
(f) Replacement with electric furnace	X	

TYPE OF WORK	ALTERATION PERMIT AND INSPECTION REQUIRED?	
	YES	NO
(12) Gas Lines		
(a) New installation	X	
(b) Extend existing gas line	X	
(c) Repair	X	
(13) Interior		
(a) Painting, wall papering and similar finish work		X
(b) Replacement or addition of curtains, drapes, blinds, window shades and other window coverings		X
(c) Replacement of carpeting and other floor-covering materials with similar materials		X
(14) Microwave Oven (Over range)		
(a) New installation when electrical system modifications are performed	X	
(b) Replacement		X
(c) Repair		X
(d) Adjustment and/or maintenance		X
(15) Microwave Oven (Countertop)		X
(16) Pellet Stove		
(a) New installation	X	
(b) Replacement	X	
(c) Repair		X
(d) Adjustment and/or maintenance		X
(17) Plumbing		
(a) Adding plumbing fixtures***	X	
(b) Repairing damage***	X	
(c) Replacing fixtures***	X	
(d) Repairing fixtures***		X
(e) Replacement/repair of shower doors and curtains		X
(18) Range/Cook Top/Eye Level Oven (Electric)		
(a) Replacement		
(i) Cord connected		X
(ii) Direct wired	X	
(b) Repair with approved parts		X
(c) Adjustment and/or maintenance		X
(d) Replacement with gas appliance(s)	X	
(19) Range/Cook Top/Eye Level Oven (Gas)		
(a) New installation	X	
(b) Replacement		X
(c) Repair with approved parts		X
(d) Adjustment and/or maintenance		X
(e) Replacement with electric appliance(s)	X	
(20) Roofing		
(a) Reroofing	X	
(b) Applying liquid or mastic roof sealant to a metal roof		X
(c) Repair of damaged composition shingles		X

TYPE OF WORK	ALTERATION PERMIT AND INSPECTION REQUIRED?	
	YES	NO
(21) Structural changes		
(a) Adding a dormer*	X	
(b) Truss repairs*	X	
(c) Add opening in wall**	X	
(d) Add gypsum board to walls or ceilings	X	
(e) Repair or replacing floor decking/joists	X	
(22) Water Heater (Electric)		
(a) Replacement w/electric water heater	X	
(b) Repair		X
(c) Adjustment and/or maintenance		X
(d) Replacement with gas water heater	X	
(23) Water Heater (Gas)		
(a) Replacement w/gas water heater	X	
(b) Repair		X
(c) Change from LP gas to Natural Gas or from Natural Gas to LP gas per its listing		X
(d) Adjustment and/or maintenance		X
(e) Replacement with electric water heater	X	
(24) Windows		
(a) Replacement in same opening with no structural changes*****		X
(b) Replacement when structural changes are required	X	
(c) Replacement of glass		X
(25) Wood Stove/Fireplace		
(a) New installation	X	
(b) Replacement	X	
(c) Repair		X
(d) Adjustment and/or maintenance		X

*May also require a plan review. Please contact your local L&I representative.

** May also require a plan review. The department has detailed drawings you may use for openings in sidewalls. Please contact your local L&I representative.

***Fixtures include: Faucets, sinks, lavatories, laundry tubs, water closets (toilets), tubs, showers and tub/shower combos. A permit is not required for replacement of a like fixture as long as there are no changes to the existing water or drain lines.

****Fixtures must be installed per its listing and intended use.

*****Windows in bedrooms must be of egress type.

*****Meter bases may only be installed by the manufacturer of the home unless repaired or replaced.

Note: Exemption from the permit and inspection requirements shall not be deemed to grant authorization for any work to be done in violation of the applicable code, chapter 296-150M WAC.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0302, filed 12/22/15, effective 2/1/16. Statutory Authority: Chapter 43.22 RCW and 2005 c 399. WSR 05-24-020, § 296-150M-0302, filed 11/29/05, effective 1/1/06. Statutory Authority: Chapter 43.22 RCW and 2003 c 291. WSR 05-01-102, § 296-150M-0302, filed 12/14/04, effective 2/1/05. Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0302, filed 5/30/03, effective 5/30/03. Statutory Authority: RCW 43.22.340, 43.22.350, 43.22.432, 43.22.434, 43.22.440, and 2001 c 335. WSR 02-03-048, § 296-150M-0302, filed 1/9/02, effective 1/9/02.]

WAC 296-150M-0306 What codes and requirements are applicable when altering a

manufactured/mobile home? Alterations to a manufactured/mobile home must be in compliance with the Manufactured Home Construction and Safety Standards, 24 C.F.R. Part 3280, as adopted by the Secretary for the Department of Housing and Urban Development (HUD) and the amendments to that federal standard adopted in this WAC chapter. The department will accept the following provisions, which supersede the applicable requirements in 24 C.F.R. Part 3280.

(1) Tested equivalent air condition/heat pump components that have been tested and listed for use with a particular furnace by a nationally recognized testing laboratory or air conditioners and heat pumps that are rated in accordance with Air-Conditioning, Heating and Refrigeration Institute (AHRI) standards. The blower motor of the furnace and/or air handler shall be tested at the time of installation to verify and document adequate cubic feet per minute of air flow as required by the manufacturer. Documentation of the blower motor test (such as a start-up sheet) is required to be provided on-site for the inspector at the time of inspection.

(2) Water heaters that are listed by a nationally recognized testing laboratory and installed per the manufacturer's installation instructions.

Note: For installation of electrical or gas furnaces and/or water heater in pre-HUD homes, the requirement of 24 C.F.R. Part 3280.203 for flame spread limitations is waived as long as the installation meets the requirement of the installed appliance for distance from combustibles. This does not apply when performing fire safety alterations for relocation as required by state law.

(3) Pellet stoves for installation that have been listed by a department approved nationally recognized testing laboratory. For a current list of approved laboratories, contact any department field office or the department at the address shown in WAC 296-150M-0020.

(4) All electrical alterations and additions to the manufactured/ mobile home shall comply with the current edition of the National Electrical Code. Electrical disconnects must be secured to a manufactured/mobile structural member (not the skirting) and have a 30" x 30" clearance for maintenance.

(5) The International Residential Code for structural alterations.

Note: The replacement of exterior siding is an alteration and requires the approval of the department and an alteration insignia.

(6) The use of corrugated stainless steel tubing (CSST) listed in accordance with ANSI LC-1/CSA 6.26 standard for "Fuel gas piping systems using corrugated stainless steel tubing" is allowed when installed according to the manufacturer's installation instructions for mobile/manufactured homes.

(7) Installation of gas room heaters in bedrooms must:

(a) Have direct vented (sealed combustion) and be listed as UL 307A for liquid fuel burning heater or ANSI Z21.88 and ANSI Z21.86 for vented gas fireplaces.

(b) Have a smoke detector, listed to Underwriters Laboratory (UL) 217. The smoke detector can either be hardwired or battery powered (ten-year battery) and installed according to the manufacturer's installation requirements.

(c) Have a carbon monoxide (CO) detector, listed to UL 2034. The CO detector must be installed according to the manufacturer's installation requirements.

(d) Have at least one means of egress.

(8) Carbon monoxide alarms are required to be installed in manufactured and mobile homes in accordance with RCW 19.27.530 adopted by the Washington state building council.

(a) For any owner-occupied single-family residence that is sold on or after July 26, 2009, the seller must equip the residence with carbon monoxide alarms in accordance with the requirements of the state building code before the buyer or any other person may legally occupy the residence following such sale.

(b) Maintenance of a carbon monoxide alarm in a building where a tenancy exists, including the replacement of batteries, is the responsibility of the tenant, who shall maintain the alarm as specified by the manufacturer.

(c) Real estate brokers licensed under chapter 18.85 RCW shall not be liable in any civil, administrative, or other proceeding for the failure of any seller or other property owner to comply with the requirements of this section or rules adopted by the building code council.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0306, filed 12/22/15, effective 2/1/16; WSR 08-12-041, § 296-150M-0306, filed 5/30/08, effective 6/30/08; WSR 07-05-063, § 296-150M-0306, filed 2/20/07, effective 4/1/07.

Statutory Authority: Chapter 43.22 RCW and 2005 c 399. WSR 05-24-020, § 296-150M-0306, filed 11/29/05, effective 1/1/06.

Statutory Authority: RCW 43.22.340, 43.22.350, 43.22.355, 43.22.360, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.450, 43.22.480, and 43.22.485. WSR 00-17-148, § 296-150M-0306, filed 8/22/00, effective 9/30/00. Statutory Authority: RCW 43.22.340 and 43.22.480. WSR 99-13-010, § 296-150M-0306, filed 6/4/99, effective 7/5/99. Statutory Authority: Chapter 43.22 RCW. WSR 98-14-078, § 296-150M-0306, filed 6/30/98, effective 7/31/98.]

WAC 296-150M-0307 How may I obtain a copy of the Manufactured Home Construction and Safety Standards, Part 24, C.F.R. 3280? Copies of the federal standard may be obtained by writing to:

Director

Manufactured Housing Standards Division Department of Housing and Urban Development

451 Seventh Street Southwest

Washington, D.C. 20410

[Statutory Authority: Chapter 43.22 RCW. WSR 98-14-078, § 296-150M-0307, filed 6/30/98, effective 7/31/98.]

WAC 296-150M-0309 How do I apply for alteration approval and obtain an alteration insignia?

(1) To apply for alteration approval and the alteration insignia, you must:

(a) Complete an alteration permit form and an application for alteration insignia. You may purchase a permit online at the L&I website or by visiting the nearest L&I office.

(b) If applying using paper forms, submit the completed forms to the department, with the first hour of inspection fee and alteration insignia fee. Alterations requiring more than one inspection shall have the first hour inspection fee paid to the department prior to additional inspections. (See WAC 296-150M-3000.)

(2) The request for inspection of your alteration should be at least five days before the date you want the inspection.

(3) Once we approve your alteration, we will attach the alteration insignia to your manufactured home.

Note: Specifications, engineering data, and test results should be available for our inspector. If applicable, your approved design plan must also be available during the inspection.

(4) The department will provide written approval in the form of a fire safety certificate to the owner. The owner is required to forward this information to the authority having jurisdiction

(AHJ) and/or county treasurer's office in which the mobile home will be located, if the mobile home passes the department's fire safety alteration inspection.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0309, filed 12/22/15, effective 2/1/16. Statutory Authority: Chapter 43.22 RCW and 2005 c 399. WSR 05-24-020, § 296-150M-0309, filed 11/29/05, effective 1/1/06. Statutory Authority: RCW 43.22.340 and 43.22.480. WSR 99-13-010, § 296-150M-0309, filed 6/4/99, effective 7/5/99.]

WAC 296-150M-0310 What happens if I fail to get your approval prior to altering a manufactured

home? If you alter a manufactured home without getting our approval and an alteration insignia, your manufactured (mobile) home must meet the requirements of WAC 296-150M-0049.

[Statutory Authority: Chapter 43.22 RCW and 2003 c 291. WSR 05-01-102, § 296-150M-0310, filed 12/14/04, effective 2/1/05. Statutory Authority: Chapter 43.22 RCW. WSR 98-14-078, § 296-150M-0310, filed 6/30/98, effective 7/31/98. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0310, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0320 What must I provide to request approval of an alteration?

(1) For approval of an alteration, you must complete and return our alteration permit application form. The application must contain:

- (a) A description of the proposed alteration(s);
 - (b) Applicable specifications, manufacturer's instructions, engineering data, test procedures and results; and
 - (c) Payment of the alteration permit fee, alteration insignia fee, and any inspection fees.
- (See WAC 296-150M-3000.)

Note: The department may waive alteration permit fees for indigent permit applicants. (See WAC 296-150M-0322.)

(2) For approval of a structural alteration, we must approve the design plan. This is in addition to the requirements stated in subsection (1) of this section. (See WAC 296-150M-0370.)

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0320, filed 12/22/15, effective 2/1/16. Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0320, filed 5/30/03, effective 5/30/03. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0320, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0322 Data requirements for the identification of indigent persons.

(1) Any one of the following documents shall be considered sufficient evidence upon which to base the final determination of indigent status, when the income information is annualized as may be appropriate:

- (a) A "W-2" withholding statement from all employers for the previous year;
- (b) Pay stubs from all employers for the previous year;
- (c) An income tax return from the most recently filed calendar year;
- (d) Forms approving or denying eligibility for medicaid and/or state-funded medical assistance;
- (e) Forms approving or denying unemployment compensation; or
- (f) Written statements from all employers for the previous year or welfare agencies.

(2) In the event that the responsible party is not able to provide any of the documentation described above, the department shall rely upon written and signed declarations under penalty

of perjury from the responsible party for making a final determination of eligibility for classification as an indigent person.

(3) Information requests, from the department to the responsible party, for the verification of income and family size shall be limited to that which is reasonably necessary to substantiate the responsible party's qualification for indigent status, and may not be used to discourage applications for such status. Only those facts relevant to eligibility may be verified.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0322, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0323 What is the requirement for energy conservation inspection? Energy conservation inspections are random inspections for utilities and/or their contractors who have prior approval from the department and who provide energy conservation related equipment which affects the electrical systems of a manufactured or mobile home. See WAC 296-150M-3000 for the fee for an energy conservation permit.

[Statutory Authority: Chapter 43.22 RCW. WSR 07-05-063, § 296-150M-0323, filed 2/20/07, effective 4/1/07.]

WAC 296-150M-0330 How do I obtain alteration insignia information and the forms you require?

Information to obtain alteration insignia information and forms may be found online at the L&I website or by contacting an L&I office.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0330, filed 12/22/15, effective 2/1/16. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0330, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0331 Does my alteration permit expire? Yes, your alteration permit will expire one year after the date of purchase.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0331, filed 12/22/15, effective 2/1/16; WSR 98-14-078, § 296-150M-0331, filed 6/30/98, effective 7/31/98.]

WAC 296-150M-0340 What must an engineering analysis for design plans include?

(1) The engineering analysis must show that the structural design meets the requirements of this chapter.

(2) An engineering analysis must be conducted according to accepted engineering practices and must be signed by a professional engineer or architect licensed in Washington or by a DAPIA who approved the original design plan.

[Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0340, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0350 What must the test procedures and results for design plans include?

(1) Tests to an alteration design must be performed and evaluated by a professional engineer or architect licensed in Washington or by a DAPIA who approved the original design plan.

(2) Test reports must contain the following items:

- (a) A description of the methods or standards that applied to the test;
- (b) Drawings and a description of the item tested;
- (c) A description of the test set-up;
- (d) The procedure used to verify the correct load;
- (e) The procedure used to measure each condition;

- (f) Test data, including applicable graphs and observations of the characteristics and behavior of the item tested;
- (g) Engineering data; and
- (h) Analysis, comments, and conclusion.

(3) The written test procedures, results, and conclusions must reference the applicable structural alteration design plan.

[Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0350, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0360 When is design plan approval required for an alteration?

(1) Design plan approval is required when you make a structural alteration to your manufactured home. A design plan approval may require engineering by a professional engineer currently licensed and certified in the state of Washington.

(2) A structural alteration is a change to the body or frame of a manufactured home. For example:

- (a) An alteration is made if you change the size of a room or the pitch of a roof on your manufactured home.
- (b) Any addition such as a carport that adds structural load to the manufactured home and is not fully self-supporting is an alteration.
- (c) Alterations or installations of other types of work (plumbing, electrical, etc.) that are incidental to the structural alteration.
- (d) Rebuilding portions of the home or reroofing over existing roof.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0360, filed 12/22/15, effective 2/1/16. Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0360, filed 5/30/03, effective 5/30/03. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0360, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0370 How do I obtain alteration design plan approval?

(1) You must have your design plan approved by:

- (a) A design approval primary inspection agency (DAPIA), if they approved the initial design plan; or
- (b) A professional engineer or architect who is licensed in Washington state.

(2) You must submit two copies of your alteration design plan with the appropriate fee to us for review and approval. (See WAC 296-150M-3000.)

[Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0370, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0380 How will I know whether you have approved my design plan?

(1) Your design plan will be approved if it meets the requirements of this chapter and federal standards in 24 C.F.R. 3280.

(2) We will send you an approved copy of your design plan with the plan approval number.

(3) If your design plan is not approved, you will be notified in writing of plan deficiencies. You may send a corrected design plan to us. (See WAC 296-150M-3000.)

[Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0380, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0390 If my design plan is not approved, how much time do I have to submit a corrected plan?

(1) You have ninety days to correct and resubmit your original design plan and send us any applicable resubmittal fee after we notify you of plan deficiencies. After ninety days, your initial design plan is returned to you.

(2) If you submit your corrected design plan after ninety days, you must send the initial design plan fee instead of the resubmittal fee. (See WAC 296-150M-3000.)

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0390, filed 12/22/15, effective 2/1/16. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0390, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0410 What are the requirements for altering mobile/ manufactured homes?

(1) Roof over framing (dormer) additions to manufactured/mobile homes must meet the following requirements:

(a) Maintain a minimum twenty pound roof, live load, and provide documentation to the department.

(b) The dead load for the dormer must be the difference between the live load design of the roof and the roof design snow load of the manufactured/mobile home location (as per Snow Load Analysis for Washington, by Structural Engineers Association of Washington).

(c) Existing roofing material, other than the sheathing, must be completely removed under the dormer.

(d) An engineering analysis shall take into account the wind load on the structure, when the dormer extends above the original ridge line of the manufactured/mobile home.

(e) The engineer or architect of record must clarify in writing on the original stamped drawings that the design plans may be used on other manufactured/mobile homes of the same live load, for generic designs that are to be used more than one time.

(f) Submit all manufactured/mobile home alterations to the department to be reviewed by plan review for compliance.

(2) Reroofing of a manufactured/mobile home must be installed and vented according to the manufacturer's installation instructions. Installation of underlayment must follow the shingle manufacturer's LOW SLOPE INSTALLATION INSTRUCTIONS and/or the Asphalt Roofing Manufacturers Association (ARMA) instructions for installations under 4/12 pitch. For roof pitches above 4/12, the manufacturer's installation instructions or ARMA installation instructions still apply.

(a) Existing asphalt roof will require removal of the original asphalt roofing material prior to the installation of new asphalt roofing. Reuse of plastic skylights is not allowed. Skylights must be curb mounted type and step flashed per roofing manufacturer and/or ARMA requirements.

(b) If the original asphalt roofing material is not removed and a second layer of asphalt roofing is added, an engineering analysis must be completed to ensure that the existing roof structure can support the additional load while maintaining a 20 pounds per square foot (psf) live roof load, or maintaining the specified roof load listed on the homes data compliance certificate.

(c) Metal roofing with or without insulation board applied after removing existing asphalt shingles must:

- (i) Follow the roofing manufacturer's installation requirements.
- (ii) Maintain minimum pitch of the roof as required by the roofing manufacturer's installation requirements.

(d) Metal roofing with or without insulation board over an existing metal roof must be installed per the manufacturer's installation requirements. Skylights installed in mobile or manufactured homes with metal roofing must be installed with specific installation instructions. Installations, if not curb mount factory flashed type, shall be flashed and counter flashed per specific installation instructions detailed by the skylight manufacturer or the metal roofing manufacturer.

(e) Bonding of noncurrent-carrying metal parts: All exposed noncurrent-carrying metal parts that become energized shall be effectively bonded to the grounding terminal or enclosure of the distribution panel board (note: This includes metal roofing pursuant to MCHSS 3280.809(d)). A bonding conductor shall be connected between each distribution panel board and an accessible terminal on the chassis.

(3) Grounding terminals shall be of the solderless type and approved as pressure-terminal connectors recognized for the wire size used. Star washers or other approved paint-penetrating fitting shall be used to bond terminals to chassis or other coated areas. The bonding conductor shall be solid or stranded, insulated or bare and shall be No. 8 copper minimum, or equal. The bonding conductor shall be routed so as not to be exposed to physical damage. Protection can be afforded by the configuration of the chassis.

(4) Replacing floor decking must meet the following requirements:

(a) Plan review is not required for the following:

- (i) The floor decking being replaced is not greater than eight feet by sixteen feet of each section of home. All edges shall be blocked.
- (ii) Two-by-six blocking is added to each floor joist and secured with 16d nails at six inches on center.
- (iii) Two-by-six blocking is added at the ends of the cut such that one-half is under the existing decking and one-half is under the decking being replaced and is secured with 16d nails, two at each joint.
- (iv) Floor decking must be the same thickness and grade as originally installed.
- (v) Adding decking that is secured with construction adhesive bead and #8x1-3/4 inch screws at six inches on center.

(b) Plan review is required, but engineering will not be required under the following condition:

- (i) The floor decking being replaced is greater than eight feet by sixteen feet.
- (ii) The decking being replaced is no more than fifty percent of the floor length, each section of home.
- (iii) The decking being replaced is no more than seventy-five percent of the floor width, each section of home.

(c) If the floor decking being replaced is greater than eight feet by sixteen feet of each section of home, both plan review and engineering will be required.

- (d) On generic designs that are to be used more than once, an engineer or architect must clearly state in writing on the original stamped drawings that the design plans may be used on other manufactured/mobile homes of the same manufacturer.
- (5) Additions (i.e., rooms, garages, carports, etc.) added to manufactured/mobile homes.
- (a) Labor and industries factory assembled structures section is responsible for any alterations to the manufactured/mobile home. This includes:
- (i) Any opening that is added or changed.
 - (ii) Electrical circuits added to the addition that come from the electrical panel in the manufactured/mobile home.
 - (iii) Using the manufactured/mobile home for support of the addition.
- (b) A plan review is required when adding an addition to a manufactured/mobile home for:
- (i) Openings not constructed per the department.
 - (ii) Manufactured/mobile homes which use the structure for support of the addition.
 - (iii) Adding a dormer on the home.

Note: An engineer or architect licensed in Washington state must design the plans and seal the plans and calculations. The department's FAS plan review section will perform a plan review.

- (c) Labor and industries electrical section is responsible for any electrical circuits added to a manufactured/mobile home's addition that comes from the pedestal where the electrical section has electrical inspection authority. Some cities have electrical inspection authority and would make those electrical inspections in their jurisdiction.
- (d) Local jurisdiction (city or county) is responsible for the inspection of the addition except as noted above.
- (e) Items to pay particular attention to:
- (i) If the addition is being served by a required egress door:
 - The lock must be removed and nonlocking passage hardware installed or the door may be removed entirely leaving a passageway. One of the required egress doors must be accessible from the doorway of each bedroom without traveling more than thirty-five feet.
 - An exit door at least equal in size to the one removed must be installed in the addition.
 - (ii) If the addition is being served by a 3rd door and the other doors meet the egress requirements outlined above, no changes to the exterior door are required.
 - (iii) Electrical circuits run from the manufactured/mobile home electrical panel must:
 - Be in conduit if routed under the home; and
 - Terminate at the edge of the home in a junction box.
 - (iv) The addition may be flashed to the manufactured/mobile home for purposes of sealing the exterior joint and may have trim installed on the interior for finishing.

(6) Attaching awnings and carports and garages.

(a) Self-supporting awnings and carports. When awnings and carports are self-supporting they may be flashed to the manufactured/mobile home and no permit is required from L&I FAS section. The awnings and/or carports must be constructed to not block required egress doors or windows. Please check with your local jurisdiction building department for any permits required by them.

(b) Awnings and carports using the home for support. Aluminum or wood awnings and carports that use the manufactured/ mobile home for support will need to:

- Have the connections to the home designed and the additional load on the home analyzed by an engineer or architect licensed in Washington state. The engineer or architect will need to seal these designs and calculations;
- The installer must submit the designs to the FAS plan review section for a review; and
- The installer must have the installation inspected, after the plans are approved.

(c) Manufactured home comes from factory garage ready. If the manufactured home comes from the factory garage ready, no inspection is required by L&I. Garage ready from the factory means:

- Dormers, if required, are installed by the factory;
- All gypsum board required on the home has been installed at the factory;
- Any door between the home and the garage meets the requirements for separation of a residence from a garage as required by the building code;
- All electrical installations meet the requirements of the National Electrical Code for one hour walls;
- The dryer outlet termination has been designed at the factory to not exhaust into the garage; and
- No other changes are required to the manufactured home at the installation site.

Note: If any changes are required to the manufactured home at the installation site, an alteration permit is required from the department.

(d) Manufactured/mobile home is not garage ready. If the manufactured/mobile home is not garage ready when it leaves the factory, an alteration permit is required. Engineering analysis and plan review may also be required if additional loads are placed upon the home or openings are made or changed. The following are some examples of when a plan review would be required:

- A dormer is added;
- An opening in the home is made or changed (note: Openings constructed to the department's approved details would not require a plan review); and
- Gypsum board is added to the wall of the home. Items to also be aware of:
When a garage is to be attached to a manufactured/mobile home, the following must also be considered:
 - The means of egress through exterior doors is not compromised (two are required);

- The means of egress from the bedroom(s) is not compromised (one egress directly to the exterior from each); and/or endwalls are usually shearwalls and any additional openings in them will need an engineering analysis and plan review to substantiate.

(7) Decertification of a manufactured/mobile home.

- (a) Can only be decertified if the jurisdiction having authority will allow the unit to remain on the property.
- (b) All electrical components, including the electrical panel, receptacles, switches and light must be removed and wires cut to where they enter the device.
- (c) All plumbing fixtures and exposed plumbing water, drain and waste lines must be cut off where they enter any wall, floor or ceiling.
- (d) All mechanical components including water heaters, furnaces, and kitchen appliances must be removed from the home.

(8) Installation of gas lines on manufactured homes:

- (a) Gas lines must be material approved for gas distribution in manufactured/mobile homes.
- (b) Must have a report available showing that the gas line tests were completed successfully. Either of the following shall be acceptable:
 - (i) A "Gas Piping Test Affidavit" completed and witnessed by a Washington state registered mechanical contractor representative who shall prepare a report. The test shall meet the requirements of the current HUD C.F.R. 3280 705 (8)(i)(ii).
 - (ii) The test must be witnessed by an L&I inspector.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0410, filed 12/22/15, effective 2/1/16; WSR 08-12-041, § 296-150M-0410, filed 5/30/08, effective 6/30/08; WSR 07-05-063, § 296-150M-0410, filed 2/20/07, effective 4/1/07.]

Inspection

WAC 296-150M-0500 When must an inspection be requested?

- (1) You must purchase a permit and request an inspection from the department, if you are altering a manufactured home. Note: Purchasing the permit is not the same as requesting the permit. You may request an inspection online at the L&I website, in person at the time of purchase, or by calling an L&I office.
- (2) You must request an inspection by the local enforcement agency, for manufactured home installations. Note: In some jurisdictions it may be the department that performs the installation inspection.
- (3) The installation of manufactured homes must be enforced and fees charged by the counties and cities in the same manner the State Building Code is enforced under RCW 19.27.050.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0500, filed 12/22/15, effective 2/1/16. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0500, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0530 Am I charged if I request an inspection but am not prepared when you arrive? If you ask us to inspect your manufactured home or your alteration, but you are not prepared when we arrive, you must pay the minimum inspection fee. (See WAC 296-150M-3000.)

[Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-0530, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0540 How do I obtain a fire safety certificate to site my pre-HUD home? In order to install a pre-HUD home in Washington, you will need to obtain and pass an inspection by the department. To apply for a fire safety certificate, you must:

- (1) Complete an alteration permit form and a fire safety certificate application. We will provide you the forms on request.
- (2) A fire safety preinspection checklist can be obtained at your local labor and industries office or on the web at [http:// www.lni.wa.gov/tradeslicensing/fas](http://www.lni.wa.gov/tradeslicensing/fas).
- (3) Submit the completed forms to the department, with the inspection fee and the site placement form. (See WAC 296-150M-3000, Manufactured/mobile home fees.)
- (4) Any other alterations to the home that have not been previously inspected and approved by the department will cause the approval of this inspection to be denied. A permit and inspection will need to be completed for these alterations before approval of the fire safety certificate is issued.
- (5) Once we approve the inspection, we will provide you with a completed alteration permit and fire safety certificate.

Note: After the home has been sited, any subsequent move will require a separate fire safety certificate. RCW 46.44.170.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0540, filed 12/22/15, effective 2/1/16. Statutory Authority: Chapter 43.22 RCW and 2005 c 399. WSR 05-24-020, § 296-150M-0540, filed 11/29/05, effective 1/1/06.]

WAC 296-150M-0550 What is required to meet the fire safety certificate requirements? You will need to complete the following requirements for your pre-HUD home. (A pre-HUD home is defined as a mobile home manufactured before June 15, 1976, not built to the HUD standards.)

- (1) Wiring system. Aluminum wiring is not permitted for use in fifteen and twenty amp branch circuits. You must do one of the following:
 - (a) Rewire the fifteen and twenty amp branch circuits in copper.
 - (b) Install receptacles and switches that are approved for the use of either aluminum or copper (i.e., they will be marked AL/CU); or
 - (c) Install copper "pig tail" connections using wire connectors approved for aluminum wire between the aluminum wire and the receptacle/switch/light fixture/bath and fans/range hoods. Additionally, if the circuit breakers in the electrical panel for fifteen and twenty amp circuits are not approved for aluminum wiring, the breakers either need to be replaced with those that are acceptable for aluminum wire or they need to be pig tailed with copper wire and wire nuts acceptable for aluminum wire.
- (2) Fire protection.
 - (a) Walls, doors and ceilings in the water heater and furnace compartments shall be protected by materials with a flame spread rating not exceeding twenty-five. (This can be met with gypsum wallboard having a minimum thickness of 5/16 inch or ceramic tile.)

(b) The range hood must be at least as wide as the appliance and have a lower front edge or "eyebrow" which extends at least three inches past the cabinet above.

(c) The surfaces of the exposed walls adjacent to and within six inches of a range or cooktop appliance must be composed of gypsum wallboard, with a minimum thickness of 5/16 inch, or ceramic tile. Kitchen cabinets constructed of combustible material that is located above a range or cooktop must be a minimum of twenty-four inches above the cooking surface. The cabinets must be protected on the bottom and on the exposed sides within six inches of either side of the appliance, by covering the surface with gypsum wallboard, with a minimum thickness of 5/16 inch, and installing a metal hood above the cooking appliance. A minimum of 3/8 inch gap is required between the cabinet and the gypsum on top of the hood.

(d) No window may be within twelve inches of the edge of a burner or element of the cooking appliance.

(3) Emergency egress.

(a) Every bedroom or other room designed expressly for sleeping purposes must have a window that meets the minimum requirements of at least 5.0 square feet of opening for emergency egress.

(b) Rooms that have a door, with a minimum clear opening of twenty-eight inches wide by seventy-two inches high, which opens directly to the outside do not need to have an emergency egress window.

(c) Windows and devices must be installed in a manner which allows for proper operation.

(d) The bottom of the opening of an egress window shall be no more than thirty-six inches above the floor.

(e) The height of the bottom of the window can be increased to forty-four inches when the clear net area is increased to 5.7 square feet of opening.

(4) Smoke detectors.

(a) Smoke detectors are required at each hallway or area giving access to a bedroom or group of bedrooms. When a furnace is located in the hall giving access to the bedrooms, the detector is to be located between the living area and the return air grill of the furnace.

(b) Smoke detectors must be installed on a wall and must be permanently wired and installed on a J-box with splices terminating inside the box.

(c) A smoke alarm with a rated life of ten years and provided with a listed ten year battery can be used in lieu of wired smoke detector.

(d) The smoke detector may not be switched and if more than one smoke detector is installed, then each one is to be wired on a different branch circuit.

(e) Smoke detectors do not need to be wired together to sound simultaneous alarms.

[Statutory Authority: Chapter 43.22 RCW. WSR 16-01-163, § 296-150M-0550, filed 12/22/15, effective 2/1/16. Statutory Authority: Chapter 43.22 RCW and 2005 c 399. WSR 05-24-020, § 296-150M-0550, filed 11/29/05, effective 1/1/06.]

AUDIT

WAC 296-150M-0705 Definitions applicable to this part.

"**Audit**" means an assessment, evaluation, examination or investigation of a contractor's accounts, books and records for the purpose of verifying the contractor's compliance with RCW 43.22.360 through 43.23.390 requiring permits for alterations to manufactured and mobile homes.

"**Records**" include, but are not limited to, all bids, invoices, billing receipts which show that the work was performed on a manufactured/mobile home, permits purchased from labor and industries for alterations to manufactured/mobile homes, purchases of materials and payroll records.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0705, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0715 May the department audit the records of a contractor? Yes, based on RCW 43.22.434 the department may audit the records of contractors as defined in chapter 18.27, 18.106, or 19.28 RCW when the department has reason to believe that a violation of the permitting requirements has occurred.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 Certified on 10/12/2022 Page 27 RCW. WSR 03-12-044, § 296-150M-0715, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0725 What procedures will the department follow when auditing the records of construction, plumbing and electrical contractors? The department will follow the following procedures when auditing:

- (1) The time period covered by the audit may be less than one year but will not exceed three years from the date of notification of an audit.
- (2) Every construction, plumbing and electrical contractor must keep records of jobs performed for at least the time frames specified in subsection (1) of this section. Upon the request of the director's authorized representative, these records must be made available to the department for inspection within seven business days.
- (3) The department's audits may include, but may not be limited to, the following:
 - (a) An audit to determine if the contractor performed work on a manufactured or mobile home without procuring the proper permit;
 - (b) An audit to determine if the contractor failed to correct within twenty days any violations noted on an alteration permit; and
 - (c) An audit covering a specific time period and examining a contractor's records, which may include billing information, location of where the work was performed, type of work performed, for whom the work was performed, etc.
- (4) Any information obtained as a result of an audit under provisions of RCW 43.22.434 is confidential and is not open to public inspection under chapter 42.17 RCW.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0725, filed 5/30/03, effective 5/30/03.]

PENALTIES

WAC 296-150M-0800 Definitions applicable to this part.

"Administrative law judge" is any person appointed by the chief administrative law judge (as defined in RCW 34.12.020(2)) to preside at a notice of infraction appeal hearing convened under chapter 43.22 RCW.

"Appeal hearing" is any proceeding in which an administrative law judge is empowered to determine legal rights, duties or privileges of specific parties on behalf of the director.

"Appellant" means any person, contractor, firm, partnership, corporation, or other entity that has filed an appeal.

"Compliance inspector" refers to the departmental staff responsible for investigating potential violations of chapter 43.22 RCW.

"Contractor" is as defined in chapters 18.27, 18.106, and 19.28 RCW.

"Department" refers to the department of labor and industries.

"Infraction" means a violation of chapter 43.22 RCW as cited by the department's compliance inspectors.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0800, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0805 How does the department ensure that a contractor, firm, partnership, or corporation complies with the requirements of chapter 43.22 RCW? The department of labor and industries ensures that contractors, firms, partnerships, and corporations comply with the requirements of chapter 43.22 RCW and this chapter which require the contractor or homeowner to purchase the appropriate permits and the department will inspect all alterations to manufactured and mobile homes by:

- (1) Inspecting manufactured and mobile home job sites by the department's compliance inspectors; or
- (2) Auditing the records of contractors per WAC 296-150M-0715.

[Statutory Authority: Chapter 43.22 RCW. WSR 08-12-041, § 296-150M-0805, filed 5/30/08, effective 6/30/08. Statutory Authority: Chapter 43.22 RCW and 2005 c 399. WSR 05-24-020, § 296-150M-0805, filed 11/29/05, effective 1/1/06. Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0805, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0810 What violations of chapter 43.22 RCW can result in the issuance of a notice of infraction?

- (1) Under chapter 43.22 RCW, the department can issue a notice of infraction to a firm, partnership, or corporation for:
 - (a) Failure to obtain a permit before altering a manufactured or mobile home as required by chapter 296-150M WAC;
 - (b) Failure to correct violations noted as a result of an inspection requested as a result of having purchased a permit.
- (2) Each worksite at which a violation occurs constitutes a separate infraction.
- (3) Each day on which a violation occurs constitutes a separate infraction.
- (4) See WAC 296-150M-0860 for the specific monetary penalties associated with each of the violations discussed in this section.

[Statutory Authority: Chapter 43.22 RCW. WSR 08-12-041, § 296-150M-0810, filed 5/30/08, effective 6/30/08. Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0810, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0815 What information must be included in a notice of correction? When a contractor violates chapter 43.22 RCW, the department may issue a notice of correction which must contain the following:

- (1) A description of the violation;
- (2) A statement of what is required to correct the violation;
- (3) The date by which the department requires corrections to be achieved; and
- (4) Notice of the individual or department office that must be contacted to obtain a permit or other compliance information.

[Statutory Authority: Chapter 43.22 RCW. WSR 08-03-120, § 296-150M-0815, filed 1/22/08, effective 3/1/08. Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0815, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0820 Who can be issued a notice of infraction? A contractor, firm, partnership, or corporation may be issued a notice of infraction for violations of chapter 43.22 RCW and this chapter. The department must by certified mail send the written notice of infraction penalties imposed under chapter 43.22 RCW and this chapter to the last known address of the party named in the notice.

[Statutory Authority: Chapter 43.22 RCW. WSR 08-12-041, § 296-150M-0820, filed 5/30/08, effective 6/30/08. Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0820, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0830 How does a contractor, firm, partnership, or corporation appeal a notice of infraction? The contractor, firm, partnership, or corporation must:

- (1) File two copies of an appeal notice, specifying the reasons for the appeal, at the office designated on the notice of infraction; and
- (2) File the appeal notice within twenty days of the mailing of the infraction.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0830, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0835 Who presides over an appeal hearing and where is it held? An administrative law judge from the office of administrative hearings will preside over the hearing and give a decision. The hearing shall be conducted in the county where the infraction occurred. However, both the appellant and the department have a right to ask the administrative law judge to change the hearing's location.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0835, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0840 Who will represent the appellant and the department at the appeal hearing?

Appellants may either represent themselves or be represented by an attorney. The department shall be represented by the office of attorney general.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0840, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0845 How is the appeal hearing conducted? The hearing process shall be conducted according to chapter 34.05 RCW, Administrative Procedure Act and chapter 10-08 WAC. All appeals of the hearing decision shall be to the superior court according to chapter 34.05 RCW.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0845, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0855 What does the department do with the appeal notices that they receive?

- (1) Appeal notices that are received timely are first reviewed by the department for purposes of reconsideration.
- (2) Appeal notices that are not received timely will be returned to the appellant with appeal rights stated.
- (3) Appeal notices that are received timely and are not reconsidered according to subsection (1) of this section are recorded and forwarded to the office of the attorney general then to the office of administrative hearings.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0855, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0860 What monetary penalties will be assessed for an infraction issued for violations of chapter 43.22 RCW and this chapter? Monetary penalties that may be assessed for a violation of chapter 43.22 RCW and this chapter are:

Monetary Penalties	Dollar Amount
First Violation	\$ 200.00*
Second Violation	\$ 400.00
Third Violation	\$ 800.00
Each Additional Violation	\$ 1,000.00

* Minimum penalty per violation. Once a violation of chapter 43.22 RCW and this chapter becomes a final judgment, any additional violation is subject to an increased penalty as set forth in the above table.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0860, filed 5/30/03, effective 5/30/03.]

WAC 296-150M-0865 When must a contractor, firm, partnership, or corporation pay assessed monetary penalties?

- (1) If a contractor, firm, partnership, or corporation named in a notice of infraction does not choose to appeal the notice, then the contractor, firm, partnership, or corporation must pay the department the amount of the penalty prescribed for the infraction.
- (2) After an administrative law judge decides that an infraction has been committed, a contractor who does not appeal the decision to a superior court, has thirty days to pay any outstanding monetary penalties.

[Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-0865, filed 5/30/03, effective 5/30/03.]

MANUFACTURED HOME FEES**WAC 296-150M-3000 Manufactured/mobile home fees.**

DESIGN PLAN FEES:	
STRUCTURAL ALTERATION	\$216.00
RESUBMITTAL FEE	\$95.30
ADDENDUM (Approval expires on the same date as original plan.)	\$95.30
ELECTRONIC PLAN SUBMITTAL FEE \$6.20 per page for the first set of plans and \$1.00 per page for each additional set of plans. These fees are in addition to any applicable design plan fees required under this section.	
DEPARTMENT INSPECTION FEES:	
Combination permit - Mechanical and electrical inspections	\$236.10
Heat Pump	\$236.10
Air conditioning	\$236.10
Air conditioning with replacement furnace	\$236.10
Gas furnace installation includes gas piping	\$236.10
Fire safety inspection	\$236.10
MECHANICAL	
Gas *** piping	\$104.80
Wood stove	\$104.80
Pellet stove	\$104.80
Gas *** Room heater	\$104.80
Gas *** Decorative appliance	\$104.80
Range: Changing from electric to gas ***	\$104.80
Gas *** Water heater replacement	\$78.40
ELECTRICAL	
Electric water heater replacement	\$131.20
Electric water heater replacing gas *** water heater	\$131.20
Each added or modified 120 volt circuit (maximum charge is two circuits)	\$131.20
Each added 240 volt circuit (for other than heat pumps, air conditioners, furnaces, water heaters, ranges, hot tubs or spas)	\$131.20
Hot tub or spa (power from home electrical panel)	\$131.20
Replace main electrical panel/permanently installed transfer equipment	\$131.20
Low voltage fire/intrusion alarm	\$131.20
Any combination of furnace, range and water heater changing from electric to gas ***	\$131.20
PLUMBING	
Fire sprinkler system	\$294.90
Each added fixture	\$78.40
Replacement of water piping system (this includes two inspections)	\$263.30
STRUCTURAL	
Inspection as part of a mechanical/fire safety installation (cut truss/floor joist, sheet rocking)	\$117.60
Reroofs (may require a plan review)	\$210.30
Changes to home when additions bear loads on home per the design of a professional (also requires a plan review)	\$210.30
Other structural changes (may require a plan review)	\$210.30
MISCELLANEOUS	
OTHER REQUIRED INSPECTIONS (per hour*)	\$86.00
ALL REINSPECTIONS (per hour*)	\$86.00
Manufactured home installation inspection permit (only available in cities and counties with L&I inspection contract)	\$602.90
Refund	\$25.90

INSIGNIA FEES:	
REISSUED – LOST/DAMAGED	\$25.90
IPIA	
DEPARTMENT AUDIT FEES	
REGULARLY SCHEDULED IPIA AUDIT	
First inspection on each section (one time only)	\$43.10
Second and succeeding inspections of unlabeled sections (per hour*)	\$95.30
OTHER IPIA FEES:	
Red tag removal during a regularly scheduled IPIA audit (per hour* separate from other fees)	\$95.30
Red tag removal at a time other than a regularly scheduled IPIA audit (per hour* plus travel time* and mileage**)	\$95.30
Increased frequency surveillance (per hour* plus travel time* and mileage**)	\$95.30
Attendance at manufacturers training classes (per hour* only)	\$95.30
Subpart "I" investigations (per hour* plus travel time* and mileage**)	\$95.30
Alterations to a labeled unit (per hour* plus travel time* and mileage**)	\$95.30
IPIA Issues/Responses (per hour* plus travel time* and mileage**)	\$95.30
Monthly surveillance during a regularly scheduled IPIA audit (per hour* plus travel time* and mileage**)	\$95.30
Monthly surveillance at a time other than a regularly scheduled IPIA audit (per hour* plus travel time* and mileage**)	\$95.30
Plant certifications, recertifications and addenda updates (per hour* plus travel time* and mileage** per each inspector)	\$95.30
Response to HBT audit during a regularly scheduled IPIA audit (per hour*)	\$95.30
Response to HBT audit at a time other than a regularly scheduled IPIA audit (per hour* plus travel time* and mileage**)	\$95.30
Alternative construction (AC) letter inspections at placement site (per hour* plus travel time* and mileage**)	\$95.30
Replacement of HUD labels (per hour* plus travel time* and mileage**)	\$95.30
State administrative agency (SAA) inspection fee (per hour* plus travel time* and mileage**)	\$95.30
State administrative agency (SAA) dispute resolution filing fee	\$95.30
State administrative agency (SAA) dispute resolution (per hour*)	\$95.30
OTHER FEES:	
FIELD TECHNICAL SERVICE (per hour plus travel time* and mileage**)	\$88.60
PUBLICATION PRINTING AND DISTRIBUTION OF RCWs AND WACs (one free copy per year upon request)	\$17.30
VARIANCE INSPECTION FEE	\$210.30
HOMEOWNER REQUESTED INSPECTION	\$210.30
DECERTIFICATION OF A MOBILE/MANUFACTURED HOME	\$210.30
DEMOLITION OF A MOBILE/MANUFACTURED HOME	\$210.30
ENERGY CONSERVATION PERMIT	\$35.60

NOTE: Local jurisdictions may have other fees that apply.

*Minimum charge of 1 hour; time spent greater than 1 hour is charged in 1/2 hour increments.

**Per state guidelines.

***Gas means all gases; natural, propane, etc.

[Statutory Authority: Chapters 43.22 and 43.22A RCW. WSR 23-21-084, § 296-150M-3000, filed 10/17/23, effective 12/1/23; WSR 22-19-074, § 296-150M-3000, filed 9/20/22, effective 11/1/22; WSR 22-01-193, § 296-150M-3000, filed 12/21/21, effective 1/31/22; WSR 21-07-126, § 296-150M-3000, filed 3/23/21, effective 4/23/21; WSR 20-04-081, § 296-150M-3000, filed 2/4/20, effective 3/6/20. Statutory Authority: Certified on 10/12/2022 Page 33 Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-150M-3000, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 43.22 RCW and 2011 1st sp.s. c

50. WSR 12-06-069, § 296-150M-3000, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapters 18.106, 43.22 RCW, 2008 c 285 and c 329. WSR 08-12-042, § 296-150M-3000, filed 5/30/08, effective 6/30/08. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, § 296-150M-3000, filed 5/22/07, effective 6/30/07. Statutory Authority: Chapter 43.22 RCW. WSR 07-05-063, § 296-150M-3000, filed 2/20/07, effective 4/1/07. Statutory Authority: Chapters 18.106, 43.22, and 70.87 RCW. WSR 06-10-066, § 296-150M-3000, filed 5/2/06, effective 6/30/06. Statutory Authority: Chapter 43.22 RCW and 2005 c 399. WSR 05-24-020, § 296-150M-3000, filed 11/29/05, effective 1/1/06. Statutory Authority: Chapters 18.27, 43.22, and 70.87 RCW. WSR 05-12-032, § 296-150M-3000, filed 5/24/05, effective 6/30/05. Statutory Authority: Chapters 18.27 and 43.22 RCW. WSR 04-12-048, § 296-150M-3000, filed 5/28/04, effective 6/30/04. Statutory Authority: RCW 43.22.340, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.480, and 43.22.485, 2002 c 268, and chapter 43.22 RCW. WSR 03-12-044, § 296-150M-3000, filed 5/30/03, effective 5/30/03. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 159, and chapters 43.22, 19.28, 18.27, and 70.87 RCW. WSR 01-12-035, § 296-150M-3000, filed 5/29/01, effective 6/29/01. Statutory Authority: RCW 43.22.340, 43.22.350, 43.22.355, 43.22.360, 43.22.400, 43.22.432, 43.22.433, 43.22.434, 43.22.450, 43.22.480, and 43.22.485. WSR 00-17-148, § 296-150M-3000, filed 8/22/00, effective 9/30/00. Statutory Authority: Chapters 43.22, 18.27, 70.87 and 19.28 RCW. WSR 99-12-080, § 296-150M-3000, filed 5/28/99, effective 6/28/99. Statutory Authority: Chapters 18.106, 18.27 and 43.22 RCW. WSR 98-12-041, § 296-150M-3000, filed 5/29/98, effective 6/30/98. Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). WSR 97-11-053, § 296-150M-3000, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. WSR 96-21-146, § 296-150M-3000, filed 10/23/96, effective 11/25/96.]

Appendix C

24 CFR PART 3285

- **Model Manufactured Home Installation Standards
January 11, 2021**

Title 24 Part 3285
MODEL MANUFACTURED
HOME INSTALLATION
STANDARDS

Subpart A—General

- | | |
|--|--|
| §3285.1 Administration. | §3285.4 Incorporation by reference (IBR). |
| §3285.2 Manufacturer installation instructions. | §3285.5 Definitions. |
| §3285.3 Alterations during initial installation. | §3285.6 Final leveling of manufactured home. |

Subpart B—Pre-Installation Considerations

- | | |
|---|---|
| §3285.101 Fire separation. | §3285.104 Moving manufactured home to location. |
| §3285.102 Installation of manufactured homes in flood hazard areas. | §3285.105 Permits, other alterations, and on-site structures. |
| §3285.103 Site suitability with design zone maps. | |

Subpart C—Site Preparation

- | | |
|--|------------------------------------|
| §3285.201 Soil conditions. | §3285.203 Site Drainage. |
| §3285.202 Soil classifications and bearing capacity. | §3285.204 Ground moisture control. |

Subpart D—Foundations

- | | |
|---|---|
| §3285.301 General. | §3285.308 Manufactured piers. |
| §3285.302 Flood hazard areas. | §3285.309 [Reserved] |
| §3285.303 Piers. | §3285.310 Pier location and spacing. |
| §3285.304 Pier configuration. | §3285.311 Required perimeter supports. |
| §3285.305 Clearance under homes. | §3285.312 Footings. |
| §3285.306 Design procedures for concrete block piers. | §3285.313 Combination systems. |
| §3285.307 Perimeter support piers. | §3285.314 [Reserved] |
| | §3285.315 Special snow load conditions. |

Subpart E—Anchorage Against Wind

- | | |
|--|---------------------------------------|
| §3285.401 Anchoring instructions. | §3285.404 Severe climatic conditions. |
| §3285.402 Ground anchor installations. | §3285.405 Severe wind zones. |
| §3285.403 Sidewall, over-the-roof, mate-line, and shear wall straps. | §3285.406 Flood hazard areas. |

Subpart F—Optional Features

- | | |
|---|-----------------------------------|
| §3285.501 Home installation manual supplements. | §3285.504 Skirting. |
| §3285.502 Expanding rooms. | §3285.505 Crawlspace ventilation. |
| §3285.503 Optional appliances. | |

Subpart G—Ductwork and Plumbing and Fuel Supply Systems

§3285.601	Field assembly.	§3285.604	Drainage system.
§3285.602	Utility connections.	§3285.605	Fuel supply system.
§3285.603	Water supply.	§3285.606	Ductwork connections.

Subpart H—Electrical Systems and Equipment

§3285.701	Electrical crossovers.	§3285.703	Smoke alarms.
§3285.702	Miscellaneous lights and fixtures.	§3285.704	Telephone and cable TV.

Subpart I—Exterior and Interior Close-Up

§3285.801	Exterior close-up.	§3285.803	Interior close-up.
§3285.802	Structural interconnection of multi-section homes.	§3285.804	Bottom board repair.

Subpart J—Optional Information for Manufacturer's Installation Instructions

§3285.901	General.	§3285.905	Heating oil systems.
§3285.902	Moving manufactured home to location.	§3285.906	Telephone and cable TV.
§3285.903	Permits, alterations, and on-site structures.	§3285.907	Manufacturer additions to installation instructions.
§3285.904	Utility system connections.		

Authority: 42 U.S.C. 3535(d), 5403, 5404, and 5424.

Source: 72 FR 59362, Oct. 19, 2007, unless otherwise noted. Amended FR 2020-28227, Jan. 11, 2021.

Subpart A—General

§3285.1 Administration.

(a) Scope. These Model Installation Standards provide minimum requirements for the initial installation of new manufactured homes, in accordance with section 605 of the Act (42 U.S.C. 5404). The Model Installation Standards are one component of the Manufactured Home Installation Program in Part 3286 of this chapter, upon effect, and serve as the basis for developing the manufacturers' installation instructions required by §3285.2 of this subpart. The manufacturer's installation instructions, including specific methods for performing a specific operation or assembly, will be deemed to comply with these Model Installation Standards, provided they meet or exceed the minimum requirements of these Model Installation Standards and do not take the home out of compliance with the Manufactured Home Construction and Safety Standards (24 CFR part 3280). Work necessary to join all sections of a multi-section home specifically identified in Subparts G, H, and I of this part, or work associated with connecting exterior lights, chain-hung light fixtures, or ceiling-suspended fans, as specifically identified in Subpart I, is not considered assembly or construction of the home, although the design of those elements of a manufactured home must comply with the Manufactured Home Construction and Safety Standards (MHCSS). However, work associated with the completion of hinged roofs and eaves in §3285.801 and other work done on-site and not specifically identified in this part as close-up is considered construction and assembly and is subject to the requirements of the Manufactured Home Construction and Safety Standards (24 CFR part 3280) and the Manufactured Home Procedural and Enforcement Regulations (24 CFR part 3282).

(1) States that choose to operate an installation program for manufactured homes in lieu of the federal program must implement installation standards that provide protection to its residents that equals or exceeds the protection provided by these Model Installation Standards.

(2) In states that do not choose to operate their own installation program for manufactured homes, these Model Installation Standards serve as the minimum standards for manufactured home installations.

(b) Applicability. The standards set forth herein have been established to accomplish certain basic objectives and are not to be construed as relieving manufacturers, retailers, installers, or other parties of responsibility for compliance with other applicable ordinances, codes, regulations, and laws. The manufactured homes covered by this standard must comply with requirements of the U.S. Department of Housing and Urban Development's (HUD) MHCSS Program, as set forth in 24 CFR part 3280, Manufactured Home Construction and Safety Standards, and 24 CFR part 3282, Manufactured Home Procedural and Enforcement Regulations, as well as with, upon effect, the Manufactured Home Installation Program, 24 CFR part 3286, and the Dispute Resolution Program, 24 CFR part 3288. The requirements of this part do not apply to homes installed on site-built permanent foundations when the manufacturer certifies the home in accordance with §3282.12 of this chapter.

(c) Consultation with the Manufactured Housing Consensus Committee. The Secretary will seek input from the Manufactured Housing Consensus Committee (MHCC) when revising the installation standards in this part 3285. Before publication of a proposed rule to revise the installation standards, the Secretary will provide the MHCC with a 120-day opportunity to comment on such revision. The MHCC may send to the Secretary any of the MHCC's own recommendations to adopt new installation standards or to modify

or repeal any of the installation standards in this part. Along with each recommendation, the MHCC must set forth pertinent data and arguments in support of the action sought. The Secretary will either:

- (1) Accept or modify the recommendation and publish it for public comment in accordance with section 553 of the Administrative Procedure Act (5 U.S.C. 553), along with an explanation of the reasons for any such modification; or
- (2) Reject the recommendation entirely, and provide to the MHCC a written explanation of the reasons for the rejection.

§3285.2 Manufacturer installation instructions.

(a) Instructions required. A manufacturer must provide with each new manufactured home, installation designs and instructions that have been approved by the Secretary or DAPIA. The approved installation instructions must include all topics covered in the Model Installation Standards for the installation of manufactured homes. These installation instructions and any variations thereto that are prepared to comply with paragraph (c) of this section must provide protection to residents of the manufactured homes that equals or exceeds the protection provided by these Model Installation Standards and must not take the manufactured home out of compliance with the MHCSS. These instructions must insure that each home will be supported and anchored in a manner that is capable of meeting or exceeding the design loads required by the MHCSS.

(b) Professional engineer or registered architect certification. A professional engineer or registered architect must prepare and certify that the manufacturer's installation instructions meet or exceed the Model Installation Standards for foundation support and anchoring whenever:

- (1) The manufacturer's installation instructions do not conform in their entirety to the minimum requirements or tables or their conditions for foundation support and anchoring of this Standard; or
- (2) An alternative foundation system or anchoring system is employed, including designs for basements and perimeter support foundation systems, whether or not it is included in the installation instructions; or
- (3) Materials such as metal piers or alternatives to concrete footing materials are required by the installation instructions; or
- (4) Foundation support and anchoring systems are designed for use in areas subject to freezing or for use in areas subject to flood damage or high seismic risk; or
- (5) Foundations support and anchoring systems are designed to be used in special snow load conditions or in severe wind design areas; or
- (6) Site conditions do not allow the use of the manufacturer's installation instructions; or
- (7) There are any other circumstances in which the manufacturer's installation instructions would not permit the home to be installed in conformance with the Installation Standards or the MHCSS.

(c) Variations to installation instructions.

- (1) Before an installer provides support or anchorage that are different than those methods specified in the manufacturer's installation instructions, or when the installer encounters site or other conditions (such as areas that are subject to flood damage or high seismic risk) that prevent the use of the instructions, the installer must:
 - (i) First attempt to obtain DAPIA-approved designs and instructions prepared by the manufacturer; or

(ii) If designs and instructions are not available from the manufacturer, obtain an alternate design prepared and certified by a registered professional engineer or registered architect for the support and anchorage of the manufactured home that is consistent with the manufactured home design, conforms to the requirements of the MHCSS, and has been approved by the manufacturer and the DAPIA.

(2) The manufacturer's installation instructions must include an explanation of the requirement in paragraph (c)(1) of this section.

(d) Installer certification. In making the certification of the installation required under part 3286 of this chapter, upon effect, an installer must certify that it completed the installation in compliance with either the manufacturer's instructions or with an alternate installation design and instructions that have been prepared by the manufacturer or prepared in compliance with paragraph (c) of this section.

(e) Temporary storage. The installation instructions must provide at least one method for temporarily supporting each transportable section of a manufactured home, to prevent structural and other damage to the structure, when those section(s) are temporarily sited at the manufacturer's facility, retailer's lot, or the home site.

§3285.3 Alterations during initial installation.

Additions, modifications, or replacement or removal of any equipment that affects the installation of the home made by the manufacturer, retailer, or installer prior to completion of the installation by an installer must equal or exceed the protections and requirements of these Model Installation Standards, the MHCSS (24 CFR part 3280) and the Manufactured Home Procedural and Enforcement Regulations (24 CFR part 3282). An alteration, as defined in §3282.7 of this chapter, must not affect the ability of the basic manufactured home to comply with the MHCSS, and the alteration must not impose additional loads to the manufactured home or its foundation, unless the alteration is included in the manufacturer's DAPIA-approved designs and installation instructions, or is designed by a registered professional engineer or architect consistent with the manufacturer's design and that conforms to the requirements of the MHCSS.

§3285.4 Incorporation by reference (IBR).

(a) The materials listed in this section are incorporated by reference in the corresponding sections noted. These incorporations by reference were approved by the Director of the Federal Register, in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. The materials are available for purchase at the corresponding addresses noted below, and all are available for inspection at the Office of Manufactured Housing Programs, U.S. Department of Housing and Urban Development, 451 Seventh Street, SW., Room 9164, Washington, DC 20410; or the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

(b) The materials listed below are available for purchase from the Air Conditioning Contractors of America (ACCA), 2800 Shirlington Road, Suite 300, Arlington, Virginia 22206.

- (1) ACCA Manual J, Residential Load Calculation, 8th Edition, IBR approved for §3285.503(a)(1)(i)(A).
- (2) [Reserved]

(c) The materials listed below are available for purchase from APA—The Engineered Wood Association, 7011 South 19th Street, Tacoma, Washington 98411, telephone number (253) 565-6600, fax number (253) 565-7265.

- (1) PS1-95, Construction and Industrial Plywood (with typical APA trademarks), 1995 edition, IBR approved for §3285.312(a)(2)(i).
- (2) [Reserved]

(d) The materials listed below are available for purchase from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), 1791 Tullie Circle, NE., Atlanta, Georgia 30329-2305.

- (1) ASHRAE Handbook of Fundamentals, 1997 Inch-Pound Edition, IBR approved for §3285.503(a)(1)(i)(A).
- (2) [Reserved]

(e) The materials listed below are available for purchase from American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959.

- (1) ASTM C 90-02a, Standard Specification for Loadbearing Concrete Masonry Units, 2002, IBR approved for §3285.312(a)(1)(i).
- (2) ASTM D 1586-99, Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils, 1999, IBR approved for the table at §3285.202(c).
- (3) ASTM D 2487-00, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System), 2000, IBR approved for the table at §3285.202(c).
- (4) ASTM D 2488-00, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), 2000, IBR approved for the table at §3285.202(c).
- (5) ASTM D 3953-97, Standard Specification for Strapping, Flat Steel and Seals, 1997, IBR approved for §3285.402(b)(2) and Note 10 to Table 1 to §3285.402.

(f) The materials listed below are available for purchase from American Wood-Preservers' Association (AWPA), P.O. Box 388, Selma, Alabama 36702.

(1) AWPA M4-02, Standard for the Care of Preservative-Treated Wood Products, 2002, IBR approved for §3285.312(a)(2)(iii).

(2) AWPA U1-04, Use Category System; User Specification for Treated Wood, 2004, IBR approved for §§3285.303(b)(1), 3285.312(a)(2)(ii), and 3285.504(c).

(g) The materials listed below are available for purchase from the Federal Emergency Management Administration (FEMA), 500 C Street, SW., Washington, DC 20472.

(1) FEMA 85/September 1985, Manufactured Home Installation in Flood Hazard Areas, 1985, IBR approved for §3285.102(d)(3).

(2) [Reserved]

(h) The materials listed below are available for purchase from the National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts 02169-7471.

(1) NFPA 31, Standard for the Installation of Oil Burning Equipment, 2001 edition, IBR approved for §§3285.905(a) and 3285.905(d)(3).

(2) NFPA 70, National Electrical Code, 2005 edition, IBR approved for §§3285.702(e)(1) and 3285.906.(3) NFPA 501A, Standard for Fire Safety Criteria for Manufactured Home Installations, Sites, and Communities, 2003 edition, IBR approved for §3285.101.

(i) The materials listed below are available for purchase from the Structural Engineering Institute/American Society of Civil Engineers (SEI/ASCE), 1801 Alexander Bell Drive, Reston, Virginia 20191.

(1) SEI/ASCE 32-01, Design and Construction of Frost-Protected Shallow Foundations, 2001, IBR approved for §§3285.312(b)(2)(ii) and 3285.312(b)(3)(ii).

(2) [Reserved]

(j) The materials listed below are available for purchase from Underwriters Laboratories (UL), 333 Pfingsten Road, Northbrook, Illinois 60062.

(1) UL 181A, Closure Systems for Use With Rigid Air Ducts and Air Connectors, 1994, with 1998 revisions, IBR approved for §3285.606(a).

(2) UL 181B, Closure Systems for Use With Flexible Air Ducts and Air Connectors, 1995, with 1998 revisions, IBR approved for §3285.606(a).

§3285.5 Definitions.

The definitions contained in this section apply to the terms used in these Model Installation Standards. Where terms are not included, common usage of the terms applies. The definitions are as follows:

Act. The National Manufactured Housing Construction and Safety Standards Act of 1974, 42 U.S.C. 5401-5426.

Anchor assembly. Any device or other means designed to transfer home anchoring loads to the ground.

Anchoring equipment. Ties, straps, cables, turnbuckles, chains, and other approved components, including tensioning devices that are used to secure a manufactured home to anchor assemblies.

Anchoring system. A combination of anchoring equipment and anchor assemblies that will, when properly designed and installed, resist the uplift, overturning, and lateral forces on the manufactured home and on its support and foundation system.

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

Arid region. An area subject to 15 inches or less of annual rainfall.

Attached accessory building or structure. means any awning, cabana, deck, ramada, storage cabinet, carport, windbreak, garage, or porch for which the attachment of such is designed by the home manufacturer to be structurally supported by the manufactured home.

Base flood. The flood having a one percent chance of being equaled or exceeded in any given year.

Base flood elevation (BFE). The elevation of the base flood, including wave height, relative to the datum specified on a LAHJ's flood hazard map.

Comfort cooling certificate. A certificate permanently affixed to an interior surface of the home specifying the factory design and preparations for air conditioning the manufactured home.

Crossovers. Utility interconnections in multi-section homes that are located where the sections are joined.

Crossover connections include heating and cooling ducts, electrical circuits, water pipes, drain plumbing, and gas lines.

Design Approval Primary Inspection Agency (DAPIA). A state or private organization that has been accepted by the Secretary in accordance with the requirements of Part 3282, Subpart H of this chapter, which evaluates and approves or disapproves manufactured home designs and quality control procedures.

Diagonal tie. A tie intended to resist horizontal or shear forces, but which may resist vertical, uplift, and overturning forces.

Flood hazard area. The greater of either: The special flood hazard area shown on the flood insurance rate map; or the area subject to flooding during the design flood and shown on a LAHJ's flood hazard map, or otherwise legally designated.

Flood hazard map. A map delineating the flood hazard area and adopted by a LAHJ.

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

Foundation system. A system of support that is capable of transferring all design loads to the ground, including elements of the support system, as defined in this section, or a site-built permanent foundation that meets the requirements of 24 CFR 3282.12.

Ground anchor. A specific anchoring assembly device designed to transfer home anchoring loads to the ground.

Installation instructions. DAPIA-approved instructions provided by the home manufacturer that accompany each new manufactured home and detail the home manufacturer requirements for support and anchoring systems, and other work completed at the installation site to comply with these Model Installation Standards and the Manufactured Home Construction and Safety Standards in 24 CFR part 3280.

Installation standards. Reasonable specifications for the installation of a new manufactured home, at the place of occupancy, to ensure proper siting; the joining of all sections of the home; and the installation of stabilization, support, or anchoring systems.

Labeled. A 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.

Local authority having jurisdiction (LAHJ). The state, city, county, city and county, municipality, utility, or organization that has local responsibilities and requirements that must be complied with during the installation of a manufactured home.

Lowest floor. The floor of the lowest enclosed area of a manufactured home. An unfinished or flood-resistant enclosure, used solely for vehicle parking, home access, or limited storage, must not be considered the lowest floor, provided the enclosed area is not constructed so as to render the home in violation of the flood-related provisions of this standard.

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 which 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 in the structure. This term includes all structures that meet the above requirements, except the size requirements and with respect to which the manufacturer voluntarily files a certification, pursuant to §3282.13 of this chapter, and complies with the MHCSS set forth in part 3280 of this chapter. The term does

not include any self-propelled recreational vehicle. Calculations used to determine the number of square feet in a structure will include the total of square feet for each transportable section comprising the completed structure and will be based on the structure's exterior dimensions measured at the largest horizontal projections when erected on-site. These dimensions will include all expandable rooms, cabinets, and other projections containing interior space, but do not include bay windows. Nothing in this definition should be interpreted to mean that a manufactured home necessarily meets the requirements of HUD's Minimum Property Standards (HUD Handbook 4900.1) or that it is automatically eligible for financing under 12 U.S.C. 1709(b) certification.

Manufactured Home Construction and Safety Standards or MHCSS. The Manufactured Home Construction and Safety Standards established in part 3280 of this chapter, pursuant to section 604 of the Act, 42 U.S.C. 5403.

Manufactured home gas supply connector. A listed connector designed for connecting the manufactured home to the gas supply source.

Manufactured home site. A designated parcel of land designed for the installation of one manufactured home for the exclusive use of the occupants of the home.

Manufactured Housing Consensus Committee or MHCC. The consensus committee established pursuant to section 604(a)(3) of the Act, 42 U.S.C. 5403(a)(3).

Model Installation Standards. The installation standards established in part 3285 of this chapter, pursuant to section 605 of the Act, 42 U.S.C. 5404.

Peak cap construction means any roof peak construction that is either shipped loose or site constructed and is site installed to complete the roof ridge/peak of a home.

Peak flip construction means any roof peak construction that requires the joining of two or more cut top chord members on site. The cut top chords must be joined at the factory by straps, hinges, or other means.

Pier. That portion of the support system between the footing and the manufactured home, exclusive of shims. Types of piers include, but are not limited to: Manufactured steel stands; pressure-treated wood; manufactured concrete stands; concrete blocks; and portions of foundation walls.

Ramada. Any freestanding roof or shade structure, installed or erected above a manufactured home or any portion thereof.

Secretary. The Secretary of Housing and Urban Development, or an official of HUD delegated the authority of the Secretary with respect to the Act.

Site. An area of land upon which a manufactured home is installed.

Skirting. A weather-resistant material used to enclose the perimeter, under the living area of the home, from the bottom of the manufactured home to grade.

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

State. Each of the several states, the District of Columbia, the Commonwealth of Puerto Rico, Guam, the Virgin Islands, and American Samoa.

Support system. Pilings, columns, footings, piers, foundation walls, shims, and any combination thereof that, when properly installed, support the manufactured home.

Tie. Straps, cable, or securing devices used to connect the manufactured home to anchoring assemblies.

Ultimate load. The absolute maximum magnitude of load that a component or system can sustain, limited only by failure.

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

Vertical tie. A tie intended to resist uplifting and overturning forces.

Wind zone. The areas designated on the Basic Wind Zone Map, as further defined in §3280.305(c) of the Manufactured Home Construction and Safety Standards in this chapter, which delineate the wind design load requirements.

Working load. The maximum recommended load that may be exerted on a component or system determined by dividing the ultimate load of a component or system by an appropriate factor of safety.

[72 FR 59362, Oct. 19, 2007, as amended at 79 FR 53614, Sept. 10, 2014; 80 FR 53731, Sept. 8, 2015]

§3285.6 Final leveling of manufactured home.

The manufactured home must be adequately leveled prior to completion of the installation, so that the home's performance will not be adversely affected. The home will be considered adequately leveled if there is no more than 1/4 inch difference between adjacent pier supports (frame or perimeter) and the exterior doors and windows of the home do not bind and can be properly operated.

Subpart B—Pre-Installation Considerations

§3285.101 Fire separation.

Fire separation distances must be in accordance with the requirements of Chapter 6 of NFPA 501A, 2003 edition (incorporated by reference, see §3285.4) or the requirements of the LAHJ. The installation instructions must clearly indicate this requirement in a separate section and must caution installers to take into account any local requirements on fire separation.

§3285.102 Installation of manufactured homes in flood hazard areas.

(a) Definitions. Except to the extent otherwise defined in Subpart A, the terms used in this subpart are as defined in 44 CFR 59.1 of the National Flood Insurance Program (NFIP) regulations.

(b) Applicability. The provisions of this section apply to the initial installation of new manufactured homes located wholly or partly within a flood hazard area.

(c) Pre-installation considerations. Prior to the initial installation of a new manufactured home, the installer is responsible for determining whether the manufactured home site lies wholly or partly within a special flood hazard area as shown on the LAHJ's Flood Insurance Rate Map, Flood Boundary and Floodway Map, or Flood Hazard Boundary Map, or if no LAHJ, in accordance with NFIP regulations. If so located, and before an installation method is agreed upon, the map and supporting studies adopted by the LAHJ must be used to determine the flood hazard zone and base flood elevation at the site.

(d) General elevation and foundation requirements

(1) Methods and practices. Manufactured homes located wholly or partly within special flood hazard areas must be installed on foundations engineered to incorporate methods and practices that minimize flood damage during the base flood, in accordance with the requirements of the LAHJ, 44 CFR 60.3(a) through (e), and other provisions of 44 CFR referenced by those paragraphs.

(2) Outside appliances.

(i) Appliances installed on the manufactured home site in flood hazard areas must be anchored and elevated to or above the same elevation as the lowest elevation of the lowest floor of the home.

(ii) Appliance air inlets and exhausts in flood hazard areas must be located at or above the same elevation as the lowest elevation of the lowest floor of the home.

(3) Related guidance. Refer to FEMA 85/September 1985, Manufactured Home Installation in Flood Hazard Areas, 1985 (incorporated by reference, see §3285.4).

§3285.103 Site suitability with design zone maps.

Prior to the initial installation of a new manufactured home and as part of making the certification of the installation required under part 3286, upon effect, the installer is to verify that the design and construction of the manufactured home, as indicated on the design zone maps provided with the home, are suitable for the site location where the home is to be installed. The design zone maps are those identified in part 3280 of this chapter

(a) Wind zone. Manufactured homes must not be installed in a wind zone that exceeds the design wind loads for which the home has been designed, as evidenced by the wind zone indicated on the home's data plate and as further defined by counties or local governments within affected states, as applicable, in §3280.305(c)(2) of the Manufactured Home Construction and Safety Standards in this chapter.

(b) Roof load zone. Manufactured homes must not be located in a roof load zone that exceeds the design roof load for which the home has been designed, as evidenced by the roof load zone indicated on the home's data plate and as further defined by counties or local governments within affected states, as applicable, in §3280.305(c)(3) of the Manufactured Home Construction and Safety Standards in this chapter. Refer to §3285.315 for Special Snow Load Conditions.

(c) Thermal zone. Manufactured homes must not be installed in a thermal zone that exceeds the thermal zone for which the home has been designed, as evidenced by the thermal zone indicated on the heating/cooling certificate and insulation zone map and as further defined by counties or local governments within affected states, as applicable, in §3280.504(b)(5) of the Manufactured Home Construction and Safety Standards in this chapter. The manufacturer may provide the heating/cooling information and insulation zone map on the home's data plate.

§3285.104 Moving manufactured home to location.

Refer to §3285.902 for considerations related to moving the manufactured home to the site of installation.

§3285.105 Permits, other alterations, and on-site structures.

Refer to §3285.903 for considerations related to permitting, other alterations, and on-site structures.

Subpart C—Site Preparation

§3285.201 Soil conditions.

To help prevent settling or sagging, the foundation must be constructed on firm, undisturbed soil or fill compacted to at least 90 percent of its maximum relative density. All organic material such as grass, roots, twigs, and wood scraps must be removed in areas where footings are to be placed. After removal of organic material, the home site must be graded or otherwise prepared to ensure adequate drainage, in accordance with §3285.203.

§3285.202 Soil classifications and bearing capacity.

The soil classification and bearing capacity of the soil must be determined before the foundation is constructed and anchored. The soil classification and bearing capacity must be determined by one or more of the following methods, unless the soil bearing capacity is established as permitted in paragraph (f) of this section:

- (a) Soil tests. Soil tests that are in accordance with generally accepted engineering practice; or
- (b) Soil records. Soil records of the applicable LAHJ; or
- (c) Soil classifications and bearing capacities. If the soil class or bearing capacity cannot be determined by test or soil records, but its type can be identified, the soil classification, allowable pressures, and torque values shown in Table to §3285.202 may be used.
- (d) A pocket penetrometer; or
- (e) In lieu of determining the soil bearing capacity by use of the methods shown in the table, an allowable pressure of 1,500 psf may be used, unless the site-specific information requires the use of lower values based on soil classification and type.
- (f) If the soil appears to be composed of peat, organic clays, or uncompacted fill, or appears to have unusual conditions, a registered professional geologist, registered professional engineer, or registered architect must determine the soil classification and maximum allowable soil bearing capacity.

Table to §3285.202

Soil classification		Soil description	Allowable soil bearing pressure (psf) ¹	Blow count ASTM D 1586-99	Torque probe ³ value ⁴ (inch-pounds)-
Classification number	ASTM D 2487-00 or D 2488-00 (incorporated by reference, see §3285.4)				
1		Rock or hard pan	4000+		
2	GW, GP, SW, SP, GM, SM	Sandy gravel and gravel; very than dense and/or cemented sands; coarse gravel/cobbles; preloaded silts, clays and coral	2000	40+	More than 550.
3	GC, SC, ML, CL	Sand; silty sand; clayey sand; silty gravel; medium dense coarse sands; sandy gravel; and very stiff silt, sand clays	1500	24-39	351-550.
4A	CG, MH ²	Loose to medium dense sands; firm to stiff clays and silts; alluvial fills	1000	18-23	276-350.
4B	CH, MH ²	Loose sands; firm clays; alluvial fills	1000	12-17	175-275.
5	OL, OH, PT	Uncompacted fill; peat; organic clays	Refer to 3285.202(e)	0-11	Less than 175.

Notes:

¹The values provided in this table have not been adjusted for overburden pressure, embedment depth, water table height, or settlement problems.

²For soils classified as CH or MH, without either torque probe values or blow count test results, selected anchors must be rated for a 4B soil.

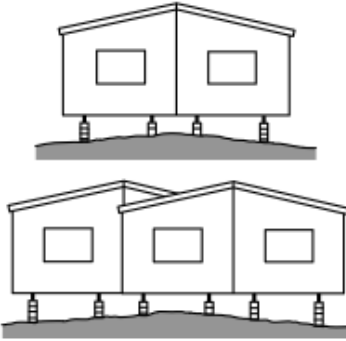
³The torque test probe is a device for measuring the torque value of soils to assist in evaluating the holding capacity of the soil in which the ground anchor is placed. The shaft must be of suitable length for the full depth of the ground anchor.

⁴The torque value is a measure of the load resistance provided by the soil when subject to the turning or twisting force of the probe.

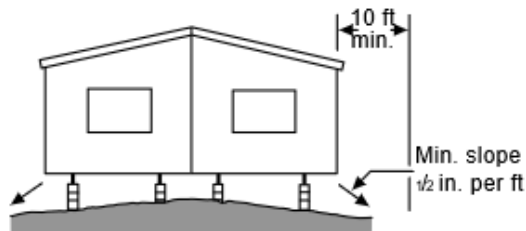
§3285.203 Site Drainage.

- (a) Purpose. Drainage must be provided to direct surface water away from the home to protect against erosion of foundation supports and to prevent water build-up under the home, as shown in Figure to §3285.203.
- (b) The home site must be graded as shown in Figure to §3285.203, or other methods, such as a drain tile and automatic sump pump system, must be provided to remove any water that may collect under the home.
- (c) All drainage must be diverted away from the home and must slope a minimum of one-half inch per foot away from the foundation for the first ten feet. Where property lines, walls, slopes, or other physical conditions prohibit this slope, the site must be provided with drains or swales or otherwise graded to drain water away from the structure, as shown in Figure to §3285.203.
- (d) Sloped site considerations. The home, where sited, must be protected from surface runoff from the surrounding area.
- (e) Refer to §3285.902 regarding the use of drainage structures to drain surface runoff.
- (f) Gutters and downspouts. Manufacturers must specify in their installation instructions whether the home is suitable for the installation of gutters and downspouts. If suitable, the installation instructions must indicate that when gutters and downspouts are installed, the runoff must be directed away from the home.

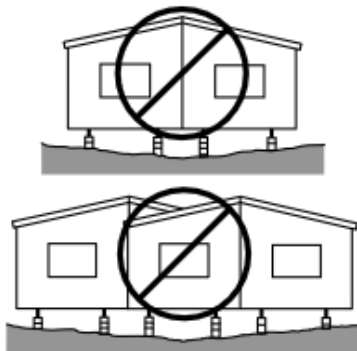
Figure to § 3285.203 - Grading and drainage.



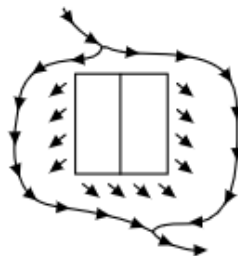
Crown and grade site to slope away from the home.



Home sites must be prepared so that there will be no depressions in which surface water may accumulate beneath the home. The area of the site covered by the manufactured home must be graded, sloped, or designed to provide drainage from beneath the home or to the property line.



Do not grade site or set the home so that water collects beneath the home.



Natural drainage must be diverted around and away from the home.

§3285.204 Ground moisture control.

(a) Vapor retarder. If the space under the home is to be enclosed with skirting or other materials, a vapor retarder must be installed to cover the ground under the home, unless the home is installed in an arid region with dry soil conditions.

(b) Vapor retarder material. A minimum of six mil polyethylene sheeting or its equivalent must be used.

(c) Proper installation.

(1) The entire area under the home must be covered with the vapor retarder, as noted in §3285.204(a), except for areas under open porches, decks, and recessed entries. Joints in the vapor retarder must be overlapped at least 12 inches.

(2) The vapor retarder may be placed directly beneath footings, or otherwise installed around or over footings placed at grade, and around anchors or other obstructions.

(3) Any voids or tears in the vapor retarder must be repaired. At least one repair method must be provided in the manufacturer's installation instructions.

Subpart D—Foundations

§3285.301 General.

- (a) Foundations for manufactured home installations must be designed and constructed in accordance with this subpart and must be based on site conditions, home design features, and the loads the home was designed to withstand, as shown on the home's data plate.
- (b) Foundation systems that are not pier and footing type configurations may be used when verified by engineering data and designed in accordance with §3285.301(d), consistent with the design loads of the MHCSS. Pier and footing specifications that are different than those provided in this subpart, such as block size, metal piers, section width, loads, and spacing, may be used when verified by engineering data that comply with §§3285.301(c) and (d) and are capable of resisting all design loads of the MHCSS.
- (c) All foundation details, plans, and test data must be designed and certified by a registered professional engineer or registered architect, and must not take the home out of compliance with the MHCSS. (See 3285.2)
- (d) Alternative foundation systems or designs are permitted in accordance with either of the following:
- (1) Systems or designs must be manufactured and installed in accordance with their listings by a nationally recognized testing agency, based on a nationally recognized testing protocol; or
 - (2) System designs must be prepared by a professional engineer or a registered architect or tested and certified by a professional engineer or registered architect in accordance with acceptable engineering practice and must be manufactured and installed so as not to take the home out of compliance with the Manufactured Home Construction and Safety Standards (part 3280 of this chapter).

§3285.302 Flood hazard areas.

In flood hazard areas, foundations, anchorings, and support systems must be capable of resisting loads associated with design flood and wind events or combined wind and flood events, and homes must be installed on foundation supports that are designed and anchored to prevent floatation, collapse, or lateral movement of the structure. Manufacturer's installation instructions must indicate whether:

- (a) The foundation specifications have been designed for flood-resistant considerations, and, if so, the conditions of applicability for velocities, depths, or wave action; or
- (b) The foundation specifications are not designed to address flood loads.

§3285.303 Piers.

- (a) General. The piers used must be capable of transmitting the vertical live and dead loads to the footings or foundation.
- (b) Acceptable piers—materials specification.
- (1) Piers are permitted to be concrete blocks; pressure-treated wood with a water borne preservative, in accordance with AWPA Standard U1-04 (incorporated by reference, see §3285.4) for Use Category 4B ground contact applications; or adjustable metal or concrete piers.
 - (2) Manufactured piers must be listed or labeled for the required vertical load capacity, and, where required by design, for the appropriate horizontal load capacity.
- (c) Design requirements.
- (1) Load-bearing capacity. The load bearing capacity for each pier must be designed to include consideration for the dimensions of the home, the design dead and live loads, the spacing of the piers, and the way the piers are used to support the home.
 - (2) Center beam/mating wall support must be required for multi-section homes and designs must be consistent with Tables 2 and 3 to §3285.303 and Figures A, B, and C to §3285.310.
- (d) Pier loads.
- (1) Design support configurations for the pier loads, pier spacing, and roof live loads must be in accordance with Tables 1, 2, and 3 to §3285.303 and the MHCSS. Other pier designs are permitted in accordance with the provisions of this subpart.
 - (2) Manufactured piers must be rated at least to the loads required to safely support the dead and live loads, as required by §3285.301, and the installation instructions for those piers must be consistent with Tables 1, 2, and 3 to this section.

Table 1 to §3285.303—Frame Blocking Only/Perimeter Support Not Required Except at Openings

Pier spacing	Roof live load (psf)	Location	Load (lbs.)
	20	Frame	2,900
4 ft. 0 in.	30	Frame	3,300
	40	Frame	3,600
	20	Frame	4,200
6 ft. 0 in.	30	Frame	4,700
	40	Frame	5,200
	20	Frame	5,500
8 ft. 0 in.	30	Frame	6,200
	40	Frame	6,900
	20	Frame	6,800
10 ft. 0 in.	30	Frame	7,600
	40	Frame	8,500

Notes:

1. See Table to §3285.312 for cast-in-place footing design by using the noted loads.
2. Table 1 is based on the following design assumptions: maximum 16 ft. nominal section width (15 ft. actual width), 12" eave, 10" I-beam size, 300 lbs. pier dead load, 10 psf roof dead load, 6 psf floor dead load, 35 plf wall dead load, and 10 plf chassis dead load.
3. Interpolation for other pier spacing is permitted.
4. The pier spacing and loads shown in the above table do not consider flood or seismic loads and are not intended for use in flood or seismic hazard areas. In those areas, the foundation support system is to be designed by a professional engineer or architect.
5. See Table to §3285.312 for sizing of footings.

Table 2 to §3285.303—Frame Plus Perimeter Blocking/Perimeter Blocking Required

Maximum pier spacing	Roof live load(psf)	Location	Load (lbs.)
		Frame	1,400
4 ft. 0 in.	20	Perimeter	1,900
		Mating	3,200
		Frame	1,400
4 ft. 0 in.	30	Perimeter	2,300
		Mating	3,800
		Frame	1,400
4 ft. 0 in.	40	Perimeter	2,600
		Mating	4,400
		Frame	1,900

6 ft. 0 in.	20	Perimeter	2,700
		Mating	4,700
		Frame	1,900
6 ft. 0 in.	30	Perimeter	3,200
		Mating	5,600
		Frame	1,900
6 ft. 0 in.	40	Perimeter	3,700
		Mating	6,500
		Frame	2,400
8 ft. 0 in.	20	Perimeter	3,500
		Mating	6,100
		Frame	2,400
8 ft. 0 in.	30	Perimeter	4,200
		Mating	7,300
		Frame	2,400
8 ft. 0 in.	40	Perimeter	4,800
		Mating	8,500
		Frame	2,900
10 ft. 0 in.	20	Perimeter	4,300
		Mating	7,600
		Frame	2,900
10 ft. 0 in.	30	Perimeter	5,100
		Mating	9,100
		Frame	2,900
10 ft. 0 in.	40	Perimeter	6,000
		Mating	10,600

Notes:

1. See Table to §3285.312 for cast-in-place footing design by using the noted loads.
2. Mating wall perimeter piers and footings only required under full height mating walls supporting roof loads. Refer to Figures A and B to §3285.310.
3. Table 2 is based on the following design assumptions: maximum 16 ft. nominal section width (15 ft. actual width), 12" eave, 10" I-beam size, 300 lbs. pier dead load, 10 psf roof dead load, 6 psf floor dead load, 35 plf wall dead load, and 10 plf chassis dead load.
4. Interpolation for other pier spacing is permitted.
5. The pier spacing and loads shown in the above table do not consider flood or seismic loads and are not intended for use in flood or seismic hazard areas. In those areas, the foundation support system is to be designed by a professional engineer or architect.
6. See Table to §3285.312 for sizing of footings.

Table 3 to §3285.303—Ridge Beam Span Footing Capacity

Mating wall opening (ft)	Roof live load (psf)	Pier and footing load (lbs.)
	20	1,200
5	30	1,600
	40	1,900
	20	2,300
10	30	3,100
	40	3,800
	20	3,500
15	30	4,700
	40	5,800
	20	4,700
20	30	6,200
	40	7,500
	20	5,800
25	30	7,800
	40	9,700
	20	7,000
30	30	9,300
	40	11,600
	20	8,100
35	30	10,900
	40	13,600

Notes:

1. See Table to §3285.312 for cast-in-place footing design by using the noted loads.
2. Table 3 is based on the following design assumptions: maximum 16 ft. nominal section width (15 ft. actual width), 10&inch; I-beam size, 300 lbs. pier dead load, 10 psf roof dead load, 6 psf floor dead load, 35 plf wall dead load, and 10 plf chassis dead load.
3. Loads listed are maximum column loads for each section of the manufactured home.
4. Interpolation for maximum allowable pier and column loads is permitted for mate-line openings between those shown in the table.
5. The pier spacing and loads shown in the above table do not consider flood or seismic loads and are not intended for use in flood or seismic hazard areas. In those areas, the foundation support system must be designed by a professional engineer or registered architect.
6. See Table to §3285.312 for sizing of footings.

§3285.304 Pier configuration.

(a) Concrete blocks. Installation instructions for concrete block piers must be developed in accordance with the following provisions and must be consistent with Figures A and B to §3285.306.

- (1) Load-bearing (not decorative) concrete blocks must have nominal dimensions of at least 8 inches × 8 inches × 16 inches;
- (2) The concrete blocks must be stacked with their hollow cells aligned vertically; and
- (3) When piers are constructed of blocks stacked side-by-side, each layer must be at right angles to the preceding one, as shown in Figure B to §3285.306.

(b) Caps.

- (1) Structural loads must be evenly distributed across capped-hollow block piers, as shown in Figures A and B to §3285.306.
- (2) Caps must be solid concrete or masonry at least 4 inches in nominal thickness, or hardboard lumber at least 2 inches nominal in thickness; or be corrosion-protected minimum one-half inch thick steel; or be of other listed materials.
- (3) All caps must be of the same length and width as the piers on which they rest.
- (4) When split caps are used on double-stacked blocks, the caps must be installed with the long dimension across the joint in the blocks below.

(c) Gaps. Any gaps that occur during installation between the bottom of the main chassis beam and foundation support system must be filled by:

- (1) Nominal 4 inch × 6 inch × 1 inch shims to level the home and fill any gaps between the base of the main chassis beam and the top of the pier cap;
- (2) Shims must be used in pairs, as shown in Figures A and B to §3285.306, and must be driven in tightly so that they do not occupy more than one inch of vertical height; and
- (3) Hardwood plates no thicker than 2 inches nominal in thickness or 2 inch or 4 inch nominal concrete block must be used to fill in any remaining vertical gaps.

(d) Manufactured pier heights. Manufactured pier heights must be selected so that the adjustable risers do not extend more than 2 inches when finally positioned.

§3285.305 Clearance under homes.

A minimum clearance of 12 inches must be maintained between the lowest member of the main frame (I-beam or channel beam) and the grade under all areas of the home.

§3285.306 Design procedures for concrete block piers.

(a) Frame piers less than 36 inches high.

- (1) Frame piers less than 36 inches high are permitted to be constructed of single, open, or closed-cell concrete blocks, 8 inches “ 8 inches “ 16 inches, when the design capacity of the block is not exceeded.

- (2) The frame piers must be installed so that the long sides are at right angles to the supported I-beam, as shown in Figure A to this section.
- (3) The concrete blocks must be stacked with their hollow cells aligned vertically and must be positioned at right angles to the footings.
- (4) Horizontal offsets from the top to the bottom of the pier must not exceed one-half inch.
- (5) Mortar is not required, unless specified in the installation instructions or required by a registered professional engineer or registered architect.

(b) Frame piers 36 inches to 67 inches high and corner piers.

- (1) All frame piers between 36 inches and 67 inches high and all corner piers over three blocks high must be constructed out of double, interlocked concrete blocks, as shown in Figure B to this section, when the design capacity of the block is not exceeded. Mortar is not required for concrete block piers, unless otherwise specified in the installation instructions or required by a professional engineer or registered architect.
- (2) Horizontal offsets from the top to the bottom of the pier must not exceed one inch.

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

Figure A to §3285.306 Typical Footing and Pier Design, Single Concrete Block.

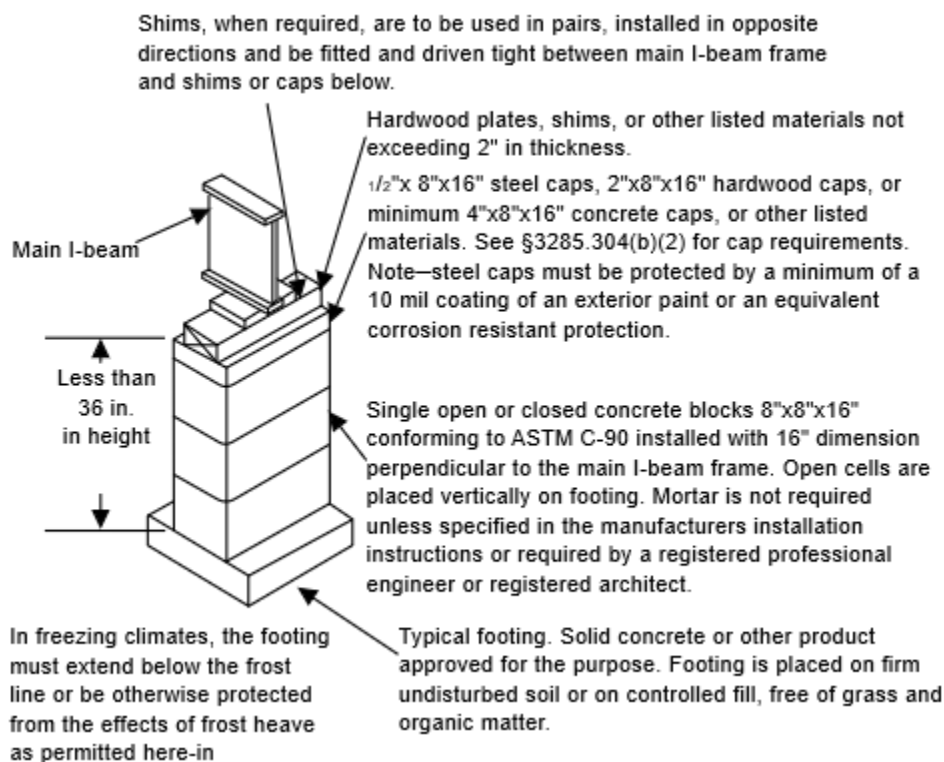
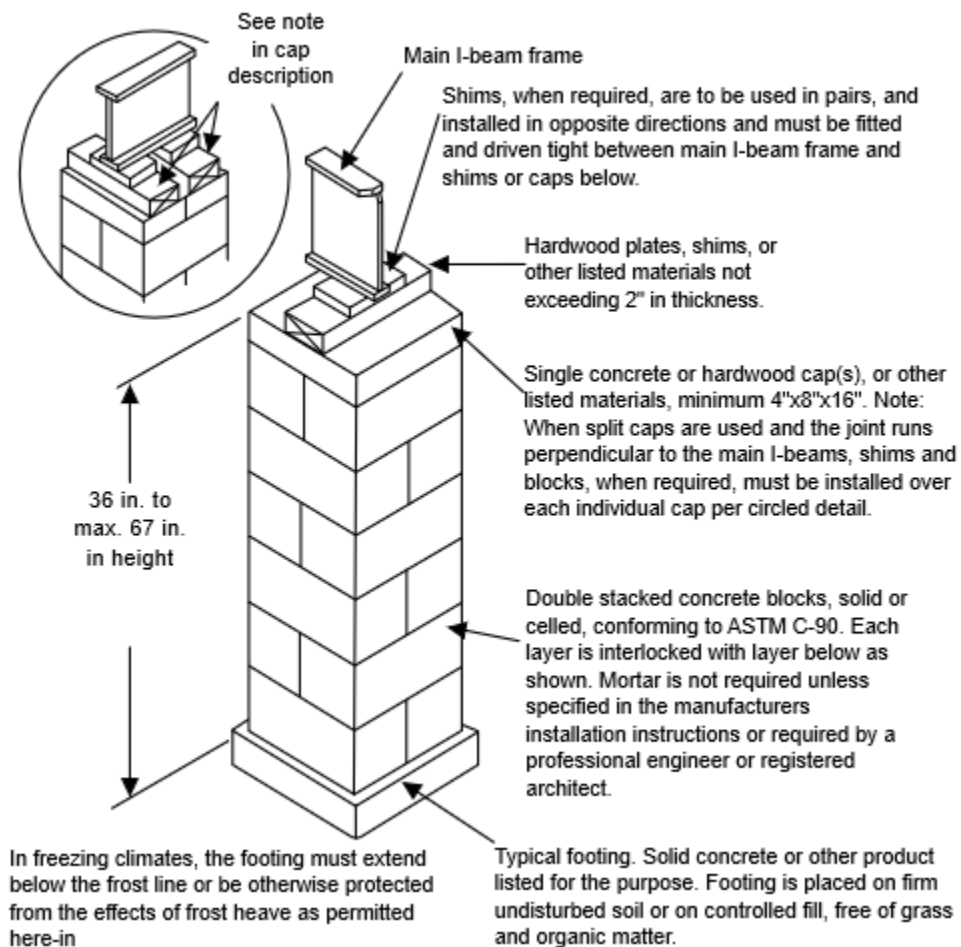


Figure B to §3285.306(b) Typical Footing and Pier Installation, Double Concrete Block.**§3285.307 Perimeter support piers.**

(a) Piers required at mate-line supports, perimeter piers, and piers at exterior wall openings are permitted to be constructed of single open-cell or closed-cell concrete blocks, with nominal dimensions of 8 inches × 8 inches × 16 inches, to a maximum height of 54 inches, as shown in Figure A to this section, when the design capacity of the block is not exceeded.

(b) Piers used for perimeter support must be installed with the long dimension parallel to the perimeter rail.

§3285.308 Manufactured piers.

(a) Manufactured piers must be listed and labeled and installed to the pier manufacturer's installation instructions. See §3285.303(d)(2) for additional requirements.

(b) Metal or other manufactured piers must be provided with protection against weather deterioration and corrosion at least equivalent to that provided by a coating of zinc on steel of .30 oz./ft.² of surface coated.

§3285.309 [Reserved]**§3285.310 Pier location and spacing.**

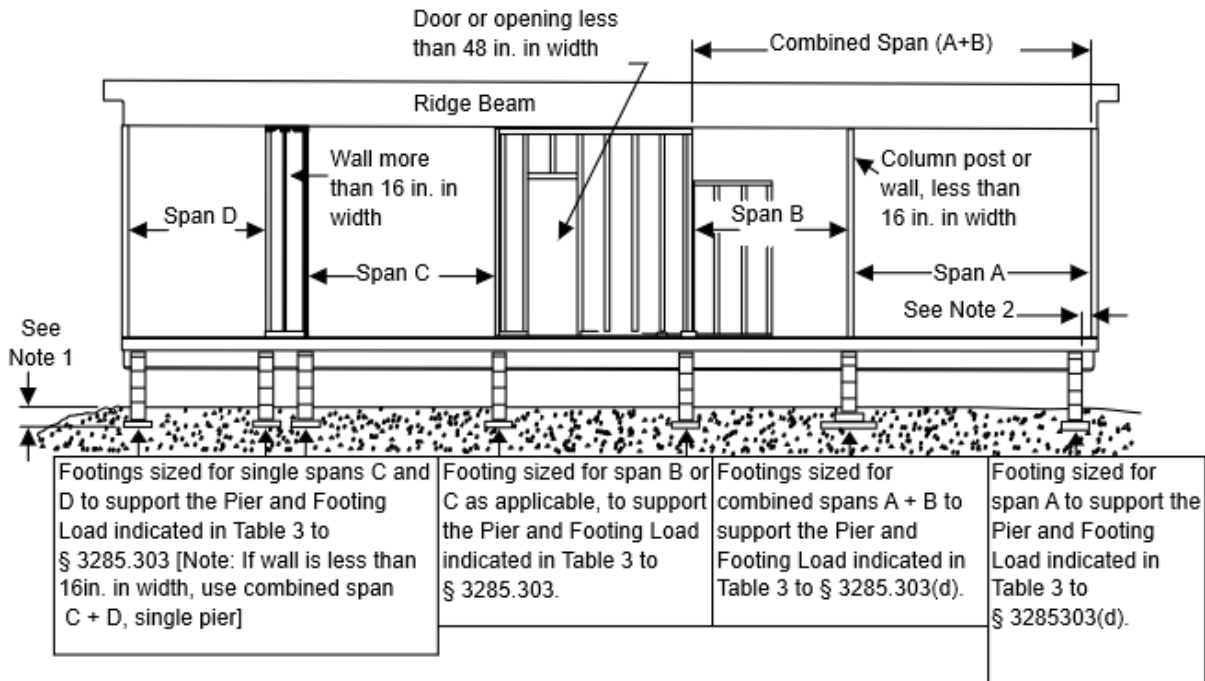
(a) The location and spacing of piers depends upon the dimensions of the home, the live and dead loads, the type of construction (single-or multi-section), I-beam size, soil bearing capacity, footing size, and such other factors as the location of doors or other openings.

(b) Mate-line and column pier supports must be in accordance with this subpart and consistent with Figures A through C to this section, unless the pier support and footing configuration is designed by a registered professional engineer or registered architect.

(c) Piers supporting the frame must be no more than 24 inches from both ends and not more than 120 inches center to center under the main rails.

(d) Pier support locations. Pier support locations and spacing must be presented to be consistent with Figures A and B to §3285.312, as applicable, unless alternative designs are provided by a professional engineer or registered architect in accordance with acceptable engineering practice.

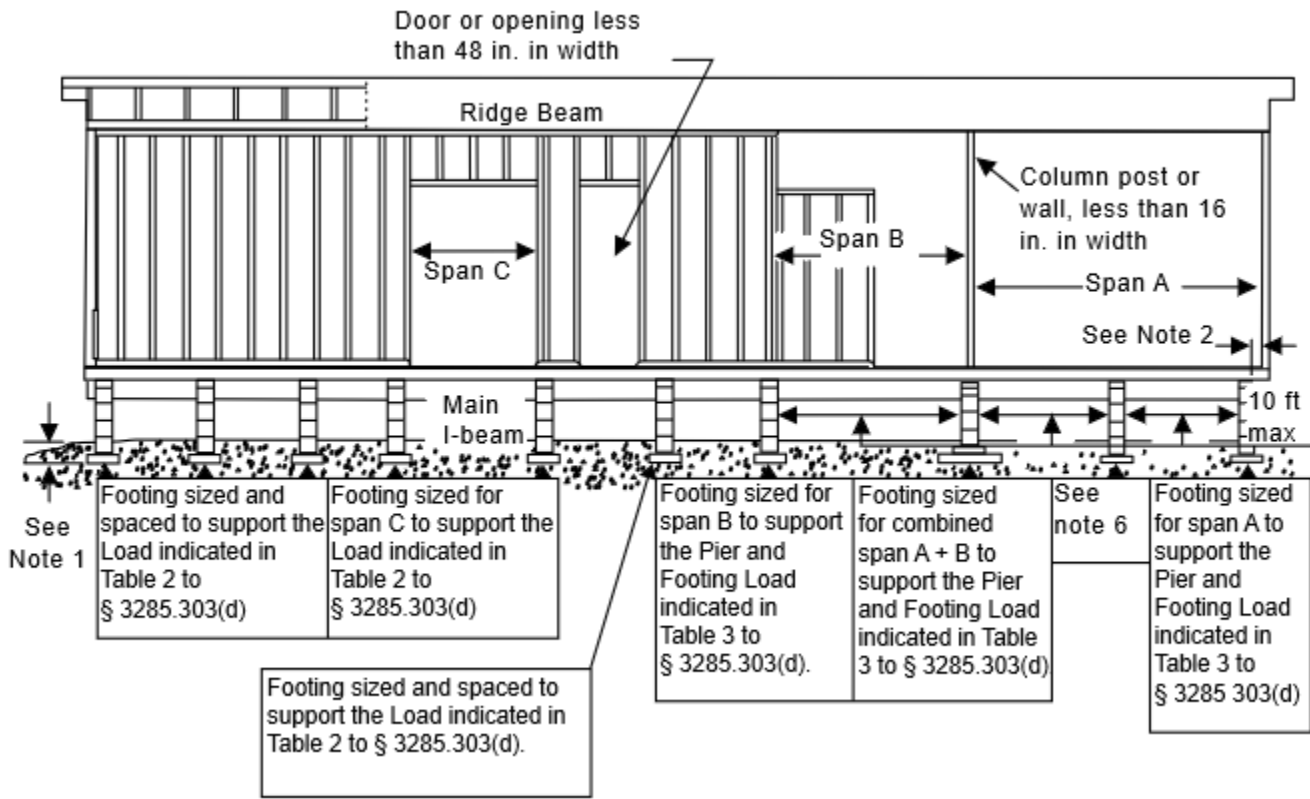
Figure A to §3285.310 Typical Mate-Line Column Pier and Mating Wall Support when Frame Only Blocking is Required



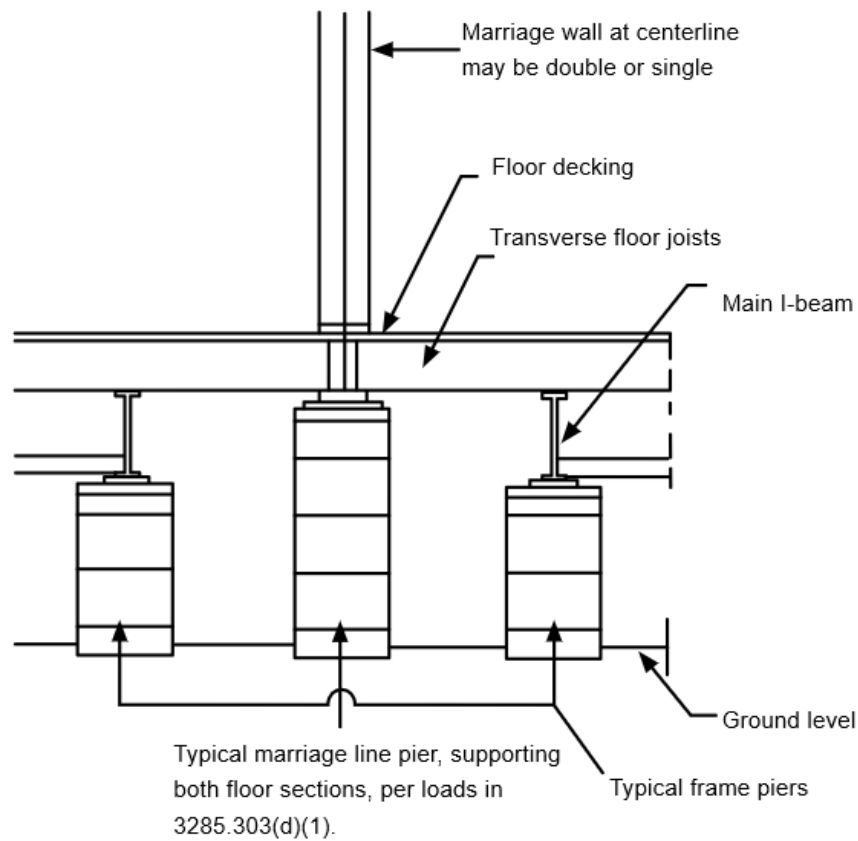
Notes:

1. Bottom of footings must extend below frost line depth, unless designed for placement above the frost line. (See §3285.312(b)).
2. Piers may be offset up to 6 in. in either direction along the supported members to allow for plumbing, electrical, mechanical, equipment, crawlspaces, or other devices.
3. Single-stack concrete block pier loads must not exceed 8,000 lbs.
4. Prefabricated piers must not exceed their approved or listed maximum vertical or horizontal design loads.
5. When a full-height mating wall does not support the ridge beam, this area is considered an unsupported span—Span B.
6. Piers are not required at openings in the mating wall that are less than 48 inches in width. Place piers on both sides of mating wall openings that are 48 inches or greater in width. For roof loads of 40 psf or greater, a professional engineer or registered architect must determine the maximum mating wall opening permitted without pier or other supports.

Figure B to §3285.310(b) Typical Mate-Line Column Pier and Mating Wall Support when Perimeter Blocking is Required



- Notes: 1. Bottom of footings must be below the frost line depth, unless designed for placement above the frost line. (See §3285.312(b)).
2. Piers may be offset 6 in. in either direction along supported members to allow for plumbing electrical, mechanical equipment, crawlspaces, or other devices.
3. Single stack concrete block pier loads must not exceed 8,000 lbs.
4. Piers are not required at openings in the mating wall that are less than 48 inches in width. Place piers on both sides of mating wall openings that are 48 inches or greater in width. For roof loads of 40 psf or greater, a professional engineer or registered architect must determine the maximum mating wall opening permitted without pier or other supports.
5. When a full-height mating wall does not support the ridge beam, this area is considered an unsupported span—Span B.
6. In areas where the open span is greater than 10 ft., intermediate piers and footings must be placed at maximum 10 ft. on center.
7. Prefabricated piers must not exceed their approved or listed maximum horizontal or vertical design loads.
8. Column piers are in addition to piers required under full-height mating walls.

Figure C to §3285.310 Typical Mate-Line Column and Piers.**Notes:**

1. Mate-line column support piers are installed with the long dimension of the concrete block perpendicular to the rim joists.
2. Pier and footing designed to support both floor sections. Loads as listed in Table 3 to §3285.303 are total column loads for both sections.

§3285.311 Required perimeter supports.

- (a) Perimeter pier or other supports must be located as follows:
 - (1) On both sides of side wall exterior doors (such as entry, patio, and sliding glass doors) and any other side wall openings of 48 inches or greater in width, and under load-bearing porch posts, factory installed fireplaces, and fireplace stoves).
 - (2) Other perimeter supports must be:
 - (i) Located in accordance with Table 2 to §3285.303; or
 - (ii) Provided by other means such as additional outriggers or floor joists. When this alternative is used, the designs required by §3285.301 must consider the additional loads in sizing the pier and footing supports under the main chassis beam.
- (b) For roof live loads of 40 psf or greater, a professional engineer or architect must determine the maximum sidewall opening permitted without perimeter pier or other supports.
- (c) The location and installation of any perimeter pier support must not take the home out of compliance with the Manufactured Home Construction and Safety Standards (part 3280 of this chapter).

§3285.312 Footings.

(a) Materials approved for footings must provide equal load-bearing capacity and resistance to decay, as required by this section. Footings must be placed on undisturbed soil or fill compacted to 90 percent of maximum relative density. A footing must support every pier. Footings are to be either:

(1) Concrete.

(i) Four inch nominal precast concrete pads meeting or exceeding ASTM C 90-02a, Standard Specification for Loadbearing Concrete Masonry Units (incorporated by reference, see §3285.4), without reinforcement, with at least a 28-day compressive strength of 1,200 pounds per square inch (psi); or

(ii) Six inch minimum poured-in-place concrete pads, slabs, or ribbons with at least a 28-day compressive strength of 3,000 pounds per square inch (psi). Site-specific soil conditions or design load requirements may also require the use of reinforcing steel in cast-in-place concrete footings.

(2) Pressure-treated wood.

(i) Pressure-treated wood footings must consist of a minimum of two layers of nominal 2-inch thick pressure-treated wood, a single layer of nominal 3/4 -inch thick, pressure-treated plywood with a maximum size of 16 inches by 16 inches, or at least two layers of 3/4 -inch thick, pressure-treated plywood for sizes greater than 16 inches by 16 inches. Plywood used for this purpose is to be rated exposure 1 or exterior sheathing, in accordance with PS1-95, Construction and Industrial Plywood (incorporated by reference, see §3285.4).

(ii) Pressure treated lumber is to be treated with a water-borne adhesive, in accordance with AWWA Standard U1-04 (incorporated by reference, see §3285.4) for Use Category 4B ground contact applications.

(iii) Cut ends of pressure treated lumber must be field-treated, in accordance with AWWA Standard M4-02 (incorporated by reference, see §3285.4).

(3) ABS footing pads.

(i) ABS footing pads are permitted, provided they are installed in accordance with the pad manufacturer installation instructions and certified for use in the soil classification at the site.

(ii) ABS footing pads must be listed or labeled for the required load capacity.

(4) Other Materials. Footings may be of other materials than those identified in this section, provided they are listed for such use and meet all other applicable requirements of this subpart.

(b) Placement in freezing climates. Footings placed in freezing climates must be designed using methods and practices that prevent the effects of frost heave by one of the following methods:

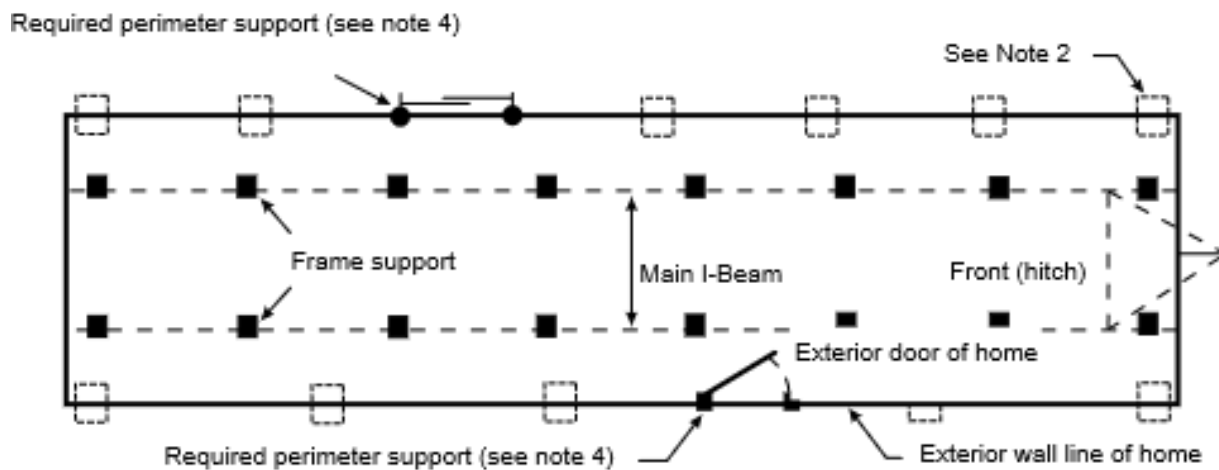
(1) Conventional footings. Conventional footings must be placed below the frost line depth for the site unless an insulated foundation or monolithic slab is used (refer to §§3285.312(b)(2) and 3285.312(b)(3)). When the frost line depth is not available from the LAHJ, a registered professional engineer, registered architect, or registered geologist must be consulted to determine the required frost line depth for the manufactured home site. This is not subject to the provisions in §3285.2(c) that also require review by the manufacturer and approval by its DAPIA for any variations to the manufacturer's installation instructions for support and anchoring.

(2) Monolithic slab systems. A monolithic slab is permitted above the frost line when all relevant site-specific conditions, including soil characteristics, site preparation, ventilation, and insulative

properties of the under floor enclosure, are considered and anchorage requirements are accommodated as set out in §3285.401. The monolithic slab system must be designed by a registered professional engineer or registered architect:

- (i) In accordance with acceptable engineering practice to prevent the effects of frost heave; or
 - (ii) In accordance with SEI/ASCE 32-01 (incorporated by reference, see §3285.4).
- (3) Insulated foundations. An insulated foundation is permitted above the frost line, when all relevant site-specific conditions, including soil characteristics, site preparation, ventilation, and insulative properties of the under floor enclosure, are considered, and the foundation is designed by a registered professional engineer or registered architect:
- (i) In accordance with acceptable engineering practice to prevent the effects of frost heave; or
 - (ii) In accordance with SEI/ASCE 32-01 (incorporated by reference, see §3285.4).
- (c) Sizing of footings. The sizing and layout of footings depends on the load-bearing capacity of the soil, footings, and the piers. See §§3285.202 and 3285.303, and Table to 3285.312.

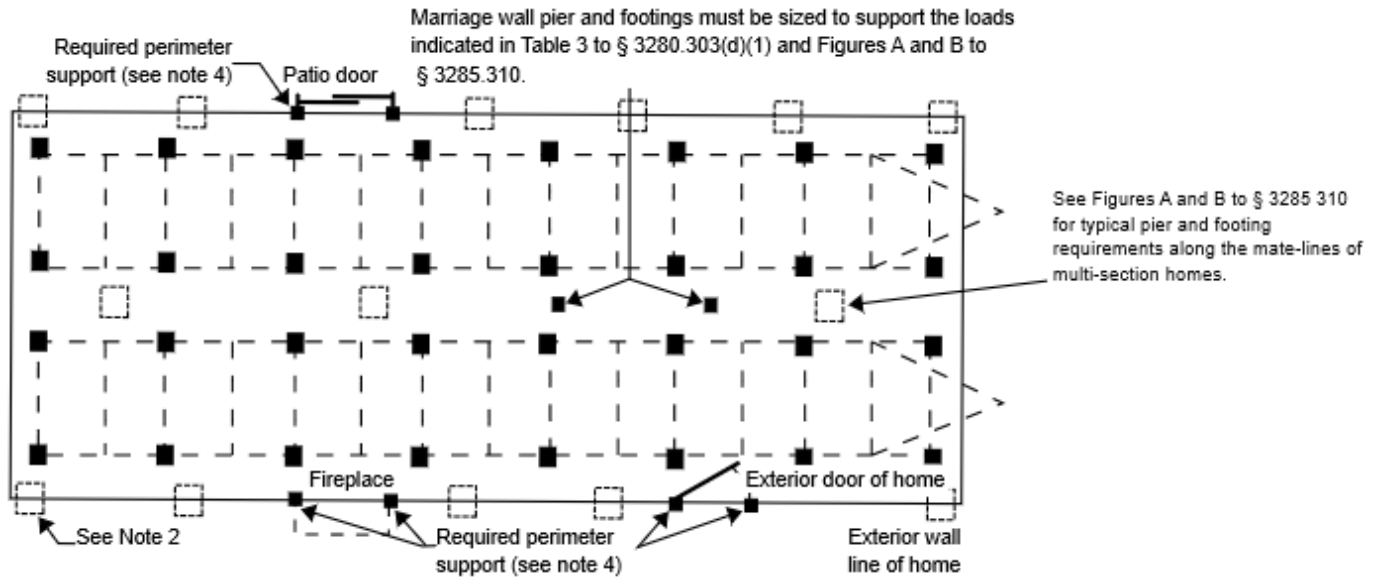
Figure A to §3285.312 Typical Blocking Diagram for Single Section Homes



Notes:

1. Refer to Table 1 of §3285.303 for pier and footing requirements when frame blocking only is used.
2. In addition to blocking required by §3285.311, see Table 2 to §3285.303 for maximum perimeter blocking loads.
3. End piers under main I-beams may be set back a maximum of 24 inches, as measured from the outside edge of the floor to the center of the pier.
4. Place piers on both sides of sidewall exterior doors, patio doors, and sliding glass doors; under porch posts, factory-installed fireplaces, and fireplace stoves; under jamb studs at multiple window openings; and at any other sidewall openings 48 inches or greater in width. For roof loads of 40 psf or greater, a professional engineer or registered architect must determine the maximum sidewall opening permitted without perimeter supports. See §§3285.307 and 3285.311 for additional requirements and for locating perimeter supports.

Figure B to §3285.312 Typical Blocking Diagram for Multi-section Home.



Notes:

1. Refer to Table 1 to §3285.303 for pier and footing requirements when frame blocking only is used.
2. In addition to blocking required by §3285.311, see Tables 2 and 3 to §3285.303 for maximum perimeter blocking loads.
3. End piers under main I-beams may be set back a maximum of 24 inches, as measured from the outside edge of the floor to the center of the pier.
4. Place piers on both sides of sidewall exterior doors, patio doors, and sliding glass doors; under porch posts, factory-installed fireplaces, and fireplace stoves; under jamb studs at multiple window openings; and at any other sidewall openings of 48 inches or greater in width. For roof loads of 40 psf or greater, a professional engineer or registered architect must determine the maximum side wall opening permitted without perimeter supports or mating wall opening permitted without pier or other supports. See §§3285.307 and 3285.311 for additional information on requirements and for locating perimeter supports.
5. When an end pier under the mate-line also serves as a column pier, it may be set back a maximum of 6 in., as measured from the inside edge of the exterior wall to the center of the pier.

Table to §3285.312—The Size and Capacity for Unreinforced Cast-in-Place Footings

Soil capacity (psf)	Minimum footing size (in.)	8 in. x 16 in. pier		16 in. x 16 in. pier	
		Maximum footing capacity (lbs.)	Unreinforced cast-in-place minimum thickness (in.)	Maximum footing capacity (lbs.)	Unreinforced cast-in-place minimum thickness (in.)
1,000	16 x 16	1,600	6	1,600	6
	20 x 20	2,600	6	2,600	6
	24 x 24	3,700	6	3,700	6
	30 x 30	5,600	8	5,800	6
	36 x 36	7,900	10	8,100	8
	42 x 42	⁴ 10,700	10	10,700	10
	48 x 48	⁴ 13,100	12	13,600	10

1,500	16 x 16	2,500	6	2,500	6
	20 x 20	4,000	6	4,000	6
	24 x 24	5,600	8	5,700	6
	30 x 30	⁴ 8,500	10	8,900	8
	36 x 36	⁴ 12,400	10	12,600	8
	42 x 42	⁴ 16,500	12	⁴ 16,800	10
	48 x 48	⁴ 21,200	14	⁴ 21,600	12
2,000	16 x 16	3,400	6	3,400	6
	20 x 20	5,300	6	5,300	6
	24 x 24	7,600	8	7,700	6
	30 x 30	⁴ 11,700	10	11,900	8
	36 x 36	⁴ 16,700	15	⁴ 16,900	10
	42 x 42	⁴ 21,700	18	⁴ 22,700	12
2,500	16 x 16	4,300	6	4,300	6
	20 x 20	6,700	6	6,700	6
	24 x 24	⁴ 9,600	8	9,700	6
	30 x 30	⁴ 14,800	10	15,000	8
	36 x 36	⁴ 20,700	12	⁴ 21,400	10
3,000	16 x 16	5,200	6	5,200	6
	20 x 20	8,100	8	8,100	6
	24 x 24	⁴ 11,500	10	11,700	6
	30 x 30	⁴ 17,800	12	⁴ 18,100	8
	36 x 36	⁴ 25,400	14	⁴ 25,900	10
4,000	16 x 16	7,000	6	7,000	6
	20 x 20	⁴ 10,800	8	10,900	6
	24 x 24	⁴ 15,500	10	15,600	8
	30 x 30	⁴ 23,300	12	⁴ 24,200	10

Notes:

1. The footing sizes shown are for square pads and are based on the area (in.²), shear and bending required for the loads shown. Other configurations, such as rectangular or circular configurations, can be used, provided the area and depth is equal to or greater than the area and depth of the square footing shown in the table, and the distance from the edge of the pier to the edge of the footing is not less than the thickness of the footing.
2. The 6 in. cast-in-place values can be used for 4 in. unreinforced precast concrete footings.
3. The capacity values listed have been reduced by the dead load of the concrete footing.
4. Concrete block piers must not exceed their design capacity of 8,000 lbs. for 8" x 16" single stack block and 16,000 lbs. for 16" x 16" double stack block.
5. A registered professional engineer or registered architect must prepare the design, if the design loads exceed the capacity for single or double stack concrete block piers shown in footnote 4.

§3285.313 Combination systems.

Support systems that combine both load-bearing capacity and uplift resistance must also be sized and designed for all applicable design loads.

§3285.314 [Reserved]**§3285.315 Special snow load conditions.**

(a) General. Foundations for homes designed for and located in areas with roof live loads greater than 40 psf must be designed by the manufacturer for the special snow load conditions, in accordance with acceptable engineering practice. Where site or other conditions prohibit the use of the manufacturer's instructions, a registered professional engineer or registered architect must design the foundation for the special snow load conditions.

(b) Ramadas. Ramadas may be used in areas with roof live loads greater than 40 psf. Ramadas are to be self-supporting, except that any connection to the home must be for weatherproofing only.

Subpart E—Anchorage Against Wind

§3285.401 Anchoring instructions.

(a) After blocking and leveling, the manufactured home must be secured against the wind by use of anchor assembly type installations or by connecting the home to an alternative foundation system. See §3285.301.

(b) For anchor assembly type installations, the installation instructions must require the home to be secured against the wind, as described in this section. The installation instructions and design for anchor type assemblies must be prepared by a registered professional engineer or registered architect, in accordance with acceptable engineering practice, the design loads of the MHCSS, and §3285.301(d).

(c) All anchoring and foundation systems must be capable of meeting the loads that the home was designed to withstand required by part 3280, subpart D of this chapter, as shown on the home's data plate. Exception: Manufactured homes that are installed in less restrictive roof load zone and wind zone areas may have foundation or anchorage systems that are capable of meeting the lower design load provisions of the Standards, if the design for the lower requirements is either provided in the installation instructions or the foundation and anchorage system is designed by a professional engineer or registered architect.

(d) The installation instructions are to include at least the following information and details for anchor assembly-type installations:

- (1) The maximum spacing for installing diagonal ties and any required vertical ties or straps to ground anchors;
- (2) The minimum and maximum angles or dimensions for installing diagonal ties or straps to ground anchors and the main chassis members of the manufactured home;
- (3) Requirements for connecting the diagonal ties to the main chassis members of the manufactured home. If the diagonal ties are attached to the bottom flange of the main chassis beam, the frame must be designed to prevent rotation of the beam;
- (4) Requirements for longitudinal and mating wall tie-downs and anchorage;
- (5) The method of strap attachment to the main chassis member and ground anchor, including provisions for swivel-type connections;
- (6) The methods for protecting vertical and diagonal strapping at sharp corners by use of radius clips or other means; and
- (7) As applicable, the requirements for sizing and installation of stabilizer plates.

§3285.402 Ground anchor installations.

(a) Ground anchor certification and testing.

- (1) Each ground anchor assembly must be manufactured and provided with installation instructions, and must be labeled or otherwise identified and subject to an on-going quality assurance surveillance program in accordance with its listing or certification (see 24 CFR 3285.5) by a nationally recognized testing laboratory. A registered professional engineer or architect must certify that each ground anchor assembly is capable of resisting all loads in paragraph (c) of this

section based on the test methods in paragraph (b) of this section for use in soil(s) classified in accordance with §3285.202.

(2) Each ground anchor assembly that has been listed prior to November 10, 2014 is not subject to paragraph (b) of this section, provided it has been previously tested in accordance with this paragraph. A professional engineer or registered architect must have certified the testing. The ground anchor must be listed by a nationally recognized testing agency and the listing or certification includes or has met all of the following requirements:

- (i) A minimum of three tests meeting all of the requirements of this section were conducted for each ground anchor assembly design;
- (ii) Each of the ground anchor assembly designs tested must have met or exceeded a working load of 3,150 pounds and sustained an ultimate load of 4,725 pounds in the weakest soil classification for which the anchors were tested and certified;
- (iii) The soil in which the anchor was certified has been classified by one of the methods indicated in §3285.202 of these Standards and the anchor is not listed for use in a weaker/higher soil classification than tested and identified in the Table to §3285.202;
- (iv) A test report was provided for each ground anchor assembly design that identifies the soil classification in which the ground anchor was tested and listed and includes complete specifications and dimensions for the ground anchor assembly;
- (v) For each of the ground anchor assemblies tested, the maximum deflection at 3,150 pounds did not exceed two inches vertically or three inches horizontally;
- (vi) For each of the ground anchor assemblies tested, the maximum deflection at 4,725 pounds did not exceed two inches vertically or three inches horizontally;
- (vii) For the stabilizer plate test method, at least three tests were performed at the minimum angle of pull to the horizontal specified in the listing and the minimum angle of pull to the horizontal must have been at least 30 degrees. Any existing ground anchor assembly tests and certifications where the angle of pull was less than 30 degrees will need to be re-evaluated in accordance with paragraph (b) of this section; and
- (viii) For the stabilizer plate test method, the minimum angle of pull to the horizontal is specified in the listing.

(b) Standard test methods for establishing working load design values of ground anchor assemblies used for new manufactured home installations

(1) Scope.

- (i) These testing procedures provide standard test methods for establishing both ultimate loads and load resistance design values.
- (ii) Each assembly or component of an anchor assembly must be tested by the methods established by this section, and therefore be suitable, as listed or certified for installation in an appropriately classified soil, for installation of manufactured homes.
- (iii) To secure approval of ground anchor assembly products and components, ground anchor manufacturers must have their products tested and listed by a nationally recognized testing laboratory, or tested and certified by an independent registered professional engineer.
- (iv) The testing laboratory or independent registered engineer must be free from any conflict of interest from the product manufacturer and any of the product manufacturer's affiliates.

(2) Definitions. The definitions contained in this section apply to the terms used in subpart E of this part.

Allowable displacement limits. Criteria establishing the maximum amount of displacement of a material, assembly, or component under load.

Certification test site. A site used for the purpose of anchor assembly qualification testing in accordance with this section.

Cohesive soil. A soil with sufficient clay content to exhibit substantial plastic behavior when moist or wet (i.e., able to be readily molded or rolled into a 1/8 -inch thread at a wide range of moisture contents).

Ground anchor manufacturer. Any person or company engaged in manufacturing or importing ground anchor assemblies.

Non-Cohesive soil. Sand, gravel, and similar soils that are predominantly granular and lack a sufficient quantity of fine, clay-sized particles to exhibit the behavior of cohesive soil as defined in this section.

Ultimate anchor load. The lower of either the highest load achieved during an individual test prior to failure due to exceeding allowable displacement limits or the load at failure of the anchoring equipment or its attachment point to the testing apparatus.

Working anchor load. The ultimate anchor load in pounds divided by a factor of safety of 1.5.

(3) Determination of soil classification

- (i) General description of soil classification. The general description of soil classification is to be determined in accordance with the methods specified in the Table to §3285.202.
- (ii) Standards for identification of soil and soil classification. The soil test torque probe method must be used at the certification test site for soil classification. At a minimum, the soil test torque probe must be used at three sample locations representative of the extent of the certification site test area. Soil characteristics must be measured at a depth below ground surface of not greater than the anchor helix depth and not less than 2/3 of the anchor helix depth for each ground anchor depth evaluated within the test area. The lowest torque probe value resulting in the highest soil classification number must be used. Additional guidance regarding the soil test torque probe method is available at the Appendix to this section and at §3282.202.
- (iii) Classification in non-cohesive soils. Ground anchor assemblies must be tested and listed or certified, and labeled for use in non-cohesive soil. Ground anchor assemblies are permitted to be tested, listed or certified, and labeled for use in cohesive soil.

(4) Field testing apparatus.

- (i) The testing equipment for conducting tests to list or certify a ground anchor assembly for use in a classified soil must be capable of meeting the requirements of paragraph (b)(7) of this section as determined by the testing agency.
- (ii) The testing equipment shall be calibrated to meet the testing requirements of paragraph (b)(7) of this section as determined by the testing agency.

- (5) Test specimens details and selection.
- (i) Test specimens are to be examined by the independent testing, listing, or certifying entity for conformance with engineered drawings, specifications, and other information provided by the ground anchor manufacturer or producer including:
 - (A) Dimensions and specifications on all welds and fasteners;
 - (B) Dimensions and specifications of all metal or material;
 - (C) Model number and its location on the ground anchor; and
 - (ii) Necessary test specimens and products for the installed anchor assembly tests must be randomly selected by the independent testing, listing, or certifying entity.
- (6) Test requirements.
- (i) Field tests must be performed on each anchor assembly installed in a classified soil as defined in paragraph (b)(3) of this section.
 - (ii) Field test apparatuses must be as specified in paragraph (b)(4) of this section, and must conform to the testing requirements of paragraph (b)(7) of this section.
 - (iii) Testing equipment shall be adequate for testing as determined by the testing agency. Note to paragraph (b)(6): As a recommended practice, the test rig soil reactions (bearing pads) should not be located closer to the center of the anchor assembly (anchor head) than the lesser of D, 4d, or 32 inches where D is the depth of the anchor helix and d is the diameter of the anchor helix, both in inches. However, experience with a particular test rig, types of anchors, and soil conditions may justify other acceptable dimensional tolerances.
- (7) Field tests of anchor assemblies.
- (i) The soil characteristics at the certification test site must be identified and recorded according to paragraph (b)(3) of this section. The date, approximate time, and names of persons conducting and witnessing the anchor assembly tests must also be recorded at each certification test site.
 - (ii) Connection of the testing apparatus to the anchor assembly head must provide loading conditions to the anchor head, similar to actual site conditions. Adequacy of the connection must be determined by the testing agency or test engineer.
 - (iii) For soil classifications 3, 4A, and 4B, testing must be performed in the lower 50 percentile torque probe value of the soil classification being tested. For soil classifications 1 and 2 the torque probe value must not exceed 750 inch-pounds.
 - (iv) A minimum of three tests must be performed and the result of each test must meet or exceed 4,725 pounds pull ($3,150 \times 1.5$ factor of safety) in the direction of pull.
 - (v) Special-purpose anchor assemblies, including those needed to accommodate unique design loads identified by manufacturers in their installation instructions, may be certified under this section or to more stringent requirements such as higher working loads, more restrictive anchor head displacements and/or tested angle limitations.
 - (vi) Angle of pull. Where the test apparatus configuration results in a changing angle of pull due to anchor assembly displacement during a lateral angle pull test, the angle of pull at the ultimate anchor load is to be recorded as the load angle for the test. Load angles are to be measured relative to the plane of the ground surface and shall be permitted to be rounded to the nearest 5-degree increment.
 - (vii) Displacement measurement. Vertical displacement (for all tests) and horizontal displacement (for lateral angle pull tests) must be measured relative to the centerline of the test apparatus' connection to the ground anchor assembly (anchor head) and the ground. A stable ground reference point for displacement measurements must be located

independent of the test apparatus and not closer to the anchor assembly than the soil reaction points of the test apparatus. Displacement measurements shall be taken using a device with not less than 1/8 -inch reading increments. Measurements shall be permitted to be rounded to the nearest 1/8 -inch increment.

(8) Anchor assembly field test methods.

(i) An anchor assembly must be tested in accordance with one or more of the assembly configurations addressed in paragraphs (b)(8)(iii), (iv) and (v) of this section. The as-tested configuration of any anchor assembly is a condition of the listing or certification.

Alternate configurations are acceptable provided test conditions appropriately simulate actual end-use conditions and the as-tested configuration is addressed in the manufacturer's installation instructions.

(ii) Anchor assemblies designed for multiple connections to the manufactured home must be individually tested as specified in paragraphs (b)(8)(iii) and (iv) of this section.

(iii) Anchor assembly/stabilizer plate method. The following anchor assembly installation and testing must be consistently applied for all tests:

(A) The ground anchor is to be installed at an angle of 10-15 degrees from vertical to a depth of one-half (1/2) to two-thirds (2/3) of the anchor length.

(B) A stabilizer plate is to be driven vertically on the side of the ground anchor shaft facing the tensioning equipment three inches (3") from the shaft and the top of the plate must be installed flush with the soil surface or not more than one inch below the soil surface.

(C) The ground anchor is to be driven to its full depth into the soil with the bottom of the anchor head not more than 3/4 inch (3/4 ") above the stabilizer plate.

(D) The ground anchor head is to be attached to the tensioning equipment such that the tension load and displacement can be recorded. The tensioning equipment must be positioned to load the ground anchor and stabilizer plate at the minimum angle to the test site ground surface for which the anchor is being evaluated.

(E) The ground anchor is to be pre-tensioned to 500 pounds so that the anchor shaft contacts the stabilizer plate. If the anchor shaft does not come into contact with the stabilizer plate an anchor setting load not to exceed 1,000 pounds is permitted to be applied and then released prior to re-application of the 500-pound pre-tension force.

(F) The location of the ground anchor head is to be marked after it is pre-tensioned for measuring subsequent movement under test loading.

(G) Increase the load throughout the test. The recommended rate of load application must be such that the loading to not less than 4725 pounds is reached in not less than 2 minutes from the time the 500 pound pre-tension load is achieved.

(H) Record the load and displacement, at a minimum of 500-1000 pound increments, such that a minimum of five data points will be obtained to determine a load deflection curve. For each datum, the applied load and the ground anchor head displacement is to be recorded. In addition, the load and displacement is to be recorded at the Failure Mode identified in paragraph (b)(10) of this section. It is permissible to halt the addition of load at each loading increment for up to 60 seconds to facilitate taking displacement readings. The

ultimate anchor load of the ground anchor assembly and corresponding displacement is to be recorded. The pre-tension load of 500 pounds should be included in the 4725 pound ultimate anchor load test. It is permissible to interpolate between displacement and load measurements to determine the ultimate anchor load.

(I) All ground anchor assemblies must be tested to the following:

(1) Failure due to displacement of the ground anchor assembly as established in paragraph (b)(9) of this section, or

(2) Failure of either the anchoring equipment or its attachment point to the testing apparatus, or to a minimum of 4725 pounds (when possible tests should be taken to 6000 pounds to provide additional data but this is not required).

(iv) Vertical in-line anchor assembly method. Anchor assembly installation and withdrawal procedures for test purposes are to be as follows, and be used consistently throughout all tests;

(A) The ground anchor must be installed vertically.

(B) The ground anchor must be driven to its full depth into the soil.

(C) The ground anchor head must be attached to the tensioning equipment such that the load and ground anchor head displacement can be recorded.

(D) The ground anchor must be pulled in line with the ground anchor shaft.

(E) The ground anchor shall be pre-tensioned to 500 pounds.

(F) The location of the ground anchor head must be marked after it is pre-tensioned for measuring subsequent movement under test loading.

(G) Increase the load throughout the test. The recommended rate of load application shall be such that the loading to not less than 4725 pounds is reached in not less than 2 minutes from the time the 500 pound pre-tension load is achieved.

(H) Record the load and displacement, at a minimum of 500-1000 pound increments, such that a minimum of five data points will be obtained to determine a load deflection curve. For each datum, the applied load and the ground anchor head displacement is to be recorded. In addition, the load and displacement is to be recorded at the Failure Mode identified in paragraph (b)(10) of this section. It is permissible to halt the addition of load at each loading increment for up to 60 seconds to facilitate taking displacement readings. The ultimate anchor load of the ground anchor assembly and corresponding displacement is to be recorded. The pre-tension load of 500 pounds should be included in the 4725 pound ultimate anchor load test. It shall be permissible to interpolate between displacement and load measurements to determine the Ultimate anchor load.

(I) All ground anchor assemblies must be tested to the following:

(1) Failure due to displacement of the ground anchor assembly as established in paragraph (b)(9) of this section, or

(2) Failure of either the anchoring equipment or its attachment point to the testing apparatus, or to a minimum of 4725 pounds (when possible tests should be taken to 6000 pounds to provide additional data but this is NOT required).

(v) In line ground anchor assembly method. Ground anchor assembly installation and withdrawal procedures for test purposes must be as follows, and must be used consistently throughout all tests.

- (A) The ground anchor must be installed at an angle from the horizontal ground surface at which it is to be rated.
- (B) The ground anchor must be driven to its full depth into the soil.
- (C) The ground anchor head must be attached to the tensioning equipment such that tension and displacement can be recorded.
- (D) The anchor must be pulled in line with the ground anchor shaft.
- (E) The ground anchor shall be pre-tensioned 500 pounds.
- (F) The location of the ground anchor head is to be marked after it is pre-tensioned for measuring subsequent movement under test loading.
- (G) Increase the load throughout the test. The recommended rate of load application must be such that the loading to not less than 4725 pounds is reached in not less than 2 minutes from the time the 500 pound pre-tension load is achieved.
- (H) Record the load and displacement, at a minimum of 500-1000 pound increments, such that a minimum of five data points will be obtained to determine a load deflection curve. For each datum, the applied load and the ground anchor head displacement is to be recorded. In addition, the load and displacement is to be recorded at the Failure Mode identified in paragraph (b)(10) of this section. It shall be permissible to halt the addition of load at each loading increment for up to 60 seconds to facilitate taking displacement readings. The ultimate anchor load of the ground anchor assembly and corresponding displacement must be recorded. The pre-tension load of 500 pounds should be included in the 4725 pound ultimate anchor load test. It is permissible to interpolate between displacement and load measurements to determine the Ultimate anchor load.

(I) All ground anchor assemblies must be tested to the following:

- (1) failure due to displacement of the ground anchor assembly as established in paragraph (b)(9) of this section, or
 - (2) Failure of either the anchoring equipment or its attachment point to the testing apparatus, or to a minimum of 4725 pounds (when possible tests should be taken to 6000 pounds to provide additional data but this is NOT required)
- Note to paragraph (b)(8). Additional testing at angles of pull greater than the minimum angle of pull may be used to provide design values for specific angles of pull greater than the minimum angle for which evaluation is sought.

- (9) Failure criteria. The following conditions constitute failure of the ground anchor test assembly:
- (i) When the ground anchor head, or its attachment point, displaces 2 inches in the vertical or horizontal direction from its pre-tensioned measurement position prior to reaching a total load of 3150 pounds (including any pretension load).
 - (ii) When the ground anchor head, or its attachment point, displaces 2 inches (2") in the vertical direction or 3 inches (3") in the horizontal direction from its pre-tensioned measurement position prior to reaching a total load of 4725 pounds (including any pretension load).

- (iii) When breakage of any component of the ground anchor shaft occurs prior to reaching a total load of 4725 pounds.
- (10) Use of ultimate anchor loads to establish the working load design value.
- (i) The working load design value is the lowest ultimate anchor load determined by testing, divided by a 1.5 factor of safety.
 - (ii) The working load design value, for each installation method and soil classification, shall be stated in the ground anchor assembly listing or certification. An anchor tested in a given soil classification number must not be approved for use in a higher/weaker soil classification number. For example an anchor tested in soil classification 3 must not be approved for soil classification 4A or 4B unless it is also tested in those soils. The 500 pound pre-tension is included in the ultimate anchor load.
- (11) Test report. The test report to support the listing or certification for each ground anchor assembly tested is to include all conditions under which the ground anchor assembly was tested, including the following:
- (i) A copy of all test data accumulated during the testing.
 - (ii) The soil characteristics including moisture content and methods for determining soil characteristics for each type of soil for which the ground anchoring assembly was evaluated.
 - (iii) The model of the ground anchor assembly tested.
 - (iv) The ground anchor assembly test method used.
 - (v) Detailed drawings including all dimensions of the ground anchor assembly and its components.
 - (vi) Method of installation at the test site.
 - (vii) Date of installation and date of testing.
 - (viii) Location of the certification test site.
 - (ix) Test equipment used.
 - (x) For each anchor specimen tested: For each load increment the load in pounds and resultant displacements in inches in chart or graph form.
 - (xi) The working load design value and ultimate anchor load determined in accordance with paragraph (b)(10) of this section.
 - (xii) If required, a description of the stabilizer plate used in each ground anchor assembly/stabilizer plate test, including the name of the manufacturer.
 - (xiii) Angle(s) of pull for which the anchor has been tested.
 - (xiv) Embedment depth of the ground anchor assembly.
 - (xv) The application and orientation of the applied load.
 - (xvi) A description of the mode and location of failure for each ground anchor assembly tested.
 - (xvii) Name and signature of the nationally recognized testing agency or registered professional engineer certifying the testing and evaluation.
 - (xviii) The soil classification(s) for which each ground anchor assembly is certified for use and the working load design value and minimum ultimate load capacity for those soil classification(s).
- (12) Approved ground anchor assemblies. Each ground anchor manufacturer or producer must provide the following information for use of approved ground anchor assemblies and this information must also be included in the listing or certification for each ground anchor assembly:
- (i) Drawings showing ground anchor installation.
 - (ii) Specifications for the ground anchor assembly including:

- (A) Soils classifications listed or certified for use;
- (B) The working load and minimum ultimate anchor load capacity for the anchor assembly in the soil classification(s) it is listed or certified for use;
- (C) Model number and its location on the anchor;
- (D) Instructions for use, including pre-tensioning;
- (E) Angle(s) of pull for which the anchor has been listed and certified; and
- (F) Manufacturer, size and type of stabilizer plate required.

(c) Specifications for tie-down straps and ground anchors

(1) Ground anchors. Ground anchors must be installed in accordance with their listing or certification, be installed to their full depth, be provided with protection against weather deterioration and corrosion at least equivalent to that provided by a coating of zinc on steel of not less than 0.30 oz./ft.² of surface coated, and be capable of resisting a minimum ultimate load of 4,725 lbs. and a working load of 3,150 lbs., as installed, unless reduced capacities are noted in accordance with note 11 of Table 1 to this section or note 12 of Tables 2 and 3 to this section. The ultimate load and working load of ground anchors and anchoring equipment must be determined by a registered professional engineer, registered architect, or tested by a nationally recognized third-party testing agency in accordance with a nationally recognized testing protocol.

(2) Tie-down straps. A 1 1/4 inch × 0.035 inch or larger steel strapping conforming to ASTM D 3953—97, Standard Specification for Strapping, Flat Steel and Seals (incorporated by reference, see §3285.4), Type 1, Grade 1, Finish B, with a minimum total capacity of 4,725 pounds (lbs.) and a working capacity of 3,150 pounds (lbs.) must be used. The tie-down straps must be provided with protection against weather deterioration and corrosion at least equivalent to that provided by a coating of zinc on steel of not less than 0.30 oz./ft.² of surface coated. Slit or cut edges of coated strapping need not be zinc coated.

(d) Number and location of ground anchors.

(1) Ground anchor and anchor strap spacing must be:

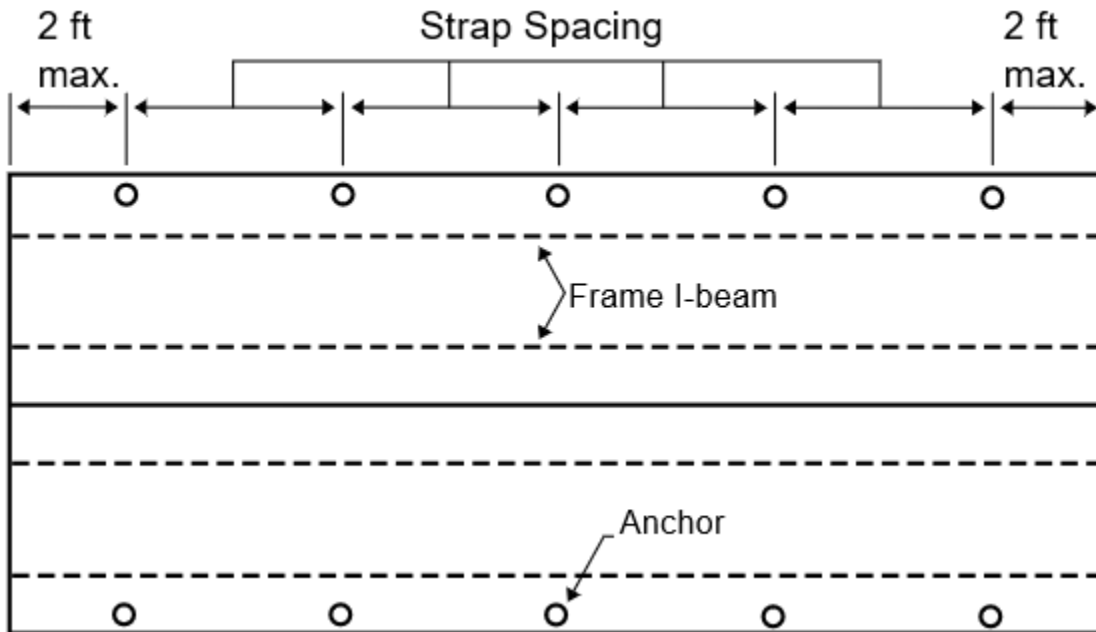
- (i) No greater than the spacing shown in Tables 1 through 3 to this section and Figures A and B to this section; or
- (ii) Designed by a registered engineer or architect, in accordance with acceptable engineering practice and the requirements of the MHCSS for any conditions that are outside the parameters and applicability of the Tables 1 through 3 to this section.

(2) The requirements in paragraph (c) of this section must be used to determine the maximum spacing of ground anchors and their accompanying anchor straps, based on the soil classification determined in accordance with §3285.202:

- (i) The installed ground anchor type and size (length) must be listed for use in the soil class at the site and for the minimum and maximum angle permitted between the diagonal strap and the ground; and
- (ii) All ground anchors must be installed in accordance with their listing or certification and the ground anchor manufacturer installation instructions; and
- (iii) If required by the ground anchor listing or certification, the correct size and type of stabilizer plate is installed. If metal stabilizer plates are used, they must be provided with protection against weather deterioration and corrosion at least equivalent to that provided by a coating of zinc on steel of not less than 0.30 oz./ft.² of surface coated. Alternatively, ABS stabilizer plates may be used when listed and certified for such use.

(3) Longitudinal anchoring. Manufactured homes must also be stabilized against wind in the longitudinal direction in all Wind Zones. Manufactured homes located in Wind Zones II and III must have longitudinal ground anchors installed on the ends of the manufactured home transportable section(s) or be provided with alternative systems that are capable of resisting wind forces in the longitudinal direction. See Figure C to §3285.402 for an example of one method that may be used to provide longitudinal anchoring. A professional engineer or registered architect must certify the longitudinal anchoring method or any alternative system used as adequate to provide the required stabilization, in accordance with acceptable engineering practice.

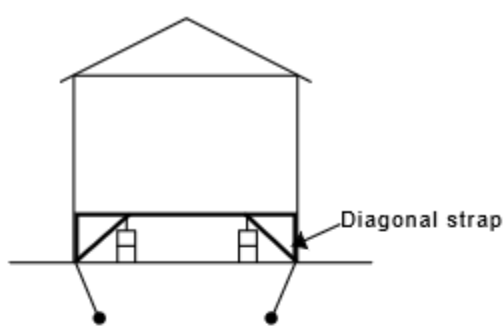
Figure A to §3285.402 Ground Anchor Locations and Spacing – Plan View.



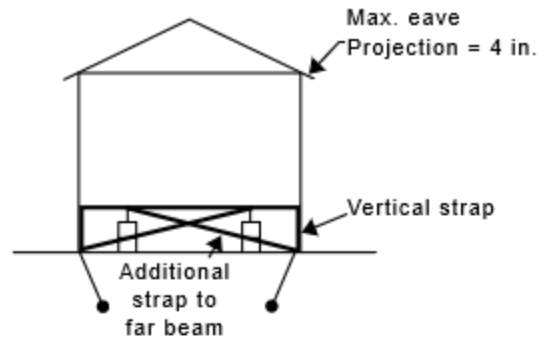
Notes:

1. Refer to Tables 1, 2, and 3 to this section for maximum ground anchor spacing.
2. Longitudinal anchors not shown for clarity; refer to 3285.402(b)(2) for longitudinal anchoring requirements.

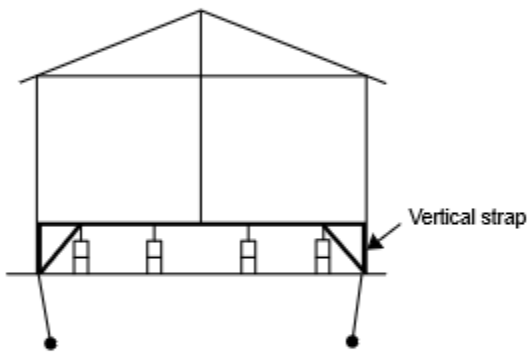
Figure B to §3285.402 Anchor Strap and Pier Relationship.



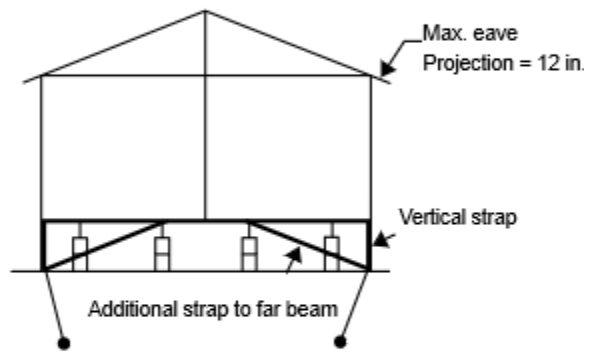
Near Beam Method



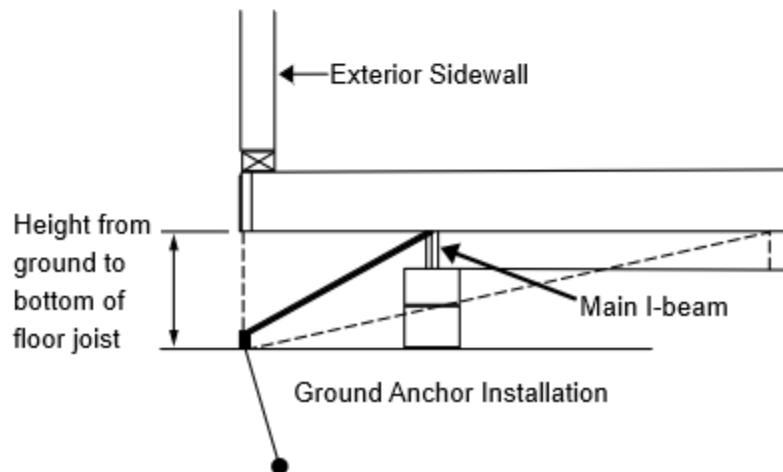
Second Beam Method
(Vertical tie down straps required)



Near Beam Method
(Mate-line piers and anchors omitted for clarity)



Second Beam Method
(Mate-line piers and anchors omitted for clarity)



Notes:

1. Vertical Straps are not required in Wind Zone I.
2. The frame must be designed to prevent rotation of the main chassis beam, when the diagonal ties are not attached to the top flange of the beam. See §3285.401(d)(3).

Figure C to §3285.402 Longitudinal Anchoring

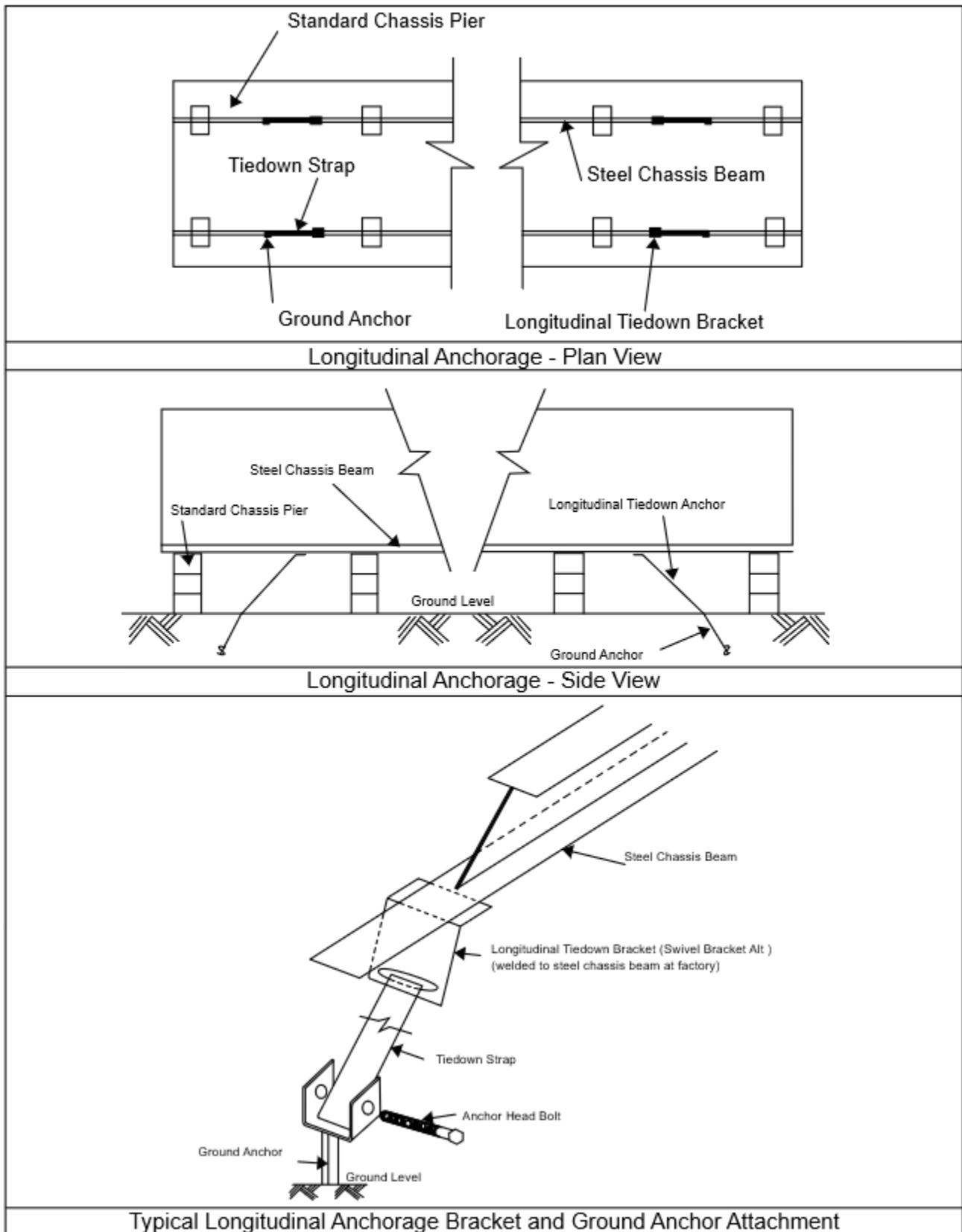


Table 1 to §3285.402 – Maximum Diagonal Tie-Down Strap Spacing, Wind Zone I

Nominal floor width, single section/multi-section	Max. height from ground to diagonal strap attachment	I-beam spacing 82.5 in.	I-beam spacing 99.5 in.
12/24 ft. 144 in. nominal section(s)	25 in	14 ft. 2 in	N/A.
	33 in	11 ft. 9in	N/A.
	46 in	9 ft. 1in	N/A.
	67 in	N/A	N/A.
14/28 ft. 168 in. nominal section(s)	25 in	18 ft. 2in	15 ft. 11 in.
	33 in	16 ft. 1 in	13 ft. 6 in.
	46 in	13 ft. 3 in	10 ft. 8in.
	67 in	10 ft. 0 in	N/A.
16/32 ft. 180 in. to 192 in. nominal section(s)	25 in	N/A	19 ft. 5in.
	33 in	19 ft. 0 in	17 ft. 5 in.
	46 in	16 ft. 5 in	14 ft. 7 in.
	67 in	13 ft. 1 in	11 ft. 3 in.

Notes:

1. Table is based on maximum 90 in. sidewall height.
2. Table is based on maximum 4 in. inset for ground anchor head from edge of floor or wall.
3. Table is based on main rail (I-beam) spacing per given column.
4. Table is based on maximum 4 in. eave width for single-section homes and maximum 12 in. for multi-section homes.
5. Table is based on maximum 20-degree roof pitch (4.3/12).
6. Table is based upon the minimum height between the ground and the bottom of the floor joist being 18 inches. Interpolation may be required for other heights from ground to strap attachment.
7. Additional tie-downs may be required per the home manufacturer instructions.
8. Ground anchors must be certified for these conditions by a professional engineer, architect, or listed by a nationally recognized testing laboratory.
9. Ground anchors must be installed to their full depth, and stabilizer plates, if required by the ground anchor listing or certification, must also be installed in accordance with the listing or certification and in accordance with the ground anchor and home manufacturer instructions.
10. Strapping and anchoring equipment must be certified by a registered professional engineer or registered architect, or listed by a nationally recognized testing agency to resist these specified forces, in accordance with testing procedures in ASTM D 3953–97, Standard Specification for Strapping, Flat Steel and Seals (incorporated by reference, see §3285.4).
11. A reduced ground anchor or strap working load capacity will require reduced tie-down strap and anchor spacing.
12. Ground anchors must not be spaced closer than the minimum spacing permitted by the listing or certification.
13. Table is based on a 3,150 lbs. working load capacity, and straps must be placed within 2 ft. of the ends of the home.
14. Table is based on a minimum angle of 30 degrees and a maximum angle of 60 degrees between the diagonal strap and the ground.
15. Table does not consider flood or seismic loads and is not intended for use in flood or seismic hazard areas. In those areas, the anchorage system is to be designed by a professional engineer or architect.

Table 2 to §3285.402 – Maximum Diagonal Tie-Down Strap Spacing, Wind Zone II

Nominal floor width, single section/multi-section	Max. height from ground to diagonal strap attachment	Near beam method I-beam spacing		Second beam method I-beam spacing	
		82.5 in.	99.5 in.	82.5 in.	99.5 in.
12 ft/24 ft. 144 in. nominal section(s)	25 in	6 ft. 2 in	4 ft. 3 in	N/A	N/A
	33 in	5 ft. 2 in	N/A	N/A	N/A
	46 in	4 ft. 0 in	N/A	N/A	N/A
	67 in	N/A	N/A	6 ft 1 in	6 ft 3 in
14 ft/28 ft. 168 in. nominal section(s)	25 in	7 ft. 7 in	6 ft. 9 in	N/A	N/A
	33 in	6 ft. 10 in	5 ft. 9 in	N/A	N/A
	46 in	5 ft. 7 in	4 ft. 6 in	N/A	N/A
	67 in	4 ft. 3 in	N/A	N/A	N/A
16 ft/32 ft. 180 in. to 192 in. nominal section(s)	25 in	N/A	7 ft. 10 in	N/A	N/A
	33 in	7 ft. 6 in	7 ft. 2 in	N/A	N/A
	46 in	6 ft. 9 in	6 ft. 0 in	N/A	N/A
	67 in	5 ft. 4 in	4 ft. 7 in	N/A	N/A

Notes:

1. Table is based on maximum 90 in. sidewall height.
2. Table is based on maximum 4 in. inset for ground anchor head from edge of floor or wall.
3. Tables are based on main rail (I-beam) spacing per given column.
4. Table is based on maximum 4 in. eave width for single-section homes and maximum 12 in. for multi-section homes.
5. Table is based on maximum 20-degree roof pitch (4.3/12).
6. All manufactured homes designed to be located in Wind Zone II must have a vertical tie installed at each diagonal tie location.
7. Table is based upon the minimum height between the ground and the bottom of the floor joist being 18 inches. Interpolation may be required for other heights from ground to strap attachment.
8. Additional tie downs may be required per the home manufacturer instructions.
9. Ground anchors must be certified by a professional engineer, or registered architect, or listed by a nationally recognized testing laboratory.
10. Ground anchors must be installed to their full depth, and stabilizer plates, if required by the ground anchor listing or certification, must also be installed in accordance with the listing or certification and in accordance with the ground anchor and home manufacturer instructions.
11. Strapping and anchoring equipment must be certified by a registered professional engineer or registered architect or must be listed by a nationally recognized testing agency to resist these specified forces, in accordance with testing procedures in ASTM D 3953—97, Standard Specification for Strapping, Flat Steel and Seals (incorporated by reference, see §3285.4).
12. A reduced ground anchor or strap working load capacity will require reduced tie-down strap and anchor spacing.
13. Ground anchors must not be spaced closer than the minimum spacing permitted by the listing or certification.
14. Table is based on a 3,150 lbs. working load capacity, and straps must be placed within 2 ft. of the ends of the home.
15. Table is based on a minimum angle of 30 degrees and a maximum of 60 degrees between the diagonal strap and the ground.
16. Table does not consider flood or seismic loads and is not intended for use in flood or seismic hazard areas. In those areas, the anchorage system is to be designed by a professional engineer or architect.

Table 3 to §3285.402 – Maximum Diagonal Tie-Down Strap Spacing, Wind Zone III

Nominal floor width, single section/multi-section	Max. height from ground to diagonal strap attachment	Near beam method I-beam spacing		Second beam method I-beam spacing	
		82.5 in.	99.5 in.	82.5 in.	99.5 in.
12 ft./24 ft. 144 in. nominal section(s)	25 in	5 ft. 1 in	N/A	N/A	N/A
	33 in	4 ft. 3 in	N/A	N/A	N/A
	46 in	N/A	N/A	N/A	N/A
	67 in	N/A	N/A	N/A	N/A
14 ft./28 ft. 168 in. nominal section(s)	25 in	6 ft. 2 in.	5 ft. 7 in	N/A	N/A
	33 in	5 ft. 8 in	4 ft. 9 in	N/A	N/A
	46 in	4 ft. 8 in	N/A	N/A	N/A
	67 in	N/A	N/A	N/A	N/A
16 ft./32 ft. 180 in. to 192 in. nominal sections	25 in	N/A	6 ft. 3 in	N/A	N/A
	33 in	6 ft. 1 in	5 ft. 11 in	N/A	N/A
	46 in	5 ft. 7 in	5 ft. 0 in	N/A	N/A
	67 in	4 ft. 5 in	N/A	N/A	N/A

- Notes: 1. Table is based on maximum 90 in. sidewall height.
 2. Table is based on maximum 4 in. inset for ground anchor head from edge of floor or wall.
 3. Table is based on main rail (I-beam) spacing per given column.
 4. Table is based on maximum 4 in. eave width for single-section homes and maximum 12 in. for multi-section homes.
 5. Table is based on maximum 20-degree roof pitch (4.3/12).
 6. All manufactured homes designed to be located in Wind Zone III must have a vertical tie installed at each diagonal tie location.
 7. Table is based upon the minimum height between the ground and the bottom of the floor joist being 18 inches. Interpolation may be required for other heights from ground to strap attachment.
 8. Additional tie downs may be required per the home manufacturer instructions.
 9. Ground anchors must be certified by a professional engineer, or registered architect, or listed by a nationally recognized testing laboratory.
 10. Ground anchors must be installed to their full depth, and stabilizer plates, if required by the ground anchor listing or certification, must also be installed in accordance with the listing or certification and per the ground anchor and home manufacturer instructions.
 11. Strapping and anchoring equipment must be certified by a registered professional engineer or registered architect or must be listed by a nationally recognized testing agency to resist these specified forces, in accordance with testing procedures in ASTM D 3953–97, Standard Specification for Strapping, Flat Steel and Seals (incorporated by reference, see §3285.4).
 12. A reduced ground anchor or strap working load capacity will require reduced tie-down strap and anchor spacing.
 13. Ground anchors must not be spaced closer than the minimum spacing permitted by the listing or certification.
 14. Table is based on a 3,150 lbs. working load capacity, and straps must be placed within 2 ft. of the ends of the home.
 15. Table is based on a minimum angle of 30 degrees and a maximum angle of 60 degrees between the diagonal strap and the ground.
 16. Table does not consider flood or seismic loads and is not intended for use in flood or seismic hazard areas. In those areas, the anchorage system is to be designed by a professional engineer or architect.

Appendix to §3285.402

Torque Probe Method for determining soil classification: This kit contains a 5-foot long steel earth-probe rod, with a helix at the end. It resembles a wood-boring bit on a larger scale. The tip of the probe is inserted as deep as the bottom helix of the ground anchor assembly that is being considered for installation. The torque wrench is placed on the top of the probe. The torque wrench is used to rotate the probe steadily so one can read the scale on the wrench. If the torque wrench reads 551 inch-pounds or greater, then a Class 2 soil is present according to the Table to 24 CFR 3285.202(a)(3). A Class 3 soil is from 351 to 550 inch-pounds. A Class 4A soil is from 276 to 350 inch-pounds, and a Class 4B soil is from 175 to 275 inch-pounds. When the torque wrench reading is below 175 inch-pounds, a professional engineer should be consulted.

[72 FR 59362, Oct. 19, 2007, as amended at 79 FR 53614, Sept. 10, 2014]

§3285.403 Sidewall, over-the-roof, mate-line, and shear wall straps.

If sidewall, over-the-roof, mate-line, or shear wall straps are installed on the home, they must be connected to an anchoring assembly.

§3285.404 Severe climatic conditions.

In frost-susceptible soil locations, ground anchor augers must be installed below the frost line, unless the foundation system is frost-protected to prevent the effects of frost heave, in accordance with acceptable engineering practice and §3280.306 of this chapter and §3285.312.

§3285.405 Severe wind zones.

When any part of a home is installed within 1,500 feet of a coastline in Wind Zones II or III, the manufactured home must be designed for the increased requirements, as specified on the home's data plate (refer to §3280.5(f) of this chapter) in accordance with acceptable engineering practice. Where site or other conditions prohibit the use of the manufacturer's instructions, a registered professional engineer or registered architect, in accordance with acceptable engineering practice, must design anchorage for the special wind conditions.

§3285.406 Flood hazard areas.

Refer to §3285.302 for anchoring requirements in flood hazard areas.

Subpart F—Optional Features

§3285.501 Home installation manual supplements.

Supplemental instructions for optional equipment or features must be approved by the DAPIA as not taking the home out of conformance with the requirements of this part, or part 3280 of this chapter, and included with the manufacturer installation instructions.

§3285.502 Expanding rooms.

The support and anchoring systems for expanding rooms must be installed in accordance with designs provided by the home manufacturer or prepared by a registered professional engineer or registered architect, in accordance with acceptable engineering practice.

§3285.503 Optional appliances.

(a) Comfort cooling systems. When not provided and installed by the home manufacturer, any comfort cooling systems that are installed must be installed according to the appliance manufacturer's installation instructions.

(1) Air conditioners. Air conditioning equipment must be listed or certified by a nationally recognized testing agency for the application for which the unit is intended and installed in accordance with the terms of its listing or certification (see §3280.714 of this chapter).

(i) Energy efficiency.

(A) Site-installed central air conditioning equipment must be sized to meet the home's heat gain requirement, in accordance with Chapter 28 of the 1997 ASHRAE Handbook of Fundamentals (incorporated by reference, see §3285.4) or ACCA Manual J, Residential Cooling Load, 8th Edition (incorporated by reference, see §3285.4). Information necessary to calculate the home's heat gain can be found on the home's comfort cooling certificate.

(B) The BTU/hr. rated capacity of the site-installed air conditioning equipment must not exceed the air distribution system's rated BTU/hr. capacity as shown on the home's compliance certificate.

(ii) Circuit rating. If a manufactured home is factory-provided with an exterior outlet to energize heating and/or air conditioning equipment, the branch circuit rating on the tag adjacent to this outlet must be equal to or greater than the minimum circuit amperage identified on the equipment rating plate.

(iii) A-coil units.

(A) A-coil air conditioning units must be compatible and listed for use with the furnace in the home and installed in accordance with the appliance manufacturer's instructions.

(B) The air conditioner manufacturer instructions must be followed.

(C) All condensation must be directed beyond the perimeter of the home by means specified by the equipment manufacturer.

(2) Heat pumps. Heat pumps must be listed or certified by a nationally recognized testing agency for the application for which the unit is intended and installed in accordance with the terms of its listing or certification. (See §3280.714 of this chapter).

(3) Evaporative coolers.

(i) A roof-mounted cooler must be listed or certified by a nationally recognized testing agency for the application for which the unit is intended and installed in accordance with the terms of its listing (see §3280.714 of this chapter).

(A) Any discharge grill must not be closer than three feet from a smoke alarm.

(B) Before installing a roof-mounted evaporative cooler on-site, the installer must ensure that the roof will support the weight of the cooler.

(C) A rigid base must be provided to distribute the cooler weight over multiple roof trusses to adequately support the weight of the evaporative cooler.

(ii) An evaporative cooler that is not roof-mounted is to be installed in accordance with the requirements of its listing or the equipment manufacturer's instructions, whichever is the more restrictive.

(b) Fireplaces and wood-stoves. When not provided by the home manufacturer, fireplaces and wood-stoves including chimneys and air inlets for fireplaces and wood stoves must be listed for use with manufactured homes and must be installed in accordance with their listings.

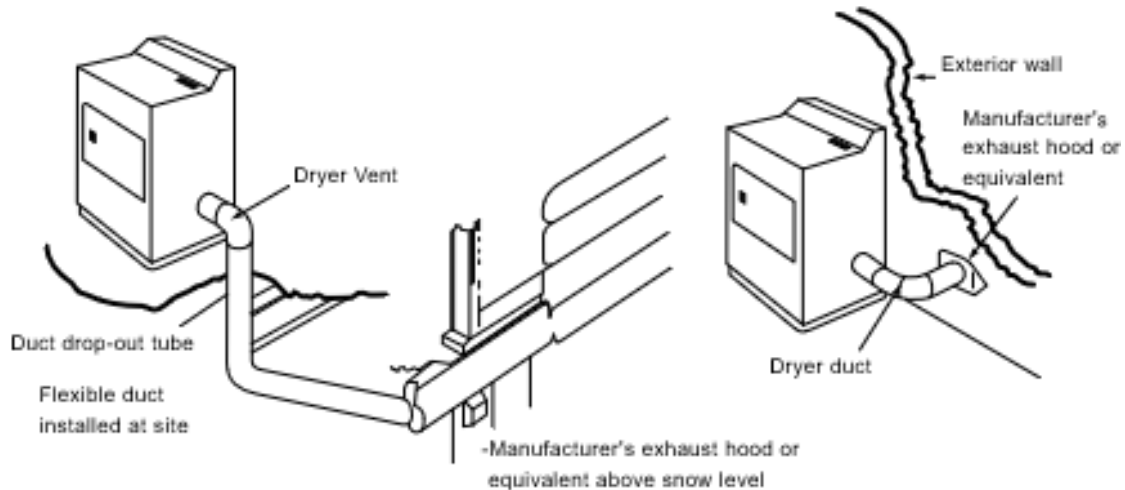
(c) Appliance venting.

(1) All fuel burning heat producing appliances of the vented type except ranges and ovens must be vented to the exterior of the home.

(2) Upon completion, the venting system must comply with all requirements of §§3280.707(b) and 3280.710 of the Manufactured Home Construction and Safety Standards in this chapter.

(3) When the vent exhausts through the floor, the vent must not terminate under the home and must extend to the home's exterior and through any skirting that may be installed.

(d) Clothes dryer exhaust duct system. A clothes dryer exhaust duct system must conform with and be completed in accordance with the appliance manufacturer instructions and §3280.708 of this chapter. The vents must exhaust to the exterior of the home, beyond any perimeter skirting installed around it, as shown in Figure to §3285.503.

Figure A to §3285.503 Dryer Exhaust System.**Notes:**

1. Installation of the exhaust system must be in accordance with the dryer manufacturer instructions.
2. Dryer exhaust system must not contain reverse slope or terminate under the home.

§3285.504 Skirting.

- (a) Skirting, if used, must be of weather-resistant materials or provided with protection against weather deterioration at least equivalent to that provided by a coating of zinc on steel of not less than 0.30 oz./ft.² of surface coated.
- (b) Skirting must not be attached in a manner that can cause water to be trapped between the siding and trim or forced up into the wall cavities trim to which it is attached.
- (c) All wood skirting within 6 inches of the ground must be pressure-treated in accordance with AWPA Standard U1 (incorporated by reference, see §3285.4) for Use Category 4A, Ground Anchor Contact Applications, or be naturally resistant to decay and termite infestations.
- (d) Skirting must not be attached in a manner that impedes the contraction and expansion characteristics of the home's exterior covering.

§3285.505 Crawlspace ventilation.

- (a) A crawlspace with skirting must be provided with ventilation openings. The minimum net area of ventilation openings must not be less than one square foot (ft.²) for every 150 square feet (ft.²) of the home's floor area. The total area of ventilation openings may be reduced to one square foot (ft.²) for every 1,500 square feet (ft.²) of the home's floor area, where a uniform 6-mil polyethylene sheet material or other acceptable vapor retarder is installed, according to §3285.204, on the ground surface beneath the entire floor area of the home.
- (b) Ventilation openings must be placed as high as practicable above the ground.
- (c) Ventilation openings must be located on at least two opposite sides to provide cross-ventilation.
- (d) Ventilation openings must be covered for their full height and width with a perforated corrosion and weather-resistant covering that is designed to prevent the entry of rodents. In areas subject to freezing, the coverings for the ventilation openings must also be of the adjustable type, permitting them to be in the open or closed position, depending on the climatic conditions.
- (e) Access opening(s) not less than 18 inches in width and 24 inches in height and not less than three square feet (ft.²) in area must be provided and must be located so that any utility connections located under the home are accessible.
- (f) Dryer vents and combustion air inlets must pass through the skirting to the outside. Any surface water runoff from the furnace, air conditioning, or water heater drains must be directed away from under the home or collected by other methods identified in §3285.203.

Subpart G—Ductwork and Plumbing and Fuel Supply Systems

§3285.601 Field assembly.

Home manufacturers must provide specific installation instructions for the proper field assembly of manufacturer-supplied and shipped loose ducts, plumbing, and fuel supply system parts that are necessary to join all sections of the home and are designed to be located underneath the home. The installation instructions must be designed in accordance with applicable requirements of part 3280, subparts G and H, of this chapter, as specified in this subpart.

§3285.602 Utility connections.

Refer to §3285.904 for considerations for utility system connections.

§3285.603 Water supply.

(a) Crossover. Multi-section homes with plumbing in both sections require water-line crossover connections to join all sections of the home. The crossover design requirements are located in, and must be designed in accordance with, §3280.609 of this chapter.

(b) Maximum supply pressure and reduction. When the local water supply pressure exceeds 80 psi to the manufactured home, a pressure-reducing valve must be installed.

(c) Mandatory shutoff valve.

- (1) An identified and accessible shutoff valve must be installed between the water supply and the inlet.
- (2) The water riser for the shutoff valve connection must be located underneath or adjacent to the home.
- (3) The shutoff valve must be a full-flow gate or ball valve, or equivalent valve.

(d) Freezing protection. Water line crossovers completed during installation must be protected from freezing. The freeze protection design requirements are located in, and must be designed in accordance with, §3280.603 of this chapter.

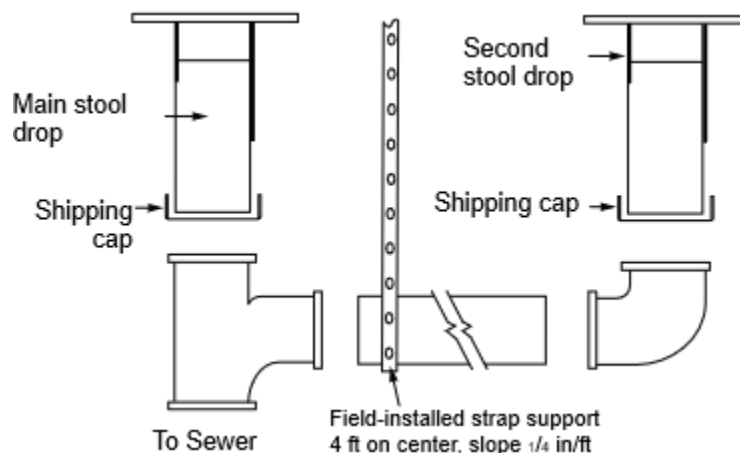
- (1) If subject to freezing temperatures, the water connection must be wrapped with insulation or otherwise protected to prevent freezing.
- (2) In areas subject to freezing or subfreezing temperatures, exposed sections of water supply piping, shutoff valves, pressure reducers, and pipes in water heater compartments must be insulated or otherwise protected from freezing.
- (3) Use of pipe heating cable. Only pipe heating cable listed for manufactured home use is permitted to be used, and it must be installed in accordance with the cable manufacturer installation instructions.

(e) Testing procedures.

- (1) The water system must be inspected and tested for leaks after completion at the site. The installation instructions must provide testing requirements that are consistent with §3280.612 of this chapter.
- (2) The water heater must be disconnected when using an air-only test.

§3285.604 Drainage system.

- (a) Crossovers. Multi-section homes with plumbing in more than one section require drainage system crossover connections to join all sections of the home. The crossover design requirements are located in, and must be designed in accordance with, §3280.610 of this chapter.
- (b) Assembly and support. If portions of the drainage system were shipped loose because they were necessary to join all sections of the home and designed to be located underneath the home, they must be installed and supported in accordance with §3280.608 of this chapter.
- (c) Proper slopes. Drains must be completed in accordance with §3280.610 of this chapter.
 - (1) Drain lines must not slope less than one-quarter inch per foot, unless otherwise noted on the schematic diagram, as shown in Figure to §3285.604.
 - (2) A slope of one-eighth inch per foot may be permitted when a clean-out is installed at the upper end of the run.
- (d) Testing procedures. The drainage system must be inspected and tested for leaks after completion at the site. The installation instructions must provide testing requirements that are consistent with §3280.612 of this chapter.

Figure A to §3285.604 Drain Pipe Slope and Connections.

§3285.605 Fuel supply system.

(a) Proper supply pressure. The gas piping system in the home is designed for a pressure that is at least 7 inches of water column [4oz./in.2 or 0.25 psi] and not more than 14 inches of water column [8 oz./in.2 or 0.5 psi]. If gas from any supply source exceeds, or could exceed this pressure, a regulator must be installed if required by the LAHJ.

(b) Crossovers.

(1) Multi-section homes with fuel supply piping in both sections require crossover connections to join all sections of the home. The crossover design requirements are located in, and must be designed in accordance with, §3280.705 of this chapter.

(2) Tools must not be required to connect or remove the flexible connector quick-disconnect.

(c) Testing procedures. The gas system must be inspected and tested for leaks after completion at the site. The installation instructions must provide testing requirements that are consistent with §3280.705 of this chapter.

§3285.606 Ductwork connections.

(a) Multi-section homes with ductwork in more than one section require crossover connections to complete the duct system of the home. All ductwork connections, including duct collars, must be sealed to prevent air leakage. Galvanized metal straps or tape and mastics listed to UL 181A (incorporated by reference, see §3285.4), for closure systems with rigid air ducts and connectors, or UL 181B (incorporated by reference, see §3285.4), for closure systems with flexible air ducts and connectors, must be used around the duct collar and secured tightly to make all connections.

(b) If metal straps are used, they must be secured with galvanized sheet metal screws.

(c) Metal ducts must be fastened to the collar with a minimum of three galvanized sheet metal screws equally spaced around the collar.

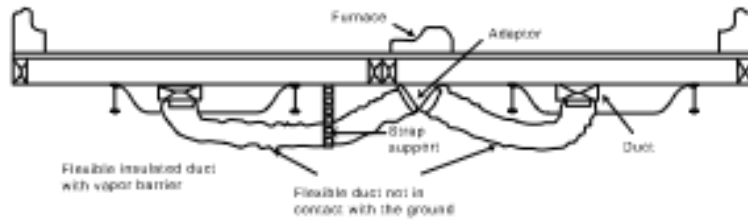
(d) Air conditioning or heating ducts must be installed in accordance with applicable requirements of the duct manufacturer installation instructions.

(e) The duct must be suspended or supported above the ground by straps or other means that are spaced at a maximum distance not to exceed 4'-0" or as otherwise permitted by the installation instructions. When straps are used to support a flexible type duct, the straps must be at least 1/2 " wider than the spacing of the metal spirals encasing the duct. The ducts must be installed such that the straps cannot slip between any two spirals and arranged under the floor to prevent compression or kinking in any location, as shown in Figures A and B to this section. In-floor crossover ducts are permitted, in accordance with §3285.606(g).

(f) Crossover ducts outside the thermal envelope must be insulated with materials that conform to designs consistent with part 3280, subpart F of this chapter.

(g) In-floor or ceiling crossover duct connections must be installed and sealed to prevent air leakage.

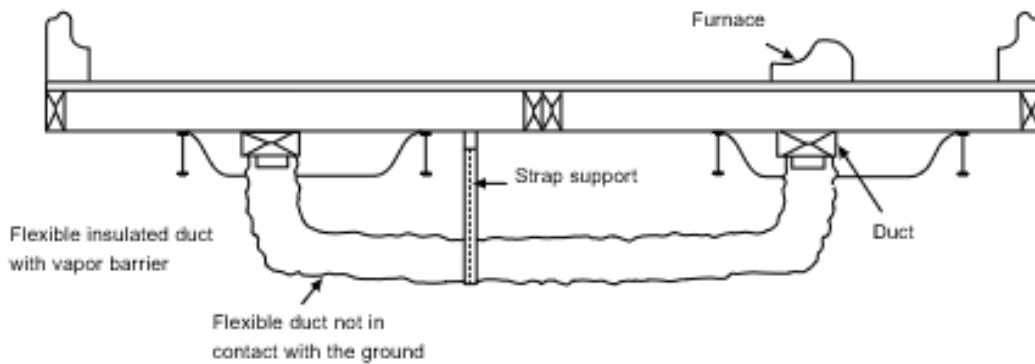
Figure A to §3285.606 Crossover Duct Installation with Two Connecting Ducts.



Notes:

1. This system is typically used when a crossover duct has not been built into the floor and the furnace is outside the I-Beam. With this type of installation, it is necessary for two flexible ducts to be installed.
2. The crossover duct must be listed for exterior use.

Figure B to §3285.606 Crossover Duct Installation with One Connecting Duct.



Notes:

1. This system is typically used when a crossover duct has not been built into the floor and the furnace is situated directly over the main duct in one section of the home. A single flexible duct is then used to connect the two sections to each other.
2. The crossover duct must be listed for exterior use.

Subpart H—Electrical Systems and Equipment

§3285.701 Electrical crossovers.

Multi-section homes with electrical wiring in more than one section require crossover connections to join all sections of the home. The crossover must be designed in accordance with part 3280, subpart I of this chapter, and completed in accordance with the directions provided in the installation instructions.

§3285.702 Miscellaneous lights and fixtures.

(a) When the home is installed, exterior lighting fixtures, ceiling-suspended (paddle) fans, and chain-hung lighting fixtures are permitted to be installed in accordance with their listings and part 3280, subpart I of this chapter.

(b) Grounding.

(1) All the exterior lighting fixtures and ceiling fans installed per §3285.702(a) must be grounded by a fixture-grounding device or by a fixture-grounding wire.

(2) For chain-hung lighting fixtures, as shown in Figure A to this section, both a fixture-grounding device and a fixture-grounding wire must be used. The identified conductor must be the neutral conductor.

(c) Where lighting fixtures are mounted on combustible surfaces such as hardboard, a limited combustible or noncombustible ring, as shown in Figures A and B to this section, must be installed to completely cover the combustible surface exposed between the fixture canopy and the wiring outlet box.

(d) Exterior lights.

(1) The junction box covers must be removed and wire-to-wire connections must be made using listed wire connectors.

(2) Wires must be connected black-to-black, white-to-white, and equipment ground-to-equipment ground.

(3) The wires must be pushed into the box, and the lighting fixture must be secured to the junction box.

(4) The lighting fixture must be caulked around its base to ensure a watertight seal to the sidewall.

(5) The light bulb must be installed and the globe must be attached.

(e) Ceiling fans.

(1) Ceiling-suspended (paddle) fans must be connected to junction box listed and marked for ceiling fan application, in accordance with Article 314.27(b) of the National Electrical Code, NFPA No. 70-2005 (incorporated by reference, see §3285.4); and

(2) The ceiling fan must be installed with the trailing edges of the blades at least 6 feet 4 inches above the finished floor; and

(3) The wiring must be connected in accordance with the product manufacturer installation instructions.

(f) Testing.

(1) After completion of all electrical wiring and connections, including crossovers, electrical lights, and ceiling fans, the electrical system must be inspected and tested at the site, in accordance with the testing requirements of §3280.810(b) of this chapter.

(2) The installation instructions must indicate that each manufactured home must be subjected to the following tests:

- (i) An electrical continuity test to ensure that metallic parts are effectively bonded;
- (ii) Operational tests of all devices and utilization equipment, except water heaters, electric ranges, electric furnaces, dishwashers, clothes washers/dryers, and portable appliances, to demonstrate that they are connected and in working order; and
- (iii) For electrical equipment installed or completed during installation, electrical polarity checks must be completed to determine that connections have been made properly. Visual verification is an acceptable electrical polarity check.

Figure A to §3285.702 Typical Installation of Chain-Hung Lighting Fixture.

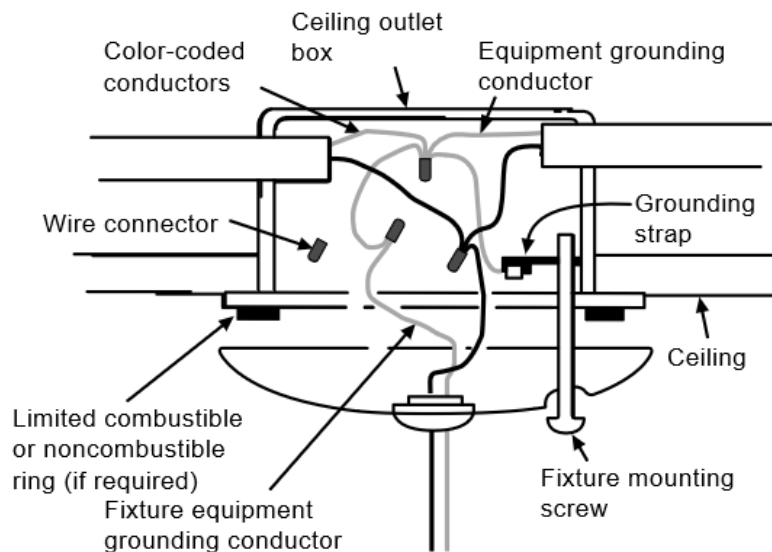
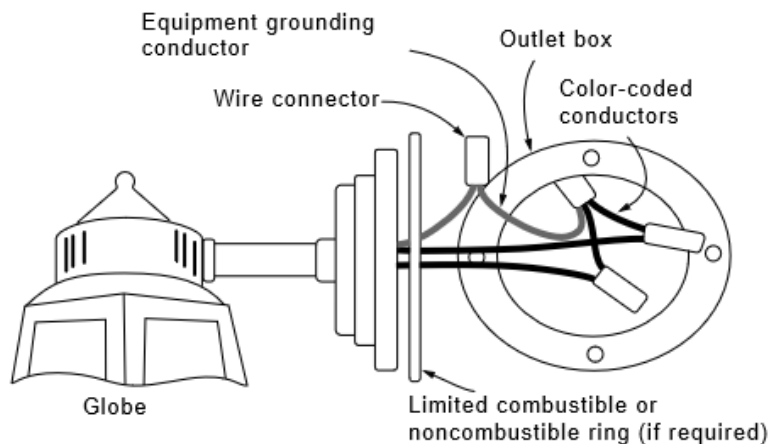


Figure B to §3285.702 Typical Installation of Surface-Mounted Exterior Lighting Fixture.



§3285.703 Smoke alarms.

Smoke alarms must be functionally tested in accordance with applicable requirements of the smoke alarm manufacturer instructions and must be consistent with §3280.208 of this chapter.

§3285.704 Telephone and cable TV.

Refer to §3285.906 for considerations pertinent to installation of telephone and cable TV.

Subpart I—Exterior and Interior Close-Up

§3285.801 Exterior close-up.

(a) Exterior siding and roofing necessary to join all sections of the home must be installed according to the product manufacturer installation instructions and must be fastened in accordance with designs and manufacturer instructions, consistent with §§3280.305 and 3280.307 of this chapter. Exterior close-up strips/trim must be fastened securely and sealed with exterior sealant (see figure A to this section).

(b) Joints and seams. All joints and seams in exterior wall coverings that were disturbed during location of the home must be made weatherproof.

(c) Prior to installing the siding, the polyethylene sheeting covering exterior walls for transit must be completely removed.

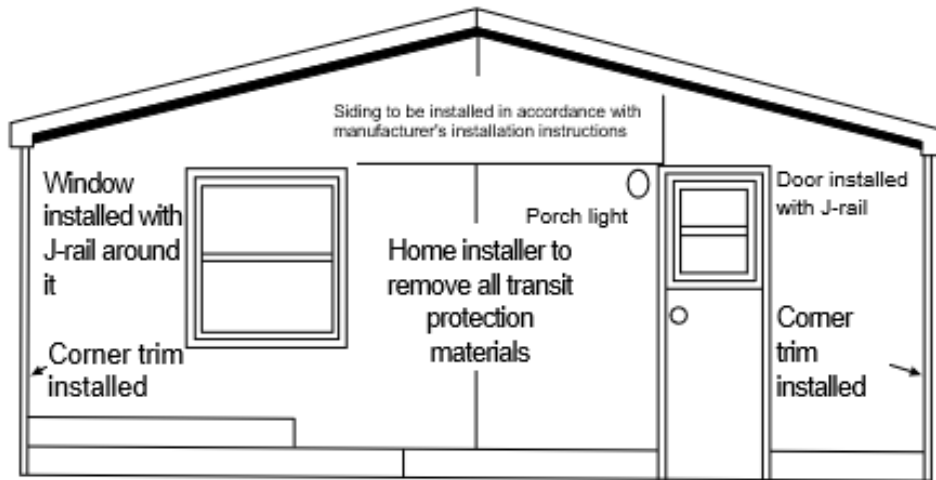
(d) Prior to completing the exterior close-up, any holes in the roofing must be made weatherproof and sealed with a sealant or other material that is suitable for use with the roofing in which the hole is made.

(e) Mate-line gasket. The home manufacturer must provide materials and designs for mate-line gaskets or other methods designed to resist the entry of air, water, water vapor, insects, and rodents at all mate-line locations exposed to the exterior (see Figure B to this section).

(f) Hinged roofs and eaves. Hinged roofs and eaves must be completed during installation in compliance with all requirements of the Manufactured Home Construction and Safety Standards (24 CFR part 3280) and the Manufactured Home Procedural and Enforcement Regulations (24 CFR part 3282). Unless exempted by the following provisions, hinged roofs are also subject to a final inspection for compliance with the Manufactured Home Construction and Safety Standards (24 CFR part 3280) by the IPIA or a qualified independent inspector acceptable to the IPIA. Homes with hinged roofs that are exempted from IPIA inspection are instead to be completed and inspected in accordance with the Manufactured Home Installation Program (24 CFR part 3286). This includes homes:

- (1) That are designed to be located in Wind Zone I;
- (2) In which the roof pitch of the hinged roof is less than 7:12, including designs incorporating peak cap construction or peak flip construction; and
- (3) In which fuel burning appliance flue penetrations are not above the hinge.

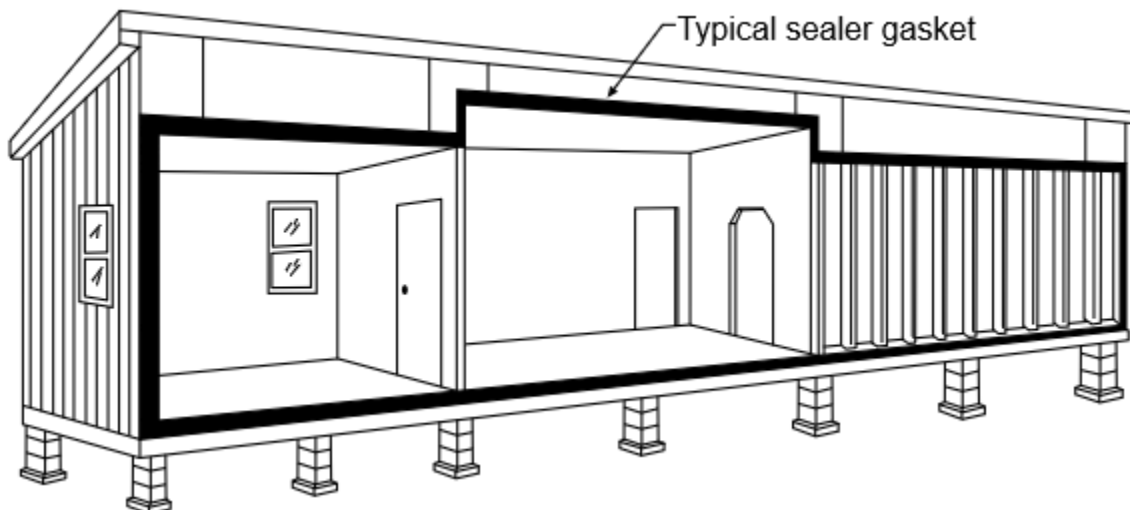
Figure A to §3285.801 Installation of Field-Applied Horizontal Lap Siding.



Notes:

1. Multi-section homes with horizontal-lap siding can be shipped with no siding on the front and rear end walls.
2. The manufacturer must install doors/windows trimmed with J-rail or the equivalent and protect all exposed materials not designed for exposure to the weather with plastic sheeting for transport. Siding, starter trim, and vents may be shipped loose in the home for installation on set-up.
3. All home installers must ensure that all field installed trim, windows, doors, and other openings are properly sealed according to the siding manufacturer installation instructions.

Figure B to §3285.801 Mate-Line Gasket.



Note:

On multi-section manufactured homes, install the sealer gasket on the ceiling, end walls, and floor mate-line prior to joining the sections together.

[72 FR 59362, Oct. 19, 2007, as amended at 80 FR 53731, Sept. 8, 2015]

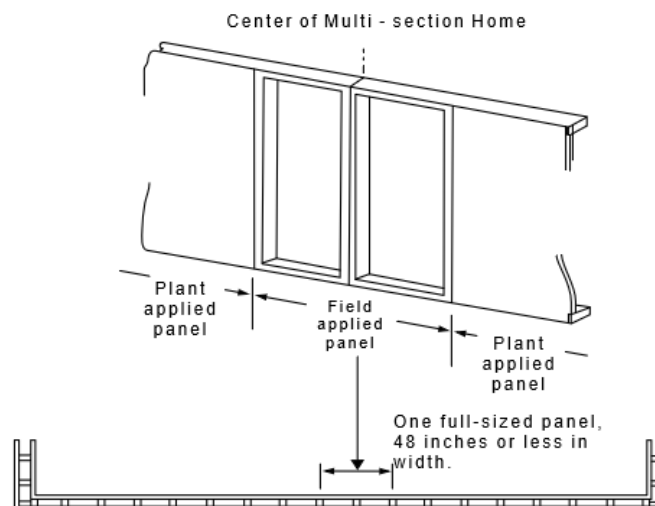
§3285.802 Structural interconnection of multi-section homes.

- (a) For multi-section homes, structural interconnections along the interior and exterior at the mate-line are necessary to join all sections of the home.
- (b) Structural interconnection must be designed in accordance with the requirements located in §3280.305 of this chapter to ensure a completely integrated structure.
- (c) Upon completion of the exterior close-up, no gaps are permitted between the structural elements being interconnected along the mate-line of multi-section homes. However, prior to completion of the exterior close-up, gaps that do not exceed one inch are permitted between structural elements provided:
- (1) The gaps are closed before completion of close-up;
 - (2) The home sections are in contact with each other; and
 - (3) The mating gasket is providing a proper seal. All such gaps must be shimmed with dimensional lumber, and fastener lengths used to make connections between the structural elements must be increased to provide adequate penetration into the receiving member.

§3285.803 Interior close-up.

- (a) All shipping blocking, strapping, or bracing must be removed from appliances, windows, and doors.
- (b) Interior close up items necessary to join all sections of the home or items subject to transportation damage may be packaged or shipped with the home for site installation.
- (c) Shipped-loose wall paneling necessary for the joining of all sections of the home must be installed by using polyvinyl acetate (PVA) adhesive on all framing members and fastened with minimum 1 1/2 inch long staples or nails at 6 inches on center panel edges and 12 inches on center in the field, unless alternative fastening methods are permitted in the installation instructions (see Figure A to §3285.803).

Figure A to §3285.803 Installation of Interior Field-Applied Panels.



Note:

Specific designs must be approved by a DAPIA and included in the home manufacturer installation instructions.

§3285.804 Bottom board repair.

(a) The bottom board covering must be inspected for any loosening or areas that might have been damaged or torn during installation or transportation. Any missing insulation is to be replaced prior to closure and repair of the bottom board.

(b) Any splits or tears in the bottom board must be resealed with tape or patches in accordance with methods provided in the manufacturers installation instructions.

(c) Plumbing P-traps must be checked to be sure they are well-insulated and covered.

(d) All edges of repaired areas must be taped or otherwise sealed.

Subpart J—Optional Information for Manufacturer's Installation Instructions

§3285.901 General.

The planning and permitting processes, as well as utility connection, access, and other requirements, are outside of HUD's authority and may be governed by LAHJs. These Model Installation Standards do not attempt to comprehensively address such requirements. However, HUD recommends that the manufacturer's installation instructions include the information and advisories in this Subpart J, in order to protect the manufactured home, as constructed in accordance with the MHCSS.

§3285.902 Moving manufactured home to location.

It is recommended that the installation instructions indicate that the LAHJ be informed before moving the manufactured home to the site. It is also recommended that the installation instructions indicate that the manufactured home is not to be moved to the site until the site is prepared in accordance with subpart C of this part and when the utilities are available as required by the LAHJ. Examples of related areas that might be addressed in the installation instructions for meeting this recommendation include:

- (a) Access for the transporter. Before attempting to move a home, ensure that the transportation equipment and home can be routed to the installation site and that all special transportation permits required by the LAHJ have been obtained.
- (b) Drainage structures. Ditches and culverts used to drain surface runoff meet the requirements of the LAHJ and are considered in the overall site preparation.

§3285.903 Permits, alterations, and on-site structures.

It is recommended that the installation instructions include the following information related to permits, alterations, and on-site structures:

- (a) Issuance of permits. All necessary LAHJ fees should be paid and permits should be obtained, which may include verification that LAHJ requirements regarding encroachments in streets, yards, and courts are obeyed and that permissible setback and fire separation distances from property lines and public roads are met.
- (b) Alterations. Prior to making any alteration to a home or its installation, contact the LAHJ to determine if plan approval and permits are required.
- (c) Installation of an add-on or attached accessory building or structure. Each attached accessory building or structure or add-on is designed to support all of its own live and dead loads, unless the attached accessory building or structure is otherwise included in the installation instructions or designed by a registered professional engineer or registered architect in accordance with this part.

§3285.904 Utility system connections.

(a) It is recommended that the manufacturer's installation instructions indicate the following procedures be used prior to making any utility system connection:

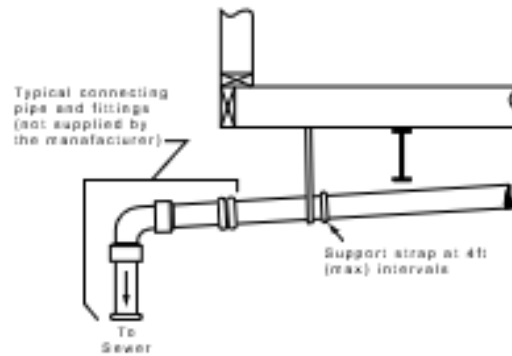
- (1) Where an LAHJ and utility services are available, that the LAHJ and all utility services each be consulted before connecting the manufactured home to any utilities, or
- (2) Where no LAHJ exists and utility services are available, that the utilities be consulted before connecting the manufactured home to any utility service; or
- (3) In rural areas where no LAHJ or utility services are available, that a professional be consulted prior to making any system connections.

(b) Qualified personnel. Only qualified personnel familiar with local requirements are permitted to make utility site connections and conduct tests.

(c) Drainage system. The main drain line must be connected to the site's sewer hookup, using an elastomeric coupler or by other methods acceptable to the LAHJ, as shown in Figure A to this section.

(d) Fuel supply system.

- (1) Conversion of gas appliances. A service person acceptable to the LAHJ must convert the appliance from one type of gas to another, following instructions by the manufacturer of each appliance.
- (2) Orifices and regulators. Before making any connections to the site supply, the inlet orifices of all gas-burning appliances must be checked to ensure they are correctly set up for the type of gas to be supplied.
- (3) Connection procedures. Gas-burning appliance vents must be inspected to ensure that they are connected to the appliance and that roof jacks are properly installed and have not come loose during transit.
- (4) Gas appliance start-up procedures. The LAHJ should be consulted concerning the following gas appliance startup procedures:
 - (i) One at a time, opening equipment shutoff valves, lighting pilot lights when provided, and adjusting burners and spark igniters for automatic ignition systems, in accordance with each appliance manufacturer instructions.
 - (ii) Checking the operation of the furnace and water heater thermostats.

Figure A to §3285.904 Connection to Site Sewer.**Note:**

Fittings in the drainage system that are subject to freezing, such as P-traps in the floor, are protected with insulation by the manufacturer. Insulation must be replaced if it is removed for access to the P-trap.

§3285.905 Heating oil systems.

It is recommended that the installation instructions include the following information related to heating oil systems, when applicable:

- (a) Homes equipped with oil burning furnaces should have their oil supply tank and piping installed and tested on-site, in accordance with NFPA 31, Standard for the Installation of Oil Burning Equipment, 2001 (incorporated by reference, see §3285.4) or the LAHJ, whichever is more stringent.
- (b) The oil burning furnace manufacturer's instructions should be consulted for pipe size and installation procedures.
- (c) Oil storage tanks and pipe installations should meet all applicable local regulations.
- (d) Tank installation requirements.
 - (1) The tank should be located where it is accessible to service and supply and where it is safe from fire and other hazards.
 - (2) In flood hazard areas, the oil storage tank should be anchored and elevated to or above the design flood elevation, or anchored and designed to prevent flotation, collapse, or permanent lateral movement during the design flood.
 - (3) Leak test procedure. Before the system is operated, it should be checked for leaks in the tank and supply piping, in accordance with NFPA 31, Standard for the Installation of Oil Burning Equipment, 2001 (incorporated by reference, see §3285.4) or the requirements of the LAHJ, whichever is more stringent.

§3285.906 Telephone and cable TV.

It is recommended that the installation instructions explain that telephone and cable TV wiring should be installed in accordance with requirements of the LAHJ and the National Electrical Code, NFPA No. 70-2005 (incorporated by reference, see §3285.4).

§3285.907 Manufacturer additions to installation instructions.

A manufacturer may include in its installation instructions items that are not required by this chapter as long as the items included by the manufacturer are consistent with the Model Installation Standards in this part and do not take the manufactured home out of compliance with the MHCSS.

Appendix D

Miscellaneous

- **Active NW Manufactured Home Builders**
- **L&I Service Locations**
- **Minimizing Flood Damage to Manufactured Homes**
- **Home Data Certificates**
- **Manufactured/Mobile Home and Other FAS Insignia's**
- **Plumbing Drain Waste & Vent Fittings**
- **PVC Piping Installation Standards**
- **Guide for Cutting, Notching & Boring**
- **Instructions: How to Use Installer Tags**
- **Instructions: How to Report Tags**
- **Manufactured Home Installer Forms**

ACTIVE MANUFACTURED HOME COMPANIES IN THE NORTHWEST**IDAHO MANUFACTURERS**

Champion Homes of Idaho
1425 Sunnyside Road
Weiser, Idaho 83672
(208) 549-1410 or 1-800-562-1423

Fleetwood Homes of Idaho
2611 East Comstock Avenue
Nampa, Idaho 83687
(208) 466-2438

Kit Home Builders West
1124 Garber Street
Caldwell, Idaho 83606
(208) 454-5000 or 1-800-859-0347

OREGON MANUFACTURERS

Golden West Homes/ Karsten Homes (CMH)
2445 Pacific Blvd. SW
Albany, Oregon 97321
(541) 223-0140 or 1-866-711-6242

Fleetwood Homes of Oregon (Cavco)
2655 Progress Way
Woodburn, Oregon 97071
(503) 981-3136

Marlette Homes (CMH)
400 West Elm Avenue
Hermiston, Oregon 97838
(541) 567-5546 or 1-800-547-2444

Palm Harbor Homes (Cavco)
3737 Palm Harbor Drive
Millersburg, Oregon 97321
(541) 926 4835 or 1-800-928-2083

Skyline Homes of Oregon
550 Booth Bend Road
McMinnville, Oregon 97128
(503) 472-3181 or 1-800-235-2003

WASHINGTON MANUFACTURES

Valley Manufactured Housing, Inc.
1717 South 4th Street
Sunnyside, WA. 98944
(509) 839-9409

Department of Labor & Industries Field Offices

Aberdeen, 415 W. Wishkah St. Suite 1C, Aberdeen, WA. 98520-4315, (360) 533-8200

Bellevue, 616 120th Ave. NE, Suite C201, Bellevue, WA. 98005-3037, (425) 990-1400

Bellingham, 1720 Ellis Street, Suite 200, Bellingham, WA. 98225-4647, (360) 647-7300

Everett, 729 100th Street SE, Everett, WA. 98208-3727, (425) 290-1300

East Wenatchee, 519 Grant Road, East Wenatchee, WA. 98802, 1-800-292-5920

Kelso, 711 Vine Street, Kelso, WA. 98626-2650, (360) 575-6900

Kennewick, 4310 West 24th Ave., Kennewick, WA. 99338, 1-800-547-9411

Moses Lake, 3001 W. Broadway Ave., Moses Lake, WA. 98837, 1-800-574-2285

Mt Vernon, 525 E College Way, Suite H, Mt Vernon, WA. 98273-5500, (360) 416-3000

Pullman, 1250 Bishop Blvd. Suite G, Pullman, WA. 99163, (509) 334-5296

Seattle, 2111 N. Northgate Way, Suite 300, Seattle, WA. 98133, (206) 515-2800

Sequim, 542 W. Washington Street, Sequim, WA. 98382, (360) 417-2700

Silverdale, 10049 Kitsap Mall Blvd. NW Suite 100, Silverdale, WA. 98383 (360) 308-2800

Spokane, 901 N. Monroe Street Suite 100, Spokane, WA. 99201, (509) 324-2600

Tacoma, 950 Broadway Suite 200, Tacoma, WA. 98402-4453, (253) 596-3800

Tukwila, 12806 Gateway Drive, Tukwila, WA. 98168-1050, (206) 835-1000

Tumwater, 7273 Linderson Way SW, Tumwater, WA. 98501-5414, (360) 902-5799

Union Gap, 1205 Ahtanum Ridge Drive Suite C, Union Gap, WA. 98903, 1-800-354-5423

Vancouver, 312 SE Stonemill Dr., Suite 120, Vancouver, WA. 98684-3508, (360) 896-2300

MINIMIZING FLOOD DAMAGE TO MANUFACTURED HOMES

Quick response can save most flooded manufactured homes from major structural damage, according to the Federal Emergency Agency (FEMA). The following guidelines are recommended:

- Do not delay. Within two weeks, moisture from wet insulation will begin to warp the wood in your home.
- Work with a licensed and bonded contractor experienced with manufactured homes.
- Call your local Labor and Industries (L&I) office to obtain a permit for repairing your manufactured home.
- Make sure that the power is disconnected to the home before attempting any work on the structure.
- Remove most skirting from around the home to allow access and air circulation.
- Cut the belly fabric loose, leaving approximately six-inches from the I-beams in order to reattach the replacement belly fabric after repairs are made. Replace with an approved belly fabric, using an approved spray adhesive.
- Remove all wet insulation on the underside of the home sections(s) drag it out from under the structure and dispose of it permanently. Insulation will not insulate well once it has been soaked. Allow the underside of the home to dry thoroughly before replacing the insulation and belly fabric.
- Remove the wallboard and insulation from the inside of all the exterior walls up to one foot above the high water mark. Disinfect per Health Depart rules. Allow the area to dry thoroughly before replacing the insulation and wallboard.
- If water has entered the belly of the home, the electric wiring has been soaked and must be retested prior to reconnecting the power to the home. Electrical receptacles and motors must be replaced if they have been soaked.
- Call L&I to arrange for any required inspections.

Following the above guidelines will help restore your home to its former condition, and will be far less expensive than replacing a ruined home or replacing wood that has rotted.

HOW DO I REPAIR A FLOODED MANUFACTURED/MOBILE HOME

- Prior to performing any work that live electrical conductors may be involved you must disconnect power to avoid shock.
- Remove "Rodent Barrier" and insulation from under home.
- Spray floor system under home with "Health Department" recommended disinfectant and allow for drying.
- Remove the interior or exterior wall covering one (1) foot above water damage line.
- Remove all insulation at this point, dry thoroughly, spray wall system with "Health Department" recommended disinfectant and allow for drying.
- If furnace was flooded, call a furnace representative for inspection.
- All heat ducts in floor shall be sanitized or replaced.
- If water entered any part of the electrical plug-ins, disconnect power and remove and replace all receptacles affected, including appliance receptacles, e.g., range, dryer, etc. If you are unfamiliar with this process hire a licensed electrical contractor.
- Before replacing installation have an electrical contractor run a "Hi-Pot, Megger or Dielectric" test on all circuits in the home. A copy of an affidavit is required to show that the test was performed by an electrical contractor.
- Replace insulation with new insulation having the same or better "R" factor than was originally installed.
- Prior to re-installing floor and wall coverings the home must be level and moisture content must be at 19 percent or less.
- Call Labor and Industries for inspection of insulation replacement and electrical test verification
- Install "Rodent Barrier" assuring that all seams running with or across the home are taped with approved material, e.g., I-beams and floor penetrations. (Rodent Barrier may be purchased from M/H repair services or manufacturers.)
- Call for final inspection.
- Note: If you have to replace decking (flooring) talk with your contractor / compliance inspector for possible engineering that may be required and contact your county health department for information on treating mold.

A common solution for treating for mold prior to covering is: 1 cup of bleach to 5 gallons of water. Never mix bleach with ammonia or other house hold cleaners. Be sure to open all windows and doors. Wear a face mask while cleaning to prevent breathing in any fumes or mold that may be present. The State Department of Health recommends applying a borate-based detergent solution, without rinsing, as a last step after cleaning and disinfecting. This prevents mold from growing again.

Older Compliance Certificate

MANUFACTURING PLANT

MODULINE INDUSTRIES, INC.
P. O. BOX 1106
CHEHALIS, WA 98532

COMPLIANCE CERTIFICATE

6/15/76
Date of Manufacture
Code 615 S/N 1-4362
Manufacturer's Serial Number and Model Unit Designation
TRADCO

Design approval by (D.A.P.I.A.)

If questions regarding the operation, maintenance, warranty or performance of this mobile home should arise please contact the dealer from whom it was purchased, the manufacturing plant listed below or:

RECEIVED

MAR 22 1977

MOBILE HOME SECTION
SEATTLE, WASHINGTON

Answers to most questions regarding operation, installation, maintenance and design capabilities are found in the appropriate sections of the owner's maintenance and information manual and installation instructions furnished with each mobile home.

This mobile home is designed to comply with the federal mobile home safety standard in force at the time of manufacture.

The factory installed equipment includes:

Equipment	Manufacturer	Model No.	Equipment	Manufacturer	Model No.
For heating	<u>Coleman</u>	<u>3120-751</u>	Washer	—	—
For air cooling	—	—	Clothes Dryer	—	—
For cooking	<u>GE</u>	<u>JBS-16</u>	Dishwasher	—	—
Refrigerator	<u>GE</u>	<u>TB-145</u>	Garbage Disposal	—	—
Water heater	<u>STATE</u>	<u>CRS 42-24</u>	Other	—	—

STRUCTURAL DESIGN BASIS CERTIFICATE



DESIGN ROOF LOAD ZONE MAP

South 20 PSF
 Middle 30 PSF
 North 40 PSF Other ___ PSF /



DESIGN WIND ZONE MAP

Standard Wind Zone I 15 PSF Horizontal 9 PSF Uplift
 Hurricane Resistive Zone II 25 PSF Horizontal 15 PSF Uplift
 Other ___ PSF Horizontal ___ PSF Uplift

HEATING AND COOLING DESIGN BASIS CERTIFICATE



The above heating equipment has the capacity to maintain an average 70° F temperature in this home at outdoor temperatures of -35° F.

To maximize furnace operating economy, and to conserve energy, it is recommended that this home be installed where the outdoor winter design temperature (97%) is not higher than 11° F.

The above information has been calculated assuming a maximum wind velocity of 15 MPH at standard atmospheric pressure.

DESIGN WINTER CLIMATE ZONE

This mobile home has been thermally insulated to conform with the requirements of the Federal Mobile Home Construction and Safety Standards for all locations within climatic Zone I.

Zone II Zone III

Current Home Data Certificate

Manufacturer Address:

Valley Manufactured Housing, Inc.
1717 S. 4th Street
Sunnyside, WA 98944

PLANT NO:
DATE OF MFG: 8/1/2022

HUD Label No. (s)

WAS101709A
WAS101710B

Manufacturer's Serial Number and Model Unit Designation
VMHI2812W226875AB 2812
Design Approval
RADCO

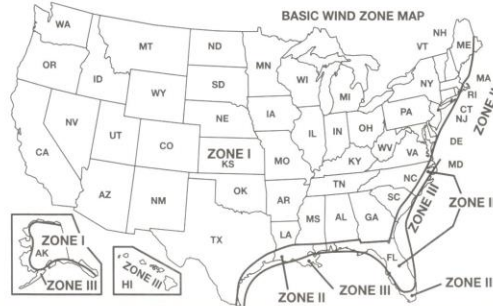
This manufactured home is designed to comply with the Federal Manufactured Home Construction and Safety Standards in force at time of manufacture. The manufacturer certifies this home is compliant with the Title VI, Toxic Substances Control Act.

The factory installed equipment includes:

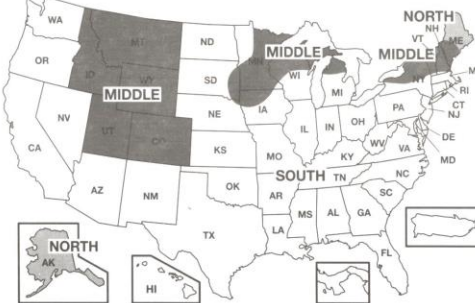
Equipment	Manufacturer	Model Designation
Heating	REVOLV	E7ED-015H1
Air cooling		
Range		
Refrigerator		
Water Heater	RHEEM	PROE50T2RH95
Water Heater		
Clothes Dryer		
Dishwasher		
Garbage Disposal		
Fireplace/Wood Stove		
Cooktop		
Wall Oven		
Microwave		
Spacemaker		

HOME CONSTRUCTED FOR: ZONE I

This home has not been designed for the higher wind pressure and anchoring provisions required for ocean/coastal areas and should not be located within 1500' of the coastline in Wind Zones II and III, unless the home and its anchoring and foundation system have been designed for the increased requirement specified for exposure D in ANSI/ASCE 7-88. This home HAS NOT been equipped with storm shutters or other protective coverings for windows and exterior door openings. For homes designed to be located in Wind Zones II and III, which have not been provided with shutters or equivalent covering devices, it is strongly recommended that the home be made ready to be equipped with these devices in accordance with the method recommended in manufacturers printed instructions.



DESIGN ROOF LOAD ZONE MAP: NORTH 40 PSF



COMFORT HEATING

This manufactured home has been thermally insulated to conform with the requirements of the federal manufactured home construction and safety standards for all locations within U/O value zone 3. (See map at bottom) Heating equipment manufacturer and model (see list at left). The above heating equipment has the capacity to maintain an average 70 degrees F temperature in this home at outdoor temperatures of -53 degrees F. To maximize furnace operating economy, and to conserve energy, it is recommended that this home be installed where the outdoor winter design temperature (97.1/2%) is not higher than -16 degrees Fahrenheit.

The above information has been calculated assuming a maximum wind velocity of 15 mph at standard atmospheric pressure.

This area intentionally left blank.

COMFORT COOLING

Air conditioner not provided at factory

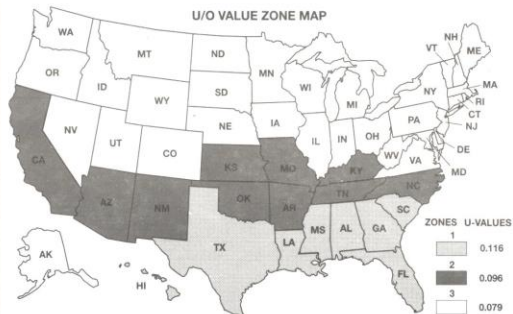
The air distribution system of this home is suitable for the installation of central air conditioning. The supply air distribution system installed in this home is sized for a manufactured home central air conditioning system of up to B.T.U./hr. rated capacity which are certified in accordance with the appropriate air conditioning and refrigeration institute standards, when the air circulators of such air conditioners are rated at 0.3 inch water column static pressure or greater for the cooling air delivered to the manufactured home supply air duct system. Information necessary to calculate cooling loads at various locations and orientations is provided in the special comfort cooling information provided with this manufactured home.

This manufactured home IS NOT designed to accommodate the additional loads imposed by the attachment of an attached accessory building or structure in accordance with the manufacturer installation instructions.

To determine the required capacity of equipment to cool a home efficiently and economically, a cooling load (heat gain) calculation is required. The cooling load is dependent on the orientation, location and the structure of the home. Central air conditioners operate most efficiently and provide the greatest comfort when their capacity closely approximates the calculated cooling load. Each home's air conditioner should be sized in accordance with the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Handbook of Fundamentals 1997 edition, once the location and orientation are known.

INFORMATION PROVIDED BY THE MANUFACTURER
NECESSARY TO CALCULATE SENSIBLE HEAT GAIN

Walls (without windows and doors).....	"U"	.058
Ceilings and roofs of light color.....	"U"	.025
Ceilings and roofs of dark color.....	"U"	.03
Floors.....	"U"	.032
Air ducts in floor.....	"U"	.053
Air ducts in ceiling.....	"U"	
Air ducts installed outside the home.....	"U"	.12
The following are the duct areas in this home:		
Air ducts in floor.....	110.	sq. ft
Air ducts in ceiling.....		sq. ft
Air ducts outside the home.....	13.3	sq. ft



ED-71 ©2006 Dec-O-Art, Inc. 03/06

The newer Data Certificates will disclose whether the home is/is not designed to accommodate the additional loads imposed by the attachment of an attached accessory building or structure in accordance with the manufacturer installation instructions.

**MANUFACTURED HOME HUD LABEL
June 15, 1976 to CURRENT**

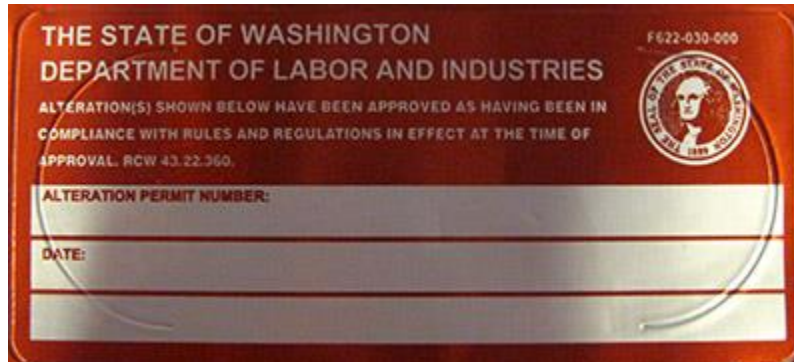


Housing Urban Development (HUD) provides these labels to the manufactured housing manufacturers. The labels are affixed to each transportable section of each manufactured home for sale or lease in the United States. This red 2-inch by 4-inch label shall be located at the tail-light end of each transportable section approximately one foot up from the floor and one foot in from the road side. (The road side is the right side of the manufactured home when one views the home from the tow bar end of the home.) These labels signify that the home was built in compliance with the CFR24 Manufactured Home Construction and Safety Standards.

The first three-letter indicate state of manufacturer, RAD, NTA, & ULI are third party agencies that you may find from time to time that are produced in states using third party agencies such as Oregon and California.

'WAS'	Washington
'ORE'	Oregon
'IDA'	Idaho
'RAD'	RADCO
'NTA'	ICC NTA, LLC
'ULI'	Underwriters Laboratories

MANUFACTURED HOME ALTERATION INSIGNIA 2010 to CURRENT



CODING FOR MANUFACTURED HOME ALTERATION INSIGNIAS

Insignias for alterations to manufactured/mobile homes shall be completed as follows:

1. ALTERATION PERMIT NUMBER: The Factory Permit number designation either (FP) for purchase at local L&I office or (F) designation for purchasing on line.

2. DATE OF INSPECTION:

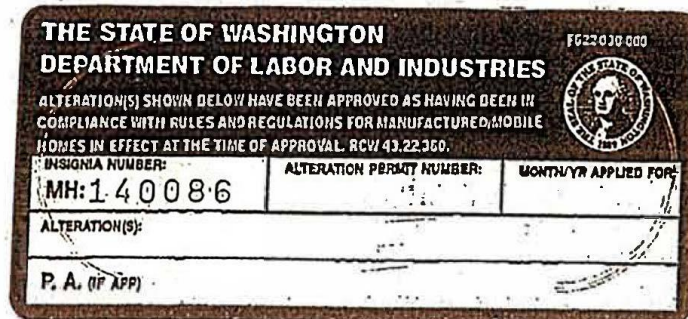
3. ALTERATION(S):

Type in, using the following list, the type of inspection(s) to be done:

	Type of inspection	Description to be used on insignia
A.	Air Conditioning	AC
B.	Heat Pump	HP
C.	Electrical	EL
D.	Electrical Appliances	ELAP
E.	Fire Safety	AIFS
F.	Gas Furnace	G/F-A
G.	Gas Piping	GIP
H.	Plumbing	PL
I.	Structural	ST
J.	Wood Stove	WA
K.	Pellet Stove	PS

The insignia label is affixed on or near the HUD label at the rear of the home. This insignia signifies that the inspection was approved by the Department of Labor and Industries.

**MANUFACTURED HOME ALTERATION INSIGNIA
1998 - 2010 (approximately)**



CODING FOR MANUFACTURED HOME ALTERATION INSIGNIAS

Insignias for alterations to manufactured/mobile homes shall be completed as follows:

1. ALTERATION PERMIT NUMBER:
Type in the permit number # _____ as shown on the "Alteration Permit" form.
2. MONTH/YEAR APPLIED FOR:
Type in the date the permit was entered into the system.
3. ALTERATION(S):
Type in, using the following list, the type of inspection(s) to be done.

Type of inspection	Description to be used on insignia
A. Air Conditioning	AC
B. Heat Pump	HP
C. Electrical	EL
D. Electrical Appliances	ELAP
E. Fire Safety	A/FS
F. Gas Furnace	G/F-A
G. Gas Piping	G/P
H. Plumbing	PL
I. Structural	ST
J. Wood Stove	WA
K. Pellet Stove	PS

4. P.A. = Plan Approval Number (if applicable):
Type in the plan approval number if a plan approval is required.

NOTE: if the plan approval number is required but not available, leave blank.

**MANUFACTURED HOME ALTERATION INSIGNIA
JUNE 16, 1976 to 1998**



**ABBREVIATION USED ON MANUFACTURED/MOBILE HOME
ALTERATION INSIGNIAS**

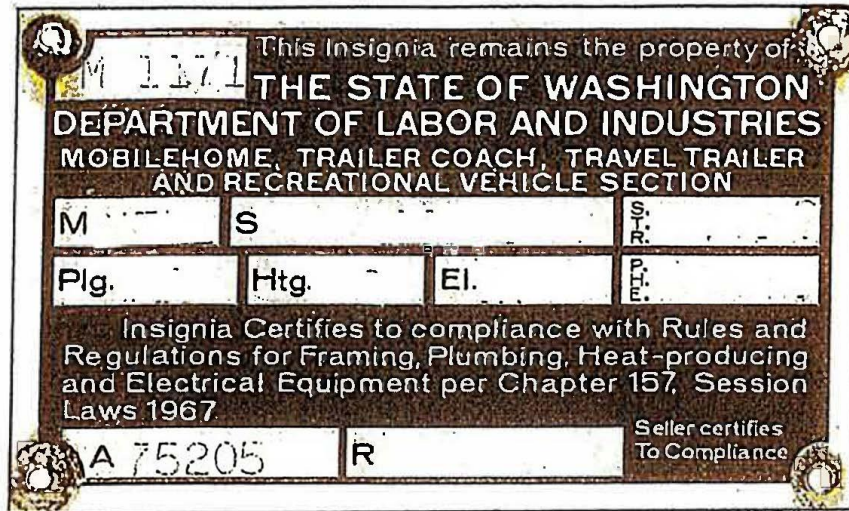
- MH Department Serial Number. (Preprinted)
S Date and Type of Alteration (see below for abbreviations of type)

<u>Type of inspection</u>	<u>Description to be used on insignia</u>
A. Air Conditioning	AC
B. Heat Pump	HP
C. Electrical	EL
D. Electrical Appliances	ELAP
E. Fire Safety	A/FS
F. Gas Furnace	G/F-A
G. Gas Piping	G/P
H. Plumbing	PL
I. Structural	ST
J. Wood Stove	WA
K. Pellet Stove	PS

Housing Urban Development (HUD) provides these labels to the manufactured housing manufacturers. The labels are affixed to each transportable section of each manufactured home for sale or lease in the United States. This 2-inch by 4-inch label shall be located at the tail-light end of each transportable section approximately one foot up from the floor and one foot in from the road side. (The road side is the right side of the manufactured home when one views the home from the tow bar end of the home.) These labels signify that the home was built in compliance with the CFR24 Manufactured Home Construction and Safety Standards.

NOTE: On some insignias the type of alteration description was typed in the space between "THIS INSIGNIA ... LABOR AND INDUSTRIES" and "APPROVED AS ..."

**MOBILE HOME INSIGNIA AND ALTERATION INSIGNIA
JULY 1, 1970 to JUNE 30, 1975**

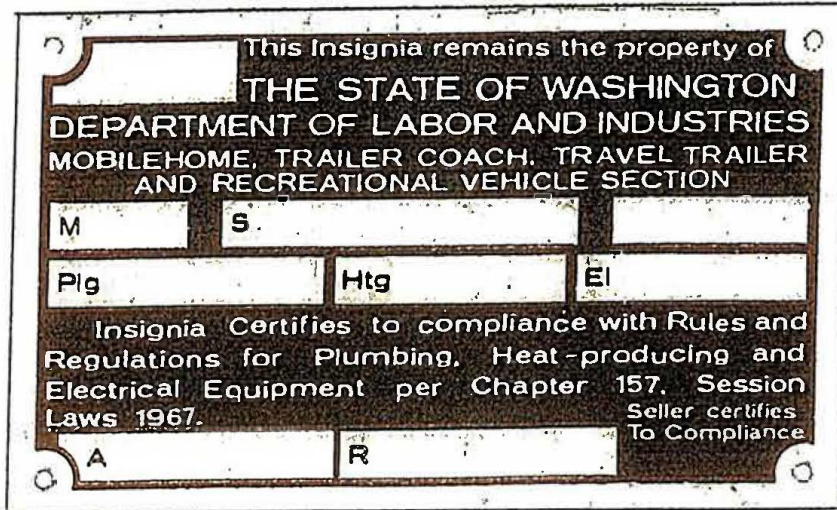


**ABBREVIATIONS USED ON MOBILE HOME INSIGNIAS AND ALTERATION
INSIGNIAS -July 1, 1970 through June 30, 1975**

NEWLY MANUFACTURED MOBILE HOMES:

Upper left corner	M (stamped) Mobile Home MXXX "X's" are month and year of insignia issuance
M	Manufacturer (usually abbreviated with three letters)
S	Manufacturer's Serial Number
S.T.R.	Structural. First two numbers are the width of the unit (when assembled) and the second two numbers are the roof load in pounds per square foot.
Plg.	Plumbing ("X" equals yes and "No" equals none)
Htg.	Heating ("X" equals yes and "No" equals none)
El.	Electrical. ("X" equals yes)
P.H.E.	Numbers were the plan approval number
A	Department Serial Number
R	Not used

**MOBILE HOME INSIGNIA AND ALTERATION INSIGNIA
JULY 1, 1968 to JUNE 30, 1970**



**ABBREVIATIONS USED ON MOBILE HOME INSIGNIAS AND ALTERATION
INSIGNIAS -July 1, 1968 through June 30, 1970**

NEWLY MANUFACTURED MOBILE HOMES:


Upper left corner	M (stamped) Mobile Home MXXXX "X's" are month and year of insignia issuance
M	Manufacturer (usually abbreviated with three letters)
S	Manufacturer's Serial Number
Blank Space	
Plg.	Plumbing ("X" equals yes and "No" equals none)
Htg.	Heating ("X" equals yes and "No" equals none)
El.	Electrical. ("X" equals yes)
P.H.E.	Numbers were the plan approval number
A	Department Serial Number
R	Not used

**FACTORY-BUILT HOUSING TEMPORARY WORKER HOUSING
INSIGNIA (SILVER LABEL DOH)
1999 to CURRENT**

THE STATE OF WASHINGTON
DEPARTMENT OF LABOR AND INDUSTRIES

F622-042-000

INSPECTED AND APPROVED TO THE RULES AND REGULATIONS FOR TEMPORARY WORKER HOUSING, RCW 43.22.480. A TEMPORARY WORKER HOUSING UNIT BEARING A DEPARTMENT INSIGNIA SHALL NOT HAVE ITS CONSTRUCTION, PLUMBING, MECHANICAL OR ELECTRICAL EQUIPMENT AND INSTALLATIONS ALTERED UNLESS APPROVAL IS FIRST OBTAINED FROM THE DEPARTMENT OF HEALTH. SELLER CERTIFIES TO COMPLIANCE OF UNIT.



TWH	PO	OP	P.A.	D
MSN	DSN T1358		MEETS ACCESSIBILITY REQUIREMENTS OF STATE BUILDING CODE? <input type="checkbox"/> YES <input type="checkbox"/> NO	
RF	W	ESL	P	AC
				HTG
			<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO

**ABBREVIATIONS USED ON TEMPORARY WORKER HOUSING
(SILVER LABEL DEPARTMENT OF HEALTH)**

TWH	
PD	Pod of Pod (e.g. - 1 of 3, 2 of 3 etc.)
OP	Place of Origin (State where manufactured)
P.A.	Plan Approval Number
D	Date insignia prepared
MSN	Manufacturer's serial number
Accessibility	Meets accessibility requirements (Yes/No)
RF	Roof Load
W	Wind Load
ESL	Electrical Service Load in Amps
P	Number of Plumbing Fixtures
AC	Air Conditioning (Yes/No)
HTG	Heating System Installed (Yes/No)

NOTE: These dwelling units may appear from the exterior to look like a manufactured home.

**FACTORY-BUILT HOUSING AND COMMERCIAL STRUCTURES
INSIGNIA (GOLD LABEL IBC)
1995 to CURRENT**

THE STATE OF WASHINGTON DEPARTMENT OF LABOR AND INDUSTRIES RULES AND REGULATIONS OF FACTORY-BUILT HOUSING, RCW 43.22.450. SELLER CERTIFIES TO COMPLIANCE.							F623-009-000
FBS 55596				D			
M	MSN			UBC/PLAN APP			
PD				OP			
OG	TC	IS	SUB-YR	SEC-YR	ESL		
RF	W	SEISMIC ZONE	TD	HTG	AC	P	

**ABBRVIATIONS USED ON FACTORY-BUILT HOUSING AND COMMERCIAL
STRUCTURES (GOLD LABEL IBC)**

DSN	Department Serial Number (Preprinted)
D	Date insignia prepared
M	Manufacturer's Factory-Built Housing or Commercial Structures (IBC-IRC) identification number
MSN	Manufacturer's serial number
UBC/PLAN APP	UBC/Plan approval number
PD	Pod of Pod (e:g, - 1 of 3, 2 of 3 etc.)
OP	Place of Origin (State where manufactured)
OG	Occupancy Group
TC	Type of Construction
IS	Incomplete Systems (Structural, Mechanical, Plumbing, Energy, Electrical)
SUB-YR	State of Building Code Year
SEC-YR	State Electrical Code Year
ESL	Electrical Service Load in Amps
IES	Incomplete Electrical System
RF	Roof Load
W	Wind Load
Seismic "Zone"	Seismic Zone
Seismic "Soil Type"	Soil type used when doing the seismic zone calculations
TD	Temperature Differential
HTG	Type of Heating (Electric, Gas, etc.)
AC	Air Conditioning (Yes/No)
P	Number of Plumbing Fixtures

PLASTIC DRAIN, WASTE & VENT FITTINGS
DRAIN FITTINGS



CLEANOUT TEE



SANITARY TEE



DOUBLE SANITARY TEE



WYE



1/4 BEND



1/4 BEND
W/ LOW HEEL INLET



LONG SWEEP 1/4 BEND



1/8 BEND



1/16 BEND



LONG TURN TEE WYE



DOUBLE LTTY



DBL FIXTURE FITTING



DOUBLE WYE



P-TRAP



REDUCING CLOSET BEND



CLOSET FLANGE

VENT ONLY FITTINGS



VENT TEE



DOUBLE VENT TEE



VENT ELL



DOUBLE 1/4 BEND

UPC Illustrated Training Manual

In a drainage system, the flow of liquid waste and sewage is constantly changing direction on its way to the public sewer or private sewage disposal system. Due to the laws of gravity, the flow in vertical piping will be much faster than the flow in horizontal piping of the same size. For efficient operation, it is necessary to make changes of direction in such a manner as to limit disruption of flow. There are provisions for three possible conditions:

1. Flow from a vertical pipe into a horizontal pipe.
2. Flow from a horizontal pipe into a vertical pipe.
3. Flow from a horizontal pipe into another horizontal pipe.

The chart in Figure 7-17 identifies the proper fittings to use in these conditions.

706.2 Horizontal drainage lines, connecting with a vertical stack, shall enter through 45 degree (0.79 rad) wye branches, 60 degree (1.05 rad) wye branches, combination wye and one-eighth (1/8) bend branches, sanitary tee or sanitary tapped tee branches, or other approved fittings of equivalent sweep. No fitting having more than one (1) inlet at the same level shall be used unless such fitting is constructed so that the discharge from one (1) inlet cannot readily enter any other inlet. Double sanitary tees shall be permitted to be used when the barrel of the fitting is not less than two (2)

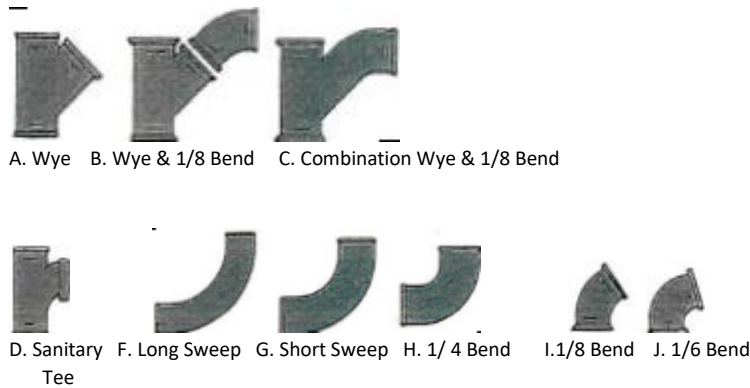


Figure 7-17

Fittings for Changes of Direction of Flow

Type of Fitting	Horizontal to Vertical	Vertical to Horizontal	Horizontal to Horizontal
Wye	X	X	X
Wye and 1/8 bend or combination wye and 1/8 bend	X	X	X
Sanitary Tee	X		
Long Sweep	X	X	X
Short Sweep	X	X	X
Quarter Bend	X		
1/8 Bend	X	X	X
1/6 Bend	X	X	

Note:

Approved for use where connecting horizontal branches (see Section 706.2). Prohibited for use where connecting fixture wastes or trap arms (see Section 704.2)

2009 UPC ITM

**INSTALLATION STANDARDS FOR
PVC COLD WATER BUILDING SUPPLY AND YARD PIPING
IAPMO IS 8-2006**

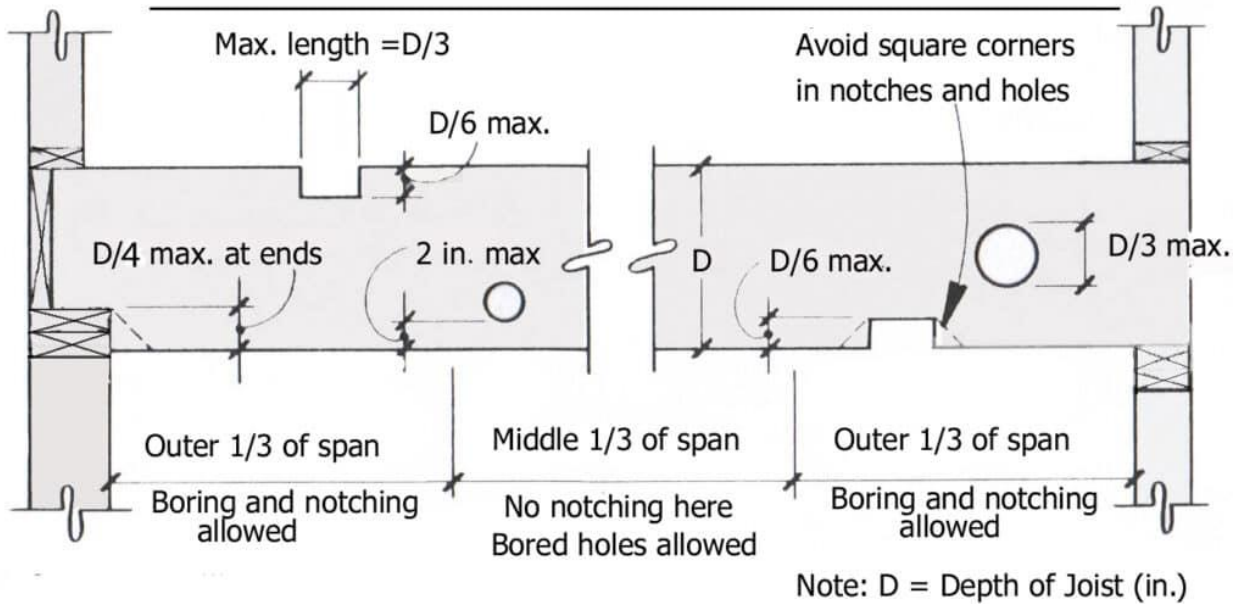
2.4.4 Exposed Piping. Vertical piping may extend a maximum of 24 in. (610mm) above grade when located on the exterior of the building or structure and protected from mechanical damage to the satisfaction of the Administrative Authority. Where exposed to sunlight, the pipe shall be wrapped with at least 0.040in. (1.0 mm) of tape or otherwise protected from UV degradation.

2.7 Material

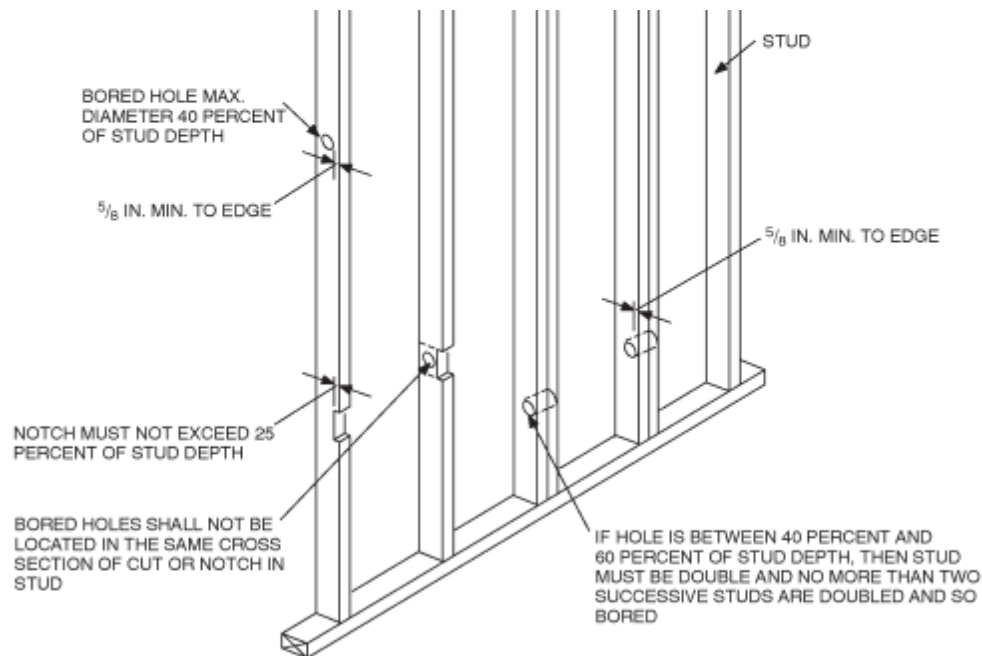
2.7.1 Location. PVC piping shall be installed only outside the foundation of any building or structure or parts thereof. It shall be buried in the ground for its entire length except vertical piping may be extended above grade per Section 2.4.4. It shall not be installed within or under any building or structure or mobile home or commercial coach or parts thereof. The term "building or structure or parts thereof" shall include structures such as porches and steps, whether roofed or not, roofed porte-cocheres, roofed patios, carports, covered walks, covered driveways and similar structures or appurtenances. [UPC 604.0]

Guide to Notching and Boring Joists

Joist Size	Max. Hole	Max. Notch Depth	Max. End Notch
2x4	None	None	None
2x6	1-1/2	7/8	1-3/8
2x8	2-3/8	1-1/4	1-7/8
2x10	3	1-1/2	2-3/8
2x12	3-3/4	1-7/8	2-7/8



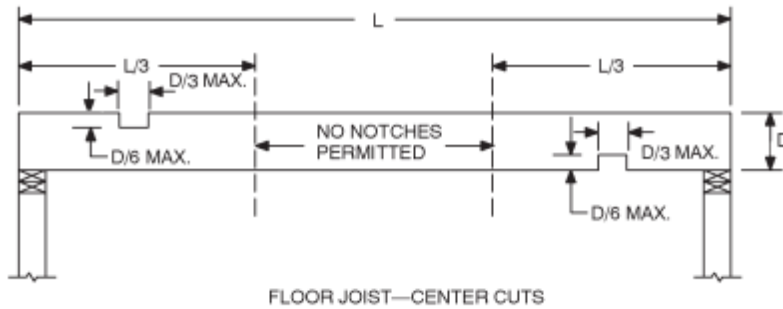
MAXIMUM ALLOWABLE NOTCHING AND DRILLING FOR NORMAL CONSTRUCTION WITH 2X4 STUD



R602.6 Drilling and notching - studs. Any stud in an exterior wall or bearing partition may be cut or notched to a depth not exceeding 25 percent of its width. Studs in nonbearing partitions may be notched to a depth not to exceed 40 percent of a single stud width. Any stud may be bored or drilled, provided that the diameter of the resulting hole is no greater than 40 percent of the stud width, the edge of the hole is no closer than $\frac{5}{8}$ inch (15.9 mm) to the edge of the stud, and the hole is not located in the same section as a cut or notch.

Exception: A stud may be bored to a diameter not exceeding 60 percent of its width, provided that such studs located in exterior walls or bearing partitions are doubled and that not more than two successive studs are bored.

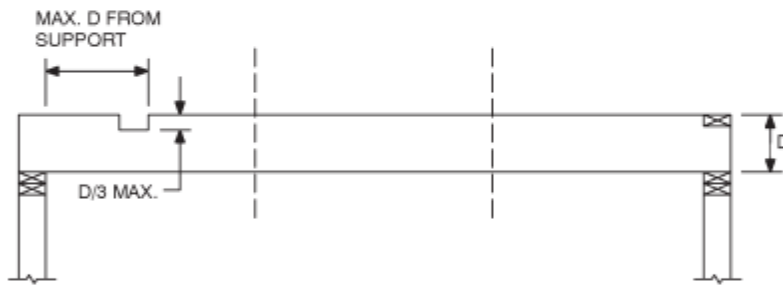
CUTTING, NOTCHING AND DRILLING



FLOOR JOIST—CENTER CUTS



FLOOR JOIST—END CUTS



RAFTER/CEILING JOISTS (R802.7.1)

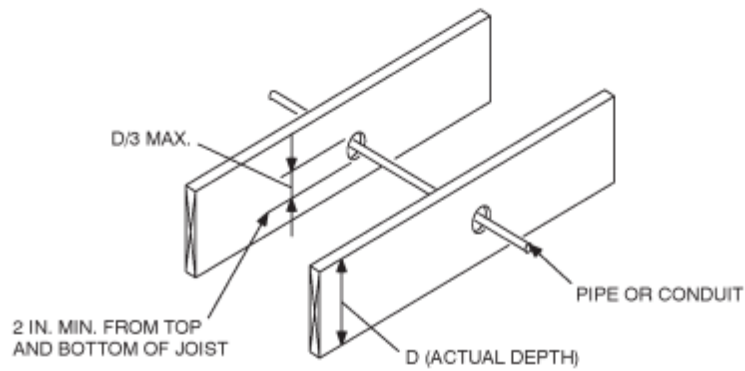


FIGURE 502.8
CUTTING, NOTCHING AND DRILLING

STATE OF WASHINGTON

DEPARTMENT OF LABOR AND INDUSTRIES

INSTRUCTIONS: How to Use Your Installer Certification Tags

Enclosed are the Manufactured Home Installer Certification Tags that you ordered. Please follow the instructions below for their use.

Completing the tag: Use either a hole punch or permanent marker to indicate the installation work performed. Be sure to note the certification tag number and work performed for your records and for completing the tag report. Enter your WAINS number in the appropriate box. To ensure no uncertified installer uses your tag, draw a line through the work you will not be performing. Be sure to report the tag information on the Tag Report.

Installers who certify their own work on a home installation: By placing the certification tag on the home, you are certifying the work indicated on the certification tag has been completed in accordance with the Washington Installation Code, WAC 296-150I.

Installers who supervise the work of an installation crew: By placing the certification tag on the home, you are certifying that all work indicated on the certification tag has been supervised by you and was completed in accordance with the Washington Installation Code, WAC 296-150I.

Placement: Pursuant to WAC 296-150I-0160, the installer certification tag must be placed on the home upon completion and prior to inspection by the local enforcement agency. There are two options for tag location. The first and preferred option is to place the tag on the end of the home section directly above or below the HUD certification label. The second option is to temporarily locate the tag in plain sight within three feet of the home's front entry. If the local enforcement agency cannot find the tag, they will not issue final approval of the home's installation.

Removal: Only the homeowner may remove installer certification tags once they have been placed on the home. The homeowner should be instructed regarding the importance of retaining the tag in their records.

The role of the local enforcement agency: The local enforcement agency is required to inspect all manufactured home installations and ensure the installer certification tag has been placed on the home accounting for all work performed on the home.

Tag Reporting: Monthly reporting of certification tag use is required. See the instructions on completing the tag report that were sent with your report forms.

Call Charles Parton at (509) 454-3785 if you have questions regarding tag use or reporting, or have questions regarding installer certification in general.

STATE OF WASHINGTON

DEPARTMENT OF LABOR AND INDUSTRIES

INSTRUCTIONS: How to Complete Your Certification Tag Report

Certified installers are required to submit a monthly report on the 15th of each month for all certification tags used the prior month. Example: If you installed 10 homes in July, the report would be due August 15. If no certification tags were used, it is not necessary to file a report. If a tag is lost or stolen, record the loss on the report.

It is important to keep track of the certification tags you use. We suggest using your certification tags in sequential order for easier tracking. It may be helpful to attach a blank tag report to your installer tag and keep it in the field so information can be entered at the time of installation. The information from the field copies would then be transferred onto one form to submit.

The report must be typewritten or printed neatly. It is important that the report is complete and readable. Incomplete or unreadable reports will be returned to the installer for correction. An electronic version of the tag report form is available upon request. Contact our office at 800-647-0982, Option 5, or email at installersaprogram@lni.wa.gov to request the electronic version. Reports may be sent via mail, fax or email.

Do not use tags that were issued to another installer without prior written approval to transfer the tags from the Installer Training and Certification Program. Using another installer's tag is an infraction.

KEEP A COPY OF THE REPORT FOR YOUR RECORDS.

Reporting Month/Year – Enter the month and year the installation work was performed.

Installer Name – Enter the installer's name as it appears on his/her certification. **Do not enter the company name.** The name must be the installer who was issued the tags.

Mailing Address – Enter the installer's current mailing address.

Phone – Enter the installer's current contact phone number.

Installer Certification Tag # - Enter the certification tag number that appears at the top of the tag.

MFR Code – Locate the appropriate manufacturer code from the shaded area on the report and enter the information in this space. If the code is "other", you must specify the manufacturer's name in the blank space next to "other" on the form.

MFR Serial # - Enter the complete manufacturer's serial number for the home. **Do not use the HUD certification label number.** The manufacturer's serial number is located on the home's data plate, usually in a kitchen cupboard, bedroom closet, or utility room door. If you do not have access to the data plate information, the serial number is stamped into the headboard under the home on the left-hand corner of each unit or section. The headboard is a large metal crossbeam.

Building Jurisdiction – Enter the jurisdiction that issued the placement or installation permit.

Retailer – Enter the retailer that sold the home. If purchased from a private party, enter "private party."

Work Performed Codes – Enter the codes for all work performed by or under the supervision of the reporting installer. *(These codes should match the work that was checked on the certification tag.)* If the work performed code is a combination, i.e. "Mechanical/Plumbing Connections" and you only performed one aspect of the work, circle the work that you performed.

Install Date – Enter the date the home installation work began.

Owner's Name – Enter the last name of the homeowner, first name if available.

Site Address – Enter the site address where the installation work was performed.

Signature – The certified installer must sign the report; no other signatures will be accepted.

Certification Number - List the certified installer's certification number.

Date – Enter date report completed.



Miscellaneous Appendix D
Installer Certification Tag Order Form

Installer Training and Certification Program
 PO Box 44420
 Olympia WA 98504-4420
 Phone: 1-800-705-1411 (Option 3)

Print clearly or type

Installer Name	
Certification Number	Phone Number

Ship Tags To:

Company (if applicable)		
Street or PO Box Address		
City	State	Zip Code

Companies/Retailers who purchase tags for an employee must complete the section below:

Company Name	
Contact Person (<i>if other than installer</i>)	Contact Phone Number

Quantity		Fee		Total
_____	X	\$11.00 Each	=	_____

NOTE: Certified installers can have a maximum of 30 unreported certificate tags at any time. Call our office at the number above if you are ordering tags and uncertain about your unreported tag balance.

Make checks or money order payable to: **Department of Labor & Industries** and mail to:

Installer Training and Certification Program
 PO Box 44420
 Olympia WA 98504-4420

It's important to include the complete mailing address to avoid a delay in receiving your order.

For L&I Use Only

Staff Initials	Cert Verified	Issue Date	Tag #s Issued (<i>beginning and ending</i>)
Notes:			



Manufactured Home Installer's Monthly Certification Tag Report

Installer Training and certification Program
PO Box 44420
Olympia WA 98504-4420

Phone: 1-800-705-1411 (Option 3)

www.Lni.wa.gov

Reporting Month	Reporting Year	Installer Name	Phone Number
Mailing Address			
City	State	Zip Code	

Manufacturer CodinQ				Work Performed Codes		
AHI	American Homestar ID	GUO	Guerdon OR	RMO	Redman OR	CC - Concrete Pads/Runners
AHO	American Homestar OR	HB	Homebuilders NW	SEC	Silvercrest CA	SC - Structural Connections (marriage lines, roof cap, etc)
CH	Champion	KA	Karston CA	SCO	Silvercrest OR	AS - Anchoring System (tie-down)
FWC	Fleetwood CA	KIT	Kit Mfg	SLC	Skyline CA	MP - Mech./Plumbing (if performed by certified installer)
FWI	Fleetwood ID	LB	Liberty	SLO	Skyline OR	FS - Foundation Support System (footing/piers)
FWO	Fleetwood OR	ML	Marlette	SU	Summit CO	SV - SkirtingNents/Access
FWW	Fleetwood WA	MD	Moduline	VA	Valley	ER - Earthquake Resis. Bracing System
FW	Fuqua	NA	Nashua	OTHER		
GWO	Golden West OR	PH	Palm Harbor			
GUI	Guerdon ID	RMI	Redman ID			

Installer Cert. Tag#	MFR Code	MFR Serial#	Building Jurisdiction	Retailer
Work Pert Codes	Install Date	Owner's Last Name	Site Address	

Installer Cert. Tag#	MFR Code	MFR Serial#	Building Jurisdiction	Retailer
Work Pert Codes	Install Date	Owner's Last Name	Site Address	

Installer Cert. Tag#	MFR Code	MFR Serial#	Building Jurisdiction	Retailer
Work Pert Codes	Install Date	Owner's Last Name	Site Address	

Installer Cert. Tag#	MFR Code	MFR Serial#	Building Jurisdiction	Retailer
Work Pert Codes	Install Date	Owner's Last Name	Site Address	

Reports may be emailed to FAS1@Lni.wa.gov or you may print, sign, and mail the report to the address listed at the top of this form.

Signature

I hereby certify that each installer certification tag used has been properly reported and the information in this report is correct to the best of my knowledge.

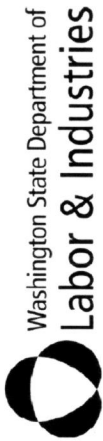
Print Name

Signature

Certification Number

Date

F622-078-000 Monthly Certification Tag Report



Manufactured Home Installer Certification Tag Transfer Request Form

Installer Training and Certification Program
 PO Box 44420
 Olympia WA 98504-4420

Email: FAS1@Lni.wa.gov

Complete the information below to request a tag transfer. Installer certification tags will be issued only to currently certified installers. Each tag has a unique imprinted number associated to a certified installer in the Installer Database. Installers can be issued up to 30 tags and can not have more than 30 unreported tags at any time. If you have any questions, please contact the Installer Program at 1-800-705-1411, option 3.

Please print clearly or type.

Tag #	Certified Installer	Certification #	Certified Installer	Certification #
Transfer	from		to	
Transfer	from		to	
Transfer	from		to	
Transfer	from		to	
Transfer	from		to	
Transfer	from		to	
Transfer	from		to	
Transfer	from		to	
Transfer	from		to	

Prepared by: _____

Print Name _____ Certification Number or Company Name _____ Phone Number _____

For L&I Office Use Only

Cert Verified # Unreported Tags Verified

Tag Numbers _____

Notes:

Date Transfer Approved _____



Manufactured Home Installer Continuing Education Registration Form

Factory Assembled Structures
PO Box 44420
Olympia WA 98504-4420

1-800-705-1411 (Option 3)
www.Lni.wa.gov

Make check or money order payable to: **Department of Labor & Industries** and mail to the address listed on this form.

Type or print clearly.

Applicant Information

Mr. Mrs. Ms.

Applicant Name (First, Middle Initial, Last)		Phone Number	
Mailing Address		Email Address	
City	State	Zip Code	

I am the owner OR an employee of the following business:

Business Name	Email Address
Certification Number (Your installer certification must be current in order to take this training)	

- Continuing Education Fee (GL Code 811) Fee: **\$64.10**
 MH Installer Manual on flash drive (GL Code 812) Fee: **\$15.90**

Class Preference

Indicate which option you would like:

Virtual Training Date: _____

Home Test Email Address (required): _____

Note: Home Tests will be emailed to the address listed. For this to count towards CE credit, a score of 70% or above is needed.

For L&I Use Only	
Location/Date/Session	
Payment Received?	<input type="checkbox"/> Show <input type="checkbox"/> No Show
Confirmation Mailed	Certificate Mailed

Application for Manufactured Home Installer Certification Renewal

Factory Assembled Structures
PO Box 44420
Olympia WA 98504-4420
1-800-701-1411 (Option 3)
www.Lni.wa.gov

Please print clearly or type.

1. Type of Application

Installer Certification Renewal **\$160.80** (GL Code 810)

2. Applicant Information

Mr. Mrs. Ms.

Applicant Name (First, Middle Initial, Last)	Phone Number	
Mailing Address	Email Address	
City	State	Zip Code

3. Certification Information

Installer Certification Number	Social Security Number	
(Required pursuant to RCW 26.23.150 and federal law PL 104-193 .)		
Completion of continuing education required to renew certification.		
	Date	Location
<input type="checkbox"/> Attending continuing education class on:		
<input type="checkbox"/> Registered to attend continuing education class on:		

I am the owner an employee of the following business:

Business Name	Phone Number
Contractor Registration Number (if applicable)	

I certify that all information on this application is true and correct to the best of my knowledge.

Printed Name

Signature

Date

*Make check or money order payable to: **Department of Labor & Industries** and mail to the address listed above.*

Application for Manufactured Home Installer Training and Certification

Factory Assembled Structures
PO Box 44420
Olympia WA 98504-4420

1-800-705-1411 (Option 3)
www.Lni.wa.gov

Make check or money order payable to: **Department of Labor & Industries** and mail to the address listed on this form.

Type or print clearly.

1. Type of Application (Check the appropriate box)

<input type="checkbox"/> Training & Certification Exam (Digital (PDF) manual included)	\$321.80	<input type="checkbox"/> Training Manual on Flash Drive (GL Code 812)	\$15.90
<input type="checkbox"/> Training Only – Includes Homeowner (Digital (PDF) Manual Included) — GL Code 812	\$160.80	<input type="checkbox"/> Retake Failed Exam & Training (GL Code 817)	\$48.10

2. Application Information (All applicants must complete)

Mr. Mrs. Ms.

Applicant Name (First, Middle Initial, Last)		Phone Number	
Mailing Address		Email Address	
City	State	Zip Code	
Type of ID	Birth Date	Social Security Number	
<input type="checkbox"/> Driver's License Number	<input type="checkbox"/> Gov't Issued ID Number		
Required pursuant to RCW 26.23.150 and federal law PL 104-193			

3. Certification Information (Applicants for certification and certification renewal must complete this section)

Have you previously been certified to install manufactured homes in Washington state?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If 'YES' , list your certification number _____		
If 'NO' , list your experience below. Six months installation experience under direct supervision of certified manufactured home installer or 2 years residential or commercial construction required.		
<input type="checkbox"/> I have _____ <input type="checkbox"/> months <input type="checkbox"/> years of installation experience under the direct supervision of a certified manufactured home installer.		
<input type="checkbox"/> I have _____ years _____ months of residential or commercial construction experience.		

I am the owner an employee of the following business:

Business Name	Phone Number
Contractor Registration Number (if applicable)	

4. Class Preference (The PDF manual, training video and ZOOM links will be sent via email – please ensure you provide a valid email and home address.)

Location	Date
----------	------

NOTE: All applicable information must be completed for the application to be processed.

I certify that all information on this application is true and correct to the best of my knowledge.

{COMPANY LETTERHEAD}

Installation of Manufactured Home Using CFR 24 Model Code 3285

I hereby certify that the original manufactured home installation manual for this home is not available and CFR 24 Model Code 3285 will now be used for the installation of this home at the address sited below. This information is true and accurate to the best of my knowledge and belief.

Site Address: _____

Homeowner: _____

Address: _____

City: _____ Zip Code: _____

Phone Number: _____ Email Address: _____

Certified Installer's Name: _____

Certification Number: _____

By: _____
(Signature of Certified Installer)

Date: _____

(Print or type name and official capacity of signatory)

This affidavit must be available for the inspector prior to when the inspection is made.
WAC 296-150I-0380

SECTION R109 INSPECTIONS

R109.1 Types of inspections.

For on-site construction, from time to time the building official, upon notification from the permit holder or his agent, shall make or cause to be made any necessary inspections and shall either approve that portion of the construction as completed or shall notify the permit holder or his or her agent wherein the same fails to comply with this code.

R109.1.1 Foundation inspection.

Inspection of the foundation shall be made after poles or piers are set or trenches or basement areas are excavated and any required forms erected and any required reinforcing steel is in place and supported prior to the placing of concrete. The foundation inspection shall include excavations for thickened slabs intended for the support of bearing walls, partitions, structural supports, or equipment and special requirements for wood foundations.

R109.1.2 Plumbing, mechanical, gas and electrical systems inspection.

Rough inspection of plumbing, mechanical, gas and electrical systems shall be made prior to covering or concealment, before fixtures or appliances are set or installed, and prior to framing inspection.

Exception: Backfilling of ground-source heat pump loop systems tested in accordance with Section M2105.28 prior to inspection shall be permitted.

R109.1.3 Floodplain inspections.

For construction in flood hazard areas as established by Table R301.2(1), upon placement of the lowest floor, including basement, and prior to further vertical construction, the building official shall require submission of documentation, prepared and sealed by a registered design professional, of the elevation of the lowest floor, including basement, required in Section R322.

R109.1.4 Frame and masonry inspection.

Inspection of framing and masonry construction shall be made after the roof, masonry, framing, firestopping, draftstopping and bracing are in place and after the plumbing, mechanical and electrical rough inspections are approved.

R109.1.5 Other inspections.

In addition to inspections in Sections R109.1.1 through R109.1.4, the building official shall have the authority to make or require any other inspections to ascertain compliance with this code and other laws enforced by the building official.

R109.1.5.1 Fire-resistance-rated construction inspection.

Where fire-resistance-rated construction is required between dwelling units or due to location on property, the building official shall require an inspection of such construction after lathing or gypsum board or gypsum panel products are in place, but before any plaster is applied, or before board or panel joints and fasteners are taped and finished.

SECTION R109 INSPECTIONS

R109.1.6 Final Inspection.

Final inspection shall be made after the permitted work is complete and prior to occupancy.

R109.1.6.1 Elevation documentation.

If located in a flood hazard area, the documentation of elevations required in Section R322.1.10 shall be submitted to the building official prior to the final inspection.

R109.2 Inspection agencies.

The building official is authorized to accept reports of approved agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

R109.3 Inspection requests.

It shall be the duty of tile permit holder or their agent to notify tile building official that such work is ready for inspection. It shall be tile duty of tile person requesting any inspections required by this code to provide access to and means for inspection of such work.

R109.4 Approval required.

Work shall not be done beyond tile point indicated in each successive inspection without first obtaining the approval of the building official. The building official, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or shall notify the permit holder or an agent of the permit holder wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the building official.

IBC Concrete construction

1705.3 Concrete construction.

Special inspections and tests of concrete construction shall be performed in accordance with this section and Table 1705.3.

Exceptions: *Special inspections and tests shall not be required for:*

1. Isolated spread concrete footings of buildings three stories or less above grade plane that are fully supported on earth or rock.
2. Continuous concrete footings supporting walls of buildings three stories or less above grade plane that are fully supported on earth or rock where:
 - 2.1 The footings support walls of light-frame construction.
 - 2.2. The footings are designed in accordance with Table 1809.7.
 - 2.3. The structural design of the footing is based on a specified compressive strength, f'_c , not more than 2,500 pounds per square inch (psi) (17.2 MPa), regardless of the compressive strength specified in the approved construction documents or used in the footing construction.
3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 psi (1.03 MPa).
4. Concrete foundation walls constructed in accordance with Table 1807.1.6.2.
5. Concrete patios, driveways and sidewalks, on grade.

1705.3.1 Welding of reinforcing bars.

Special inspections of welding and qualifications of special inspectors for reinforcing bars shall be in accordance with the requirements of AWS D1 .4 for special inspection and of AWS D1 .4 for special inspector qualification.

1705.3.2 Material tests.

In the absence of sufficient data or documentation providing evidence of conformance to quality standards for materials in Chapters 19 and 20 of ACI 318, the building official shall require testing of materials in accordance with the appropriate standards and criteria for the material in Chapters 19 and 20 of ACI 318.

1705.4 Masonry construction.

Special inspections and tests of masonry construction shall be performed in accordance with the quality assurance program requirements of TMS 402 and TMS 602.

Exception: *Special inspections and tests shall not be required for:*

1. Empirically designed masonry, glass unit masonry or masonry veneer designed in accordance with Section 2109, Section 2110 or Chapter 14, respectively, where they are part of a structure classified as Risk Category I, II or III.
2. Masonry foundation walls constructed in accordance with Table 1807.1.6.3(1), 1807.1.6.3(2), 1807.1.6.3(3) or 1807.1.6.3(4).
3. Masonry fireplaces, masonry heaters or masonry chimneys installed or constructed in accordance with Section 2111, 2112 or 2113, respectively.

MINIMUM FRAME PIER CAPACITY TABLE
TABLE 4.1
(FRAME BLOCKING ONLY)

SECTION WIDTH (FEET)	EAVE OVERHANG (INCHES)	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)				
			MAXIMUM PIER SPACING (FEET)				
			4	6	8	10	12
12	0	20	2400	3400	4425	5450	6450
		30	2650	3775	4900	6025	7150
		40	2875	4100	5350	6600	7850
	8	20	2500	3550	4600	5650	6700
		30	2750	3925	5100	6300	7500
		40	3000	4325	5625	6950	8250
	16	20	2550	3650	4750	5850	6950
		30	2850	4100	5325	6550	7800
		40	3150	4525	5900	7300	8650
	24	20	2650	3800	4900	6050	7200
		30	2950	4250	5550	6825	8125
		40	3275	4725	6150	7600	9050
14	0	20	2725	3900	5075	6250	7425
		30	3000	4300	5625	6925	8250
		40	3275	4725	6150	7600	9050
	8	20	2800	4000	5225	6450	7650
		30	3100	4450	5825	7200	8550
		40	3400	4925	6425	7950	9450
	16	20	2900	4150	5400	6650	7900
		30	3200	4625	6050	7450	8875
		40	3550	5125	6700	8275	9850
	24	20	2950	4250	5550	6850	8150
		30	3300	4800	6250	7725	9200
		40	3675	5325	6950	8600	10250
16	0	20	3000	4350	5650	6975	8300
		30	3325	4800	6275	7750	9225
		40	3650	5250	6900	8525	10150
	8	20	3100	4450	5800	7200	8550
		30	3425	4950	6500	8000	9550
		40	3750	5450	7150	8850	10550
	16	20	3170	4570	5970	7370	8900
		30	3535	5115	6700	8280	10000
		40	3900	5660	7425	9310	11075

NOTES:

1. MAXIMUM PIER SPACING FOR 8" LONGITUDINAL I-BEAM IS 8'-0"
2. MAXIMUM PIER SPACING FOR 10" AND 12" LONGITUDINAL I-BEAM IS 12'-0"

MINIMUM PIER CAPACITY TABLE
TABLE 4.2
MULTI-SECTION RIDGEBEAM COLUMN SUPPORT

TOTAL WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)								
		MAXIMUM INFLUENCE SPAN (FEET)								
		4	8	12	16	20	24	28	32	36
24	20	1200	2000	2800	3550	4325	5100	5900	6675	7450
	30	1525	2550	3575	4600	5600	6625	7650	8675	9700
	40	1850	3100	4375	5625	6900	8150	9400	10675	11950
26	20	1300	2175	3050	3900	4750	5625	6500	7350	8225
	30	1675	2800	3925	5050	6200	7325	8450	9600	10200
	40	2025	3425	4825	6225	7625	9025	10425	11800	13200
28	20	1375	2275	3175	4100	5000	5900	6800	7700	8600
	30	1750	2925	4100	5300	6500	7675	8850	10050	11225
	40	2125	3600	5050	6525	8000	9450	10925	12400	13850
30	20	1475	2450	3450	4450	5425	6400	7400	8400	9375
	30	1900	3200	4475	5775	7075	8375	9650	10950	12250
	40	2300	3900	5500	7100	8725	10325	11925	13525	15125
32	20	1525	2550	3550	4575	5600	6600	7625	8650	9650
	30	1950	3300	4525	5950	7300	8625	9950	11300	12650
	40	2375	4025	5675	7350	9000	10650	12300	13950	15600

MINIMUM FOOTING SIZE TABLE
TABLE 4.3

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

NOTES:

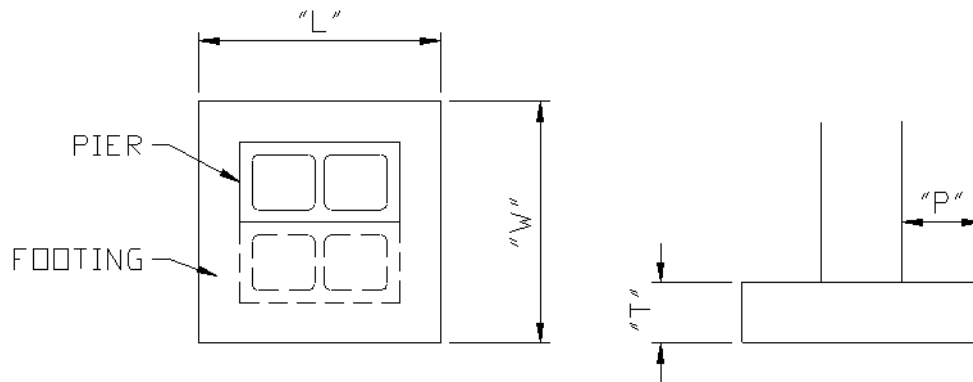
- FOOTING SIZES SHOWN ARE FOR SQUARE PADS AND ARE BASED ON THE AREA (SQ. INCHES) REQUIRED FOR THE LOAD. OTHER FOOTING CONFIGURATIONS, SUCH AS RECTANGULAR, MAY BE USED PROVIDED THE AREA (SQ. INCHES) IS EQUAL TO OR GREATER THAN THE AREA OF THE SQUARE FOOTING SHOWN IN THE TABLE. FOR EXAMPLE, A 12"x22" (288 SQ. IN.) FOOTING MAY BE USED IN PLACE OF A 16"x16" (256 SQ. IN.) FOOTING. ALSO, TWO 12"x24" PADS MAY BE USED IN PLACE OF ONE 24"x24" PAD. PROJECTION SHALL NOT EXCEED "P".
- THE FOLLOWING TABLE SPECIFIES THE MAXIMUM FOOTING SIZE FOR VARIOUS FOOTING THICKNESSES. THIS TABLE IS BASED ON UNREINFORCED FOOTINGS. REINFORCED FOOTINGS MAY REQUIRE A SMALLER THICKNESS THAN THAT LISTED BUT MUST BE DESIGNED BY A LICENSED ENGINEER. ALSO SEE SECTION 4.2.1 FOR ALTERNATIVES.

(SEE REVERSE FOR PIER/FOOTING CONFIGURATIONS)

PIER/FOOTING CONFIGURATIONS

THE FOLLOWING TABLE SPECIFIES THE MAXIMUM FOOTING SIZE FOR VARIOUS FOOTING THICKNESSES. THIS TABLE IS BASED ON UNREINFORCED FOOTINGS. REINFORCED FOOTINGS MAY REQUIRE A SMALLER THICKNESS THAN THAT LISTED BUT MUST BE DESIGNED BY A LICENSED ENGINEER.

FOOTING		SINGLE STACKED	DOUBLE STACKED
T	Pmax	PIERS (W x L)	BLOCKS (L x W)
4"	4"	16"x16"	16"x16"
6"	6 ½"	16"x24"	24"x24"
8"	8 ½"	19"x27"	27"x27"
12"	13"	24"x32"	32"x32"
18"	19 ½"	32"x40"	40"x40"



State of Washington 58th Legislature 2004 Regular Session

By Senators Prentice, Carlson, Keiser, T. Sheldon and Winsley

Read first time 01/26/2004. Referred to Committee on Financial Services, Insurance & Housing.

AN ACT Relating to prohibiting discrimination against consumers' choices in housing; amending RCW 35.63.160; adding a new section to chapter 35.21 RCW; adding a new section to chapter 35A.21 RCW; adding a new section to chapter 36.01 RCW; creating a new section; and providing an effective date.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

NEW SECTION. **Sec. 1.** The legislature finds that: Congress has preempted the regulation by the states of manufactured housing construction standards through adoption of construction standards for manufactured housing (42 U.S.C. Sec. 5401-5403); and this federal regulation is equivalent to the state's uniform building code. The legislature also finds that congress has declared that: (1) Manufactured housing plays a vital role in meeting the housing needs of the nation; and (2) manufactured homes provide a significant resource for affordable homeownership and rental housing accessible to all Americans (42 U.S.C. Sec. 5401-5403). The legislature intends to protect the consumers' rights to choose among a number of housing construction alternatives without restraint of trade or discrimination by local governments.

NEW SECTION. **Sec. 2.** A new section is added to chapter 35.21 RCW to read as follows:
(1) A city or town may not enact any statute or ordinance that has the effect, directly or indirectly, of discriminating against consumers' choices in the placement or use of a home in such a manner that is not equally applicable to all homes. Homes built to 42 U.S.C. Sec. 5401-5403 standards (as amended in 2000) must be regulated for the purposes of siting in the same manner as site built homes, factory built homes, or homes built to any other state construction or local design standard. However, any city or town may require that (a) a manufactured home be a new manufactured home; (b) the manufactured home be set upon a permanent foundation, as specified by the manufacturer, and that the space from the bottom of the home to the ground be enclosed by concrete or an approved concrete product which can be either load bearing or decorative; (c) the manufactured home comply with all local design standards applicable to all other homes within the neighborhood in which the manufactured home is to be located; (d) the home is thermally equivalent to the state energy code; and (e) the manufactured home otherwise meets all other requirements for a designated manufactured home as defined in RCW 35.63.160. A city with a population of one hundred thirty-five thousand or more may choose to designate its building official as the person responsible for issuing all permits, including department of labor and industries permits issued under chapter 43.22 RCW in accordance with an interlocal agreement under chapter 39.34 RCW, for alterations, remodeling, or expansion of manufactured housing located within the city limits under this section.

(2) This section does not override any legally recorded covenants or deed restrictions of record.

(3) This section does not affect the authority granted under chapter 43.22 RCW.

NEW SECTION. Sec. 3. A new section is added to chapter 35A.21 RCW to read as follows:

(1) A code city may not enact any statute or ordinance that has the effect, directly or indirectly, of discriminating against consumers' choices in the placement or use of a home in such a manner that is not equally applicable to all homes. Homes built to 42 U.S.C. Sec. 5401-5403 standards (as amended in 2000) must be regulated for the purposes of siting in the same manner as site built homes, factory built homes, or homes built to any other state construction or local design standard. However, any code city may require that (a) a manufactured home be a new manufactured home; (b) the manufactured home be set upon a permanent foundation, as specified by the manufacturer, and that the space from the bottom of the home to the ground be enclosed by concrete or an approved concrete product which can be either load bearing or decorative; (c) the manufactured home comply with all local design standards applicable to all other homes within the neighborhood in which the manufactured home is to be located; (d) the home is thermally equivalent to the state energy code; and (e) the manufactured home otherwise meets all other requirements for a designated manufactured home as defined in RCW 35.63.160. A code city with a population of one hundred thirty-five thousand or more may choose to designate its building official as the person responsible for issuing all permits, including department of labor and industries permits issued under chapter 43.22 RCW in accordance with an interlocal agreement under chapter 39.34 RCW, for alterations, remodeling, or expansion of manufactured housing located within the city limits under this section.

(2) This section does not override any legally recorded covenants or deed restrictions of record.

(3) This section does not affect the authority granted under chapter 43.22 RCW.

NEW SECTION. Sec. 4. A new section is added to chapter 36.01 RCW to read as follows:

(1) A county may not enact any statute or ordinance that has the effect, directly or indirectly, of discriminating against consumers' choices in the placement or use of a home in such a manner that is not equally applicable to all homes. Homes built to 42 U.S.C. Sec. 5401-5403 standards (as amended in 2000) must be regulated for the purposes of siting in the same manner as site built homes, factory built homes, or homes built to any other state construction or local design standard. However, any county may require that (a) a manufactured home be a new manufactured home; (b) the manufactured home be set upon a permanent foundation, as specified by the manufacturer, and that the space from the bottom of the home to the ground be enclosed by concrete or an approved concrete product which can be either load bearing or decorative; (c) the manufactured home comply with all local design standards applicable to all other homes within the neighborhood in which the manufactured home is to be located; (d) the home is thermally equivalent to the state energy code; and (e) the manufactured home otherwise meets all other requirements for a designated manufactured home as defined in RCW 35.63.160.

(2) This section does not override any legally recorded covenants or deed restrictions of record.

(3) This section does not affect the authority granted under chapter 43.22 RCW.

Sec. 5. RCW 35.63.160 and 1988 c 239 s 1 are each amended to read as follows:

(1) ~~((Each comprehensive plan which does not allow for the siting of manufactured homes on individual lots shall be subject to a review by the city of the need and demand for such homes. The review shall be completed by December 31, 1990.~~

~~—(2) For the purpose of providing an optional reference for cities which choose to allow manufactured homes on individual lots,))~~ A "designated manufactured home" is a manufactured home constructed after June 15, 1976, in accordance with state and federal requirements for manufactured homes, which:

(a) Is comprised of at least two fully enclosed parallel sections each of not less than twelve feet wide by thirty-six feet long;

(b) Was originally constructed with and now has a composition or wood shake or shingle, coated metal, or similar roof of ~~((not less than))~~ nominal 3:12 pitch; and

(c) Has exterior siding similar in appearance to siding materials commonly used on conventional site-built uniform building code single- family residences.

(2) "New manufactured home" means any manufactured home required to be titled under Title 46 RCW, which has not been previously titled to a retail purchaser, and is not a "used mobile home" as defined in RCW 82.45.032(2).

(3) Nothing in this section precludes cities from allowing any manufactured home from being sited on individual lots through local standards which differ from the designated manufactured home or new manufactured home as described in this section, except that the term "designated manufactured home" and "new manufactured home" shall not be used except as defined in subsections (1) and (2) of this section.

NEW SECTION. Sec. 6. This act takes effect July 1, 2005.

Passed by the Senate March 10, 2004.

Passed by the House March 3, 2004.

Approved by the Governor March 31, 2004.

Filed in Office of Secretary of State March 31, 2004.

RCW 35.21.684 MISCELLANEOUS PROVISIONS

Authority to regulate placement or use of homes—Regulation of manufactured homes— Issuance of permits—Restrictions on location of manufactured/mobile homes and entry or removal of recreational vehicles used as primary residences.

(1) A city or town may not adopt an ordinance that has the effect, directly or indirectly, of discriminating against consumers' choices in the placement or use of a home in such a manner that is not equally applicable to all homes. Homes built to 42 U.S.C. Sec. 5401-5403 standards (as amended in 2000) must be regulated for the purposes of siting in the same manner as site built homes, factory built homes, or homes built to any other state construction or local design standard. However, except as provided in subsection (2) of this section, any city or town may require that:

(a) A manufactured home be a new manufactured home;

(b) The manufactured home be set upon a permanent foundation, as specified by the manufacturer, and that the space from the bottom of the home to the ground be enclosed by concrete or an approved concrete product which can be either load bearing or decorative;

(c) The manufactured home comply with all local design standards applicable to all other homes within the neighborhood in which the manufactured home is to be located;

(d) The home is thermally equivalent to the state energy code; and

(e) The manufactured home otherwise meets all other requirements for a designated manufactured home as defined in RCW [35.63.160](#).

A city with a population of one hundred thirty-five thousand or more may choose to designate its building official as the person responsible for issuing all permits, including department of labor and industries permits issued under chapter [43.22](#) RCW in accordance with an interlocal agreement under chapter [39.34](#) RCW, for alterations, remodeling, or expansion of manufactured housing located within the city limits under this section.

(2)(a) A city or town may not adopt an ordinance that has the effect, directly or indirectly, of restricting the location of manufactured/mobile homes in manufactured/mobile home communities that were legally in existence before June 12, 2008, based exclusively on the age or dimensions of the manufactured/mobile home.

(b) A city or town may not prohibit the siting of a manufactured/mobile home on an existing lot based solely on lack of compliance with existing separation and setback requirements that regulate the distance between homes.

(c) A city or town is not precluded by (a) or (b) of this subsection from restricting the location of a manufactured/mobile home in manufactured/mobile home communities for any other reason including, but not limited to, failure to comply with fire, safety, or other local ordinances or state laws related to manufactured/mobile homes.

(3) Except as provided under subsection (4) of this section, a city or town may not adopt an ordinance that has the effect, directly or indirectly, of preventing the entry or requiring the removal of a recreational vehicle or tiny house with wheels as defined in RCW [35.21.686](#) used as a primary residence in manufactured/mobile home communities.

(4) Subsection (3) of this section does not apply to any local ordinance or state law that:

(a) Imposes fire, safety, or other regulations related to recreational vehicles;

(b) Requires utility hookups in manufactured/mobile home communities to meet state or federal building code standards for manufactured/mobile home communities; or

(c) Includes both of the following provisions:

(i) A recreational vehicle or tiny house with wheels as defined in RCW [35.21.686](#) must contain at least one internal toilet and at least one internal shower; and

(ii) If the requirement in (c)(i) of this subsection is not met, a manufactured/mobile home community must provide toilets and showers.

(5) For the purposes of this section, "manufactured/mobile home community" has the same meaning as in RCW [59.20.030](#).

(6) This section does not override any legally recorded covenants or deed restrictions of record.

(7) This section does not affect the authority granted under chapter [43.22](#) RCW. [[2019 c 390 § 14](#); [2019 c 352 § 3](#); [2009 c 79 § 1](#); [2008 c 117 § 1](#); [2004 c 256 § 2](#).]

NOTES:

Reviser's note: This section was amended by 2019 c 352 § 3 and by 2019 c 390 § 14, each without reference to the other. Both amendments are incorporated in the publication of this section under RCW [1.12.025\(2\)](#). For rule of construction, see RCW [1.12.025\(1\)](#).

Finding—Intent—2019 c 390: See note following RCW [59.21.005](#).

Tax preference performance statement and expiration—2019 c 390: See note following RCW [84.36.560](#).

Finding—2019 c 352: See note following RCW [58.17.040](#).

Findings—Intent—2004 c 256: "The legislature finds that: Congress has preempted the regulation by the states of manufactured housing construction standards through adoption of construction standards for manufactured housing (42 U.S.C. Sec. 5401-5403); and this federal regulation is equivalent to the state's uniform building code. The legislature also finds that congress has declared that: (1) Manufactured housing plays a vital role in meeting the housing needs of the nation; and (2) manufactured homes provide a significant resource for affordable homeownership and rental housing accessible to all Americans (42 U.S.C. Sec. 5401-5403). The legislature intends to protect the consumers' rights to choose among a number of housing construction alternatives without restraint of trade or discrimination by local governments." [[2004 c 256 § 1](#).]

Effective date—2004 c 256: "This act takes effect July 1, 2005." [[2004 c 256 § 6](#).]

RCW [35A.21.312](#) Optional Municipal Code - Provisions affecting all code cities.

Authority to regulate placement or use of homes—Regulation of manufactured homes—Issuance of permits—Restrictions on location of manufactured/mobile homes and entry or removal of recreational vehicles used as primary residences.

(1) A code city may not adopt an ordinance that has the effect, directly or indirectly, of discriminating against consumers' choices in the placement or use of a home in such a manner that is not equally applicable to all homes. Homes built to 42 U.S.C. Sec. 5401-5403 standards (as amended in 2000) must be regulated for the purposes of siting in the same manner as site built homes, factory built homes, or homes built to any other state construction or local design standard. However, except as provided in subsection (2) of this section, any code city may require that:

- (a) A manufactured home be a new manufactured home;
- (b) The manufactured home be set upon a permanent foundation, as specified by the manufacturer, and that the space from the bottom of the home to the ground be enclosed by concrete or an approved concrete product which can be either load bearing or decorative;
- (c) The manufactured home comply with all local design standards applicable to all other homes within the neighborhood in which the manufactured home is to be located;
- (d) The home is thermally equivalent to the state energy code; and
- (e) The manufactured home otherwise meets all other requirements for a designated manufactured home as defined in RCW [35.63.160](#).

A code city with a population of one hundred thirty-five thousand or more may choose to designate its building official as the person responsible for issuing all permits, including

department of labor and industries permits issued under chapter [43.22](#) RCW in accordance with an interlocal agreement under chapter [39.34](#) RCW, for alterations, remodeling, or expansion of manufactured housing located within the city limits under this section.

(2)(a) A code city may not adopt an ordinance that has the effect, directly or indirectly, of restricting the location of manufactured/mobile homes in manufactured/mobile home communities that were legally in existence before June 12, 2008, based exclusively on the age or dimensions of the manufactured/mobile home.

(b) A code city may not prohibit the siting of a manufactured/mobile home on an existing lot based solely on lack of compliance with existing separation and setback requirements that regulate the distance between homes.

(c) A code city is not precluded by (a) or (b) of this subsection from restricting the location of a manufactured/mobile home in manufactured/mobile home communities for any other reason including, but not limited to, failure to comply with fire, safety, or other local ordinances or state laws related to manufactured/mobile homes.

(3) Except as provided under subsection (4) of this section, a code city may not adopt an ordinance that has the effect, directly or indirectly, of preventing the entry or requiring the removal of a recreational vehicle used as a primary residence in manufactured/mobile home communities.

(4) Subsection (3) of this section does not apply to any local ordinance or state law that:

(a) Imposes fire, safety, or other regulations related to recreational vehicles;

(b) Requires utility hookups in manufactured/mobile home communities to meet state or federal building code standards for manufactured/mobile home communities or recreational vehicle parks; or

(c) Includes both of the following provisions:

(i) A recreational vehicle must contain at least one internal toilet and at least one internal shower; and

(ii) If the requirement in (c)(i) of this subsection is not met, a manufactured/mobile home community must provide toilets and showers.

(5) For the purposes of this section, "manufactured/mobile home community" has the same meaning as in RCW [59.20.030](#).

(6) This section does not override any legally recorded covenants or deed restrictions of record.

(7) This section does not affect the authority granted under chapter [43.22](#) RCW.

[[2019 c 390 § 15](#); [2009 c 79 § 2](#); [2008 c 117 § 2](#); [2004 c 256 § 3](#).]

NOTES:

Finding—Intent—2019 c 390: See note following RCW [59.21.005](#).

Tax preference performance statement and expiration—2019 c 390: See note following RCW [84.36.560](#).

Findings—Intent—Effective date—2004 c 256: See notes following RCW [35.21.684](#).

RCW 36.01.225 GENERAL PROVISIONS**Authority to regulate placement or use of homes—Regulation of manufactured homes—Restrictions on location of manufactured/mobile homes and entry or removal of recreational vehicles used as primary residences.**

(1) A county may not adopt an ordinance that has the effect, directly or indirectly, of discriminating against consumers' choices in the placement or use of a home in such a manner that is not equally applicable to all homes. Homes built to 42 U.S.C. Sec. 5401-5403 standards (as amended in 2000) must be regulated for the purposes of siting in the same manner as site built homes, factory built homes, or homes built to any other state construction or local design standard. However, except as provided in subsection (2) of this section, any county may require that:

- (a) A manufactured home be a new manufactured home;
- (b) The manufactured home be set upon a permanent foundation, as specified by the manufacturer, and that the space from the bottom of the home to the ground be enclosed by concrete or an approved concrete product which can be either load bearing or decorative;
- (c) The manufactured home comply with all local design standards applicable to all other homes within the neighborhood in which the manufactured home is to be located;
- (d) The home is thermally equivalent to the state energy code; and
- (e) The manufactured home otherwise meets all other requirements for a designated manufactured home as defined in [RCW 35.63.160](#).

(2)(a) A county may not adopt an ordinance that has the effect, directly or indirectly, of restricting the location of manufactured/mobile homes in manufactured/mobile home communities, as defined in [RCW 59.20.030](#), which were legally in existence before June 12, 2008, based exclusively on the age or dimensions of the manufactured/mobile home.

(b) A county may not prohibit the siting of a manufactured/mobile home on an existing lot based solely on lack of compliance with existing separation and setback requirements that regulate the distance between homes.

(c) A county is not precluded by (a) or (b) of this subsection from restricting the location of a manufactured/mobile home in manufactured/mobile home communities for any other reason including, but not limited to, failure to comply with fire, safety, or other local ordinances or state laws related to manufactured/mobile homes.

(3) A county may not adopt an ordinance that has the effect, directly or indirectly, of preventing the entry or requiring the removal of a recreational vehicle used as a primary residence in manufactured/mobile home communities, as defined in [RCW 59.20.030](#), unless the recreational vehicle fails to comply with the fire, safety, or other local ordinances or state laws related to recreational vehicles.

(4) This section does not override any legally recorded covenants or deed restrictions of record.

(5) This section does not affect the authority granted under chapter [43.22](#) RCW. [[2019 c 390 § 16](#); [2009 c 79 § 3](#); [2008 c 117 § 3](#); [2004 c 256 § 4](#).]

NOTES:

Finding—Intent—2019 c 390: See note following [RCW 59.21.005](#).

Tax preference performance statement and expiration—2019 c 390: See note following [RCW 84.36.560](#).

Findings—Intent—Effective date—2004 c 256: See notes following RCW [35.21.684](#).

STRUCTURAL CONCRETE BUILDING CODE (ACI 318M-11) AND COMMENTARY

5.6 — Evaluation and acceptance of concrete

COMMENTARY

Once the mixture proportions have been selected and the job started, the criteria for evaluation and acceptance of the concrete can be obtained from 5.6. An effort has been made in the Code to provide a clear-cut basis for judging the acceptability of the concrete, as well as to indicate a course of action to be followed when the results of strength tests are not satisfactory.

CODE

5.6.1 — Concrete shall be tested in accordance with the requirements of 5.6.2 through 5.6.5. The testing agency performing acceptance testing shall comply with ASTM C1077. Qualified field testing technicians shall perform tests on fresh concrete at the job site, prepare specimens required for curing under field conditions, prepare specimens required for testing in the laboratory, and record the temperature of the fresh concrete when preparing specimens for strength tests. Qualified laboratory technicians shall perform all required laboratory tests. All reports of acceptance tests shall be provided to the licensed design professional, contractor, concrete producer, and, when requested, to the owner and the building official.

COMMENTARY

R5.6.1 — ASTM C1077⁵⁻³ identifies and defines the duties and minimum technical requirements and qualifications of testing laboratory personnel and requirements for testing concrete and concrete aggregates used in construction. Inspection and accreditation of testing laboratories is a process that ensures that they conform to ASTM C1077. Laboratory and field technicians can establish qualifications by becoming certified through certification programs. Field technicians in charge of sampling concrete; testing for slump, density, yield, air content, and temperature; and making and curing test specimens should be certified in accordance with the requirements of ACI Concrete Field Testing Technician—Grade 1 Certification Program, or an equivalent program. Concrete testing laboratory personnel should be certified in accordance with the requirements of ACI Concrete Laboratory Testing Technician, or Concrete Strength Testing Technician.

The Code requires testing reports to be distributed to the parties responsible for the design, construction, and approval of the work. Such distribution of test reports should be indicated in contracts for inspection and testing services. Prompt distribution of testing reports allows for timely identification of either compliance or the need for corrective action. A complete record of testing allows the concrete producer to reliably establish the required average strength f'_{cr} for future work

5.6.2 — Frequency of testing

CODE

5.6.2.1 — Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 110 m³ of concrete, nor less than once for each 460 m² of surface area for slabs or walls.

COMMENTARY

R5.6.2.1 — The following three criteria establish the required minimum sampling frequency for each class of concrete:

- (a) Once each day a given class is placed, nor less than
- (b) Once for each 110 m³ of each class placed each day, nor less than
- (c) Once for each 460 m² of slab or wall surface area placed each day.

In calculating surface area, only one side of the slab or wall should be considered. Criteria (c) will require more frequent sampling than once for each 110 m³ placed if the average wall or slab thickness is less than 240 mm.

CODE

5.6.2.2 — On a given project, if total volume of concrete is such that frequency of testing required by 5.6.2.1 would provide less than five strength tests for a given class of concrete, tests shall be made from at least five randomly selected batches or from each batch if fewer than five batches are used.

COMMENTARY

R5.6.2.2 — Samples for strength tests are to be taken on a strictly random basis if they are to measure properly the acceptability of the concrete. To be representative, the choice of times of sampling, or the batches of concrete to be sampled, are to be made on the basis of chance alone, within the period of placement. Batches should not be sampled on the basis of appearance, convenience, or other possibly biased criteria, because the statistical analyses will lose their validity. Not more than one test (as defined in 5.6.2.4) should be taken from a single batch, and water may not be added to the concrete after the sample is taken.

ASTM D3665^{5.4} describes procedures for random selection of the batches to be tested.

CODE

5.6.2.3 — When total quantity of a given class of concrete is less than 38 m³, strength tests are not required when evidence of satisfactory strength is submitted to and approved by the building official.

++++
5.6.2.3 — When total quantity of a given class of concrete is less than 50 yd³, strength tests are not required when evidence of satisfactory strength is submitted to and approved by the building official.
 ++++

CODE

5.6.2.4 — A strength test shall be the average of the strengths of at least two 150 by 300 mm cylinders or at least three 100 by 200 mm cylinders made from the same sample of concrete and tested at 28 days or at test age designated for determination of f'_c .

COMMENTARY

R5.6.2.4 — More than the minimum number of specimens may be desirable to allow for discarding an outlying individual cylinder strength in accordance with ACI 214R.^{5.5} When individual cylinder strengths are discarded in accordance with ACI 214R, a strength test is valid provided at least two individual 150 by 300 mm cylinder strengths or at least three 100 by 200 mm cylinders are averaged. All individual cylinder strengths that are not discarded in accordance with ACI 214R are to be used to calculate the average strength. The size and number of specimens representing a strength test should remain constant for each class of concrete. Testing three 100 by 200 mm cylinders preserves the confidence level of the average strength because 100 by 200 mm cylinders tend to have approximately 20 percent higher within-test variability than 150 by 300 mm cylinders.^{5.6}