

CITY OF SILVERTON
ORDINANCE
18-25

AN ORDINANCE OF THE SILVERTON CITY COUNCIL AMENDING SILVERTON MUNICIPAL CODE TITLE 15 TO ADD A NEW SECTION CONCERNING TRANSITIONAL HOUSING STANDARDS

WHEREAS, the City Council adopted changes to the Silverton Municipal Code to allow transitional shelter communities; and

WHEREAS, the City Council met in a work session on October 15, 2018 to discuss the Building Code Standards the transitional shelter communities would be subject to; and

WHEREAS, the City Council desires to adopt the 2017 Oregon Transitional Housing Standards with modifications.


NOW, THEREFORE THE CITY OF SILVERTON ORDAINS AS FOLLOWS:

Section 1: The Silverton Municipal Code is amended as set forth in the attached Exhibit A:

Section 2: The Transitional Housing Standards 2017, as adopted by State of Oregon Building Codes Division, as amended by the City of Silverton, is attached as "Exhibit B."

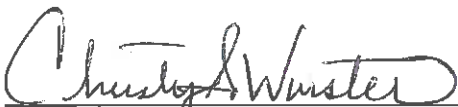
Section 3: This Ordinance shall be effective upon and from 30 days of its passage.

Ordinance adopted by the City Council of the City of Silverton, this 5th day of November, 2018.



Mayor, City of Silverton
Kyle Palmer

ATTEST



City Manager/Recorder, City of Silverton
Christy S. Wurster

EXHIBIT A

(Additions in *italics*, deletions in ~~striketrough~~)

Chapter 15.20 is amended to add a new section as set forth below:

“15.20.140 Transitional Housing Standards. The Oregon Transitional Housing Standard 2017 adopted by the State of Oregon Building Codes Division is modified and adopted by City Council as set forth in Exhibit B to the ordinance codified in this chapter.”

EXHIBIT B

As amended by the City of Silverton
(additions in underline, deletions in ~~strikethrough~~).

2017

**OREGON
TRANSITIONAL
HOUSING
STANDARD**

PREAMBLE

- i) **Background.** The *Oregon Transitional Housing Standard* is adopted by the State of Oregon Building Codes Division and is available for adoption by municipalities for the purpose of providing accommodations in the form of living units located on transitional housing parcels to be used by one or more individuals or by families as authorized by ORS 446.265.

This standard does not limit the authority of a municipality to enact separate regulations providing for transitional housing units in accordance with ORS 466.265. Separate regulations can address utility connections, foundations, fire resistive construction, fire sprinkler systems, room sizes, structural components and other matters not covered by the *Oregon Electrical Specialty Code*, the *Oregon Plumbing Specialty Code* and the *Oregon Mechanical Specialty Code*.

- ii) **Adoption. Effect on Municipality.** The provisions contained in this standard are not mandatory unless specifically referenced in the municipal adopting ordinance.

Nothing in this standard is intended to confer any power to a municipality that the municipality does not already possess under Oregon law. Ordinances should include requirements for:

- a) Fees, permits, plan review, inspections (including frequency of inspections), action on appeals, requests for interpretation, and customer contacts regarding the local adoption of this standard.
 - b) *Locating transitional housing units* only on parcels established by the municipality in accordance with its adopted ordinance and ORS 446.265.
 - c) Oversight and on-going inspections, if any, of the transitional housing parcels for abatement of nuisances and dangerous conditions as well as maintenance.
- iii) **State Building Code.** The *Oregon Transitional Housing Standard* is separate from, and not a part of, the *State Building Code*. All work completed under this standard shall be performed by appropriately licensed workers.
- iv) **Local Modifications.** Municipalities may adopt modifications which contain more or less restrictive construction requirements than those established in this standard. At a minimum, local modifications shall comply with:

- a) The *Oregon Electrical Specialty Code*;
- b) The *Oregon Plumbing Specialty Code*; and
- c) The mechanical and fuel gas requirements of the *Oregon Residential Specialty Code*. Local modifications may not alter any licensing requirements.

- v) **Inspector Competency.** The building official shall ensure that persons possess appropriate knowledge prior to allowing the individual to perform plan reviews and inspections on *transitional housing units*.

- vi) **Referenced Specialty Codes.**

- a) Electrical installations not covered in this standard shall be in conformance with the *Oregon Electrical Specialty Code*. The licensing requirements of OAR Chapter 918, Division 30 apply. See Chapter 6 of this standard.
- b) Plumbing installations not covered in this standard shall be in conformance with the *Oregon Plumbing Specialty Code*. The licensing requirements of OAR Chapter 918, Division 30 apply. See Chapter 7 of this standard.
- c) Mechanical and Fuel Gas installations not covered in this standard shall be in conformance with the *Oregon Residential Specialty Code*. See Chapter 8 of this standard.

- vii) **Campgrounds or Transitional Housing Parcels.** *Campgrounds or transitional housing parcels* providing transitional housing accommodations described under this standard may be operated by private persons or nonprofit organizations and may be located within an urban growth boundary.

Transitional housing campgrounds or parcels do not constitute recreational vehicle or manufactured housing parks. *Transitional housing units* are not authorized for use outside of *transitional housing campgrounds or parcels* established under ORS 446.265.

Version 1.3

Revisions

The revision log identifies those made to the original version of the standard.

Section 307.2 revised as follows:

March 15, 2018
Errata

307.2 Portable Fire Extinguishers. Each *transitional housing unit* equipped with fuel-burning equipment or 120/240-volt electrical system shall be provided with a *listed* portable fire extinguisher with a minimum rating of ~~5-B:C~~ **1-A:10-B:C** as defined in NFPA 10-2013, Standard for Portable Fire Extinguishers. The fire extinguisher shall be installed in accordance with its listing and ~~Section 4-6~~ **Chapter 6** of NFPA 10-2013, Standard for Portable Fire Extinguishers, and shall be located within the *transitional housing unit* interior within 24 inches (609 mm) **horizontally** of the opening for the primary means of exit.

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CHAPTER 1 ADMINISTRATION

SECTION 101 GENERAL

101.1 Title. These provisions shall be known as the *Oregon Transitional Housing Standard*, and shall be cited as such and will be referred to herein as “this standard.”

101.2 Scope. The provisions of this standard shall apply to the construction, location, and use of detached, single story *transitional housing units*.

101.2.1 Limitations. The use of *transitional housing units* described in this standard shall be limited to persons who lack permanent shelter and cannot be placed in other low-income housing. A municipality may limit the maximum amount of time that an individual or a family may use the accommodations. This standard only applies to transitional housing units located in a transitional housing campground

101.2.2 Utility Connections. This standard contains requirements for *transitional housing units* attached to a foundation with utility connections consistent with the requirements of the *Oregon Residential Specialty Code*.

101.3 Campgrounds. *Transitional housing units* may only be located in *campgrounds* as set forth in this section. *Campgrounds* shall be established by the municipality in conformance with ORS 446.265.

101.3.1 Campground Parcels. *Campgrounds* established for providing transitional housing accommodations shall be allowed in accordance with ORS 446.265.

101.3.2 Shared Facilities. *Campgrounds* providing transitional housing accommodations described under this standard may provide access to water, toilet, shower, laundry, cooking, telephone or other services either through separate or shared facilities. Shared facilities are subject to regulation under all state building codes described under ORS 455.010(7) and the recreation park specialty code described under ORS 446.310 (Definitions for ORS 446.310 to 446.350) to 446.350 (Tourist Facility Account). The transitional housing standards shall not be used for shared facilities located on parcels established under ORS 446.265.

101.3.3 Parking Facilities and Walkways. Site amenities for *campgrounds* shall include parking facilities and walkways.

SECTION 102 APPLICABILITY

102.1 Other Laws. The provisions of this standard shall not be deemed to nullify any provisions of local, state, or federal law.

102.2 Partial Invalidity. In the event any part or provision of this standard is held to be illegal or void, this shall not have the effect of making illegal or void any of the other parts or provisions.

102.3 Additions, Alterations, or Repairs. (*Note: This section may be amended by the municipality*) Additions, alterations, or repairs to any structure shall conform to the requirements for a new structure. Additions, alterations, or repairs shall not cause an existing structure to become unsafe or adversely affect the performance of the building. An unsafe condition shall be deemed to have been created if an addition or alteration will cause the existing building or structure to become structurally unsafe or overloaded, will not provide adequate egress in compliance with the provisions of this Standard, or will obstruct existing exits, create a fire hazard, reduce required fire resistance, or otherwise create conditions dangerous to human life.

SECTION 103 PERMITS (Reserved)

(Reserved to be completed by the municipality)

103.1 Required. Any owner or authorized owners agent who intends to construct, alter, or make repairs to a transitional housing unit or shared facility shall first make application to the building official and obtain the required permit.

103.2 Application for permits. To obtain a permit, the applicant shall first file an application in writing on a form furnished by the building department.

103.3 Time and limitations of application. An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing unless such application has been pursued in good faith or a permit has been issued; except that the building official is authorized to grant one or more extensions not exceeding 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

103.4 Validity of permit. The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinance of the municipality shall not be valid. The issuance of permit based on construction documents and other data shall not prevent the building official from requiring the correction of errors in the construction documents and other data. The building official is authorized to prevent occupancy or use of a structure where in violation of this code.

SECTION 104 PROHIBITED INSTALLATIONS DUTIES AND POWER OF THE BUILDING OFFICIAL

104.1 General. The building official is hereby authorized and directed to enforce the provisions of this code. The building official shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions.

104.2 Applications and permits. The building official shall receive applications, review construction documents and issue permits for the erection, and alteration of buildings and structures, inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.

104.3 Notices and orders. The building official shall issue necessary notices or orders to ensure compliance with this code.

104.4 Inspections. The building official shall make the required inspections, or the building official shall have the authority to accept reports of inspections by approved agencies or individuals.

104.5 Prohibited Installations.

104.5.1 Gasoline and Diesel Fuel Systems. Transitional housing units shall not be equipped with gasoline or diesel fuel storage and fuel transfer or dispensing systems.

104.5.2 Internal Combustion Engine Generators. Transitional housing units shall not be equipped with internal combustion engine generators or preparations for the later installation of an internal combustion engine generator.

104.6 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the building official has reasonable cause to believe that there exists in a structure or upon a premises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the building official or designee is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this code, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises is unoccupied, the building official shall first make a reasonable effort to locate the owner; the owner's authorized agent, or other person having charge or control of the structure or premises and request entry. If entry is refused, the building official shall have recourse to the remedies provided by law to secure entry.

104.7 Department records. The building official shall keep records. Such records shall be retained in the official records for the period required for the retention of public records.

104.8 Liability. See ORS 30.265 for regulations relating to liability.

104.9 Approved materials and equipment. Materials, equipment and devices approved by the building official shall be constructed and installed in accordance with such approval.

104.10 Modifications. Where there are practical difficulties involved in carrying out the provisions of this code, the building official shall have the authority to grant modifications for individual cases, upon application of the owner or owner's representative, provided the building official shall first find special

individual reason makes the strict letter of this code impractical and modification is in compliance with the intent and purpose of this code and such modification does not lesson health, life and fire safety or structural requirements. The details of action granting modifications shall be recorded and entered in the municipality's files.

104.11 Alternate Materials design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of code, and the materials, method or work offered is, for the purpose intended, not less than the equivalent prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

**SECTION 105
CONSTRUCTION DOCUMENTS (Reserved)
(Reserved to be completed by the municipality)**

105.1 Plans and documents. Submittal documents consisting of construction documents and other data shall be submitted in two or more sets with each permit application. The construction documents shall be drawn to scale and show enough detail to show compliance with code.

105.2. Information on construction documents. Construction documents shall be drawn upon suitable material. Electronic media documents are permitted to be submitted where approved by the building official. Construction documents shall be of sufficient clarity to indicate the location nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations.

105.2.1 Site Plan or Plot plan. The construction documents submitted with the application for permits shall be accompanied by a site plan showing the size and location of new construction and existing structures on the site and distances from lot lines. The building official is authorized to waive or modify the requirements for a site plan where the application for a permit is for alterations or repair or where otherwise warranted.

**SECTION 106
FEES (Reserved)
(Reserved to be completed by the municipality)**

106.1 Fees. A permit shall not be valid until the fees prescribed by law have been paid, nor shall an amendment to a permit be released until the additional fees are paid.

106.2 Plan review fees. Permit and plan review fees shall be as per adopted by the municipality.

SECTION 107
INSPECTIONS (Reserved)
(Reserved to be completed by the
municipality)

107.1 Inspection. Construction or work for which a permit is required shall be subject to inspection by the building official and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or ordinances of a municipality. Inspections presuming to give authority to violate or cancel the provisions of this code shall not be valid. It shall be the duty of the of permit applicant to cause the work to remain accessible and exposed for inspection purposes. Neither the building official nor the city shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

107.2 Inspection requests. It shall be the duty of the permit holder of the building permit or their duly authorized agent to notify the building department when the work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspection of such work that are required by this code.

SECTION 108
STOP WORK ORDER

108.1 Authority. Whenever the building official finds any work regulated by this code being performed in a manner either contrary to the provisions of this code or dangerous or unsafe, the building official is authorized to issue a stop work order.

108.2 Issuance. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or the person doing the work. In addition the property shall be posted with a stop work notice. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume. The lifting of the stop work shall only be done by the building official after the cited work has been corrected.

CHAPTER 2 DEFINITIONS

SECTION 201 GENERAL

201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this Standard, have the meanings indicated in this chapter.

201.2 Interchangeability. Words used in the present tense include the future, words in the masculine gender include the feminine and neuter, the singular number includes the plural and the plural, the singular.

201.3 Terms Defined in Other Codes. Where terms are not defined in this standard and are defined in the *Oregon Electrical Specialty Code*, *Oregon Residential Specialty Code*, *Oregon Mechanical Specialty Code* or *Oregon Plumbing Specialty Code* such terms shall have meanings ascribed to them as in those codes.

201.4 Terms Not Defined. Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies. Words of common usage are given their plain, natural, and ordinary meanings. Words that have well-defined legal meanings are given those meanings.

SECTION 202 DEFINITIONS

APPROVED. Acceptable to the code official or authority having jurisdiction.

ACCESSIBLE LOFT SPACE. Floor space located in the *loft area* that has a ceiling to floor height of less than 5 feet (1524 mm).

CAMPGROUND. A *campground* established by a municipality to be used for providing transitional housing accommodations in accordance with ORS 446.265.

COMBUSTIBLE MATERIAL. Materials made of, or surfaced with, wood, compressed paper, plant fibers, or other material that will ignite and burn. These materials shall be considered as combustible even though flame proofed, fire retardant treated, or plastered.

COMPARTMENT. A completely enclosed volume designed to provide for a separate area.

CYLINDER. (*Propane*) A portable container constructed in accordance with U.S. Department of Transportation Specifications/or LP-Gas *Cylinders* (49 CFR).

FUEL SYSTEM. Any arrangement of *pipe*, tubing, fittings, connectors, tanks, controls, valves, and devices designed and intended to supply or control the flow of fuel.

HABITABLE ROOM. A room or enclosed floor space arranged for living, eating, cooking, or sleeping purposes, but not including bathrooms, closets and hallways.

HEAT-PRODUCING APPLIANCE. An appliance which produces heat by utilizing electric energy or by burning fuel.

INTERIOR FINISH. The exposed interior surface in combination with the substrate to which it is applied. *Interior finish* shall include any material (such as paint, wallpaper, decorative panels, etc.) which is affixed to such surfaces by permanent or semi-permanent means.

LABELED. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production *labeled* equipment or materials and by who's labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

LISTED. Equipment or materials included in a list published by an organization acceptable to the authority having jurisdiction and concerned with product or service evaluation, that maintains periodic inspection of production of *listed* equipment or materials or periodic evaluation of services and whose listing states either that the equipment or material meets appropriate designated standards or has been tested and found suitable for use in a specified manner.

LOFT AREA. Any accessible partial floor level located above the main floor that provides either a *habitable room* or *accessible loft space*.

PIPE. Rigid conduit of iron, steel, copper, brass, aluminum, or plastic.

PIPING. The tubing or conduit of the system. There are three general classes of *pipng* as follows:

Branch (Lateral) Lines. Those sections of the *pipng* system that serve a room or group of rooms on the same story of the facility.

Main Lines. Those parts of the system that connect the source (pumps, receivers, etc.) to the risers or branches, or both.

Risers. The vertical *pipes* connecting the system main line(s) with the branch lines on the various levels of the facility.

PORCH. *Porch* shall refer to an exterior floor area, with or without a roof, that is not enclosed in any manner with the exception of guardrails and roof supports.

PROPANE. (Liquefied Petroleum Gas, LP-Gas, LPG) Any material having a vapor pressure not exceeding that allowed from commercial *propane* composed predominantly of the following hydrocarbons, either by themselves or as mixtures: *propane*, propylene, butane (normal butane or iso-butane), and butylene.

READILY ACCESSIBLE. Able to be located, reached, serviced or removed without removing other components or parts of the apparatus and without the need to use special tools to open enclosures.

TRANSITIONAL HOUSING UNIT. A single story, detached structure providing transitional housing accommodations for use as temporary living units by one or more individuals or by families.

CHAPTER 3 BUILDING PLANNING

SECTION 301 INTERIOR FINISH

301.1 Interior Finish Flame Spread Limitations. *Interior finish* of walls, partitions, ceilings, exterior passage doors, cabinets, habitable areas, hallways, and bath or water closet rooms, including shower/tub walls shall be of materials whose flame spread classification does not exceed 200 when tested in accordance with ASTM E84 or ANSI/UL 723. Cabinet door and drawer faces, exposed cabinet bottoms and end panels, and tub/shower walls shall be permitted to obtain a radiant panel index of the same value as determined in accordance with ASTM E162, Test for Surface Flammability of Materials Using a Radiant Heat Energy Source.

Exception: These flame-spread limitations do not apply to moldings, decorative trim, furnishings, windows, doors, skylights or their frames and casings, interior passage doors, countertops, cabinet rails, stiles, mullions, toe kicks and padded cabinet ends.

301.2 Use of Cellular Foam or Foamed Plastic Materials. Cellular foam or foamed plastic materials shall not be used for *interior finish*.

301.3 Interior Finish of Fuel-Fired Furnace and Water Heater Enclosures. Walls, doors, and ceilings of fuel-fired furnace or fuel-fired water heater enclosures shall be finished in materials whose flame spread classification does not exceed 25 when tested in accordance with NFPA 255, The Standard Method of Test for Surface Burning Characteristics of Building Materials and which provide fire protective characteristics equivalent to $\frac{5}{16}$ -inch (7.9 mm) gypsum or better. All openings, including those for *pipes* or vents, in furnace or water heater *compartments* shall be tight-fitted or fire-stopped.

301.4 Protection of Cabinets above the Cooking Range. Combustible vertical cabinet face(s) and door(s) directly above the range or range space shall be protected for the full width of the range by a hood with a metal eyebrow extending not less than $2\frac{1}{2}$ inches (63.5 mm) measured horizontally out from the cabinet face.

Exception: The metal hood may be omitted when an appliance or equipment designed and *listed* for this purpose is installed between the range and the overhead cabinet.

SECTION 302 GLAZING

302.1 Glazing Materials. All interior glazing materials with an exposed area exceeding 431 square inches (278,064 mm²) shall comply with ANSI Z97.1, *Safety Glazing Materials Used in Buildings — Safety Performance Specifications and Methods of Test*, or equal requirements and shall be so identified by the manufacturer of the glazing.

SECTION 303 EXITS

303.1 Minimum Number of Exits. Each *transitional housing unit* shall have a minimum of two unobstructed exits located

remote from each other and so arranged as to provide a means of unobstructed egress to the exterior. Each bedroom and area designed for sleeping shall have at least one unobstructed exit and at least one alternate exit. The width of the unobstructed exit shall comply with Section 306.2 and shall not require passing any designated exit to gain use of another designated exit except when any part of a bed in its normal sleeping configuration is within 24 inches (609.6 mm) of the plane of the nearest designated exit as projected across the unit.

303.2 Access to Alternate Exits. The path leading to an alternate exit, shall be not less than 13 inches (330 mm) wide at the narrowest point and, as a minimum, shall extend vertically from the supporting surface below the alternate exit to the top of the alternate exit. The supporting surface shall be not more than 3 feet (0.9 m) below the bottom of the alternate exit and shall be capable of supporting a weight of 300 lb (136 kg).

303.3 Operation of Exits. The latch mechanism of any required exit facility shall be operable by hand, and shall not require the use of a key or special tool for operation from the inside. No more than 20 pounds of force (89N) shall be required to open a required exit.

303.4 Size of Alternate Exits. The alternate exit, if not an exterior passage door, shall provide an opening of sufficient size to permit unobstructed passage, keeping a major axis parallel to the plane of the opening and horizontal at all times, of an ellipsoid generated by rotating about its minor axis an ellipse having a major axis of 24 inches (610 mm) and a minor axis of 17 inches (432 mm). An exterior passage door if used for an alternate exit shall provide an unobstructed opening with a minimum horizontal dimension of 18 inches (457 mm) and a minimum vertical dimension of 48 inches (1219 mm) (See Figure 303.4).

303.5 Marking of Alternate Exits. Alternate exits other than exterior passage doors shall be identified by a waterproof label with the word "EXIT" in a minimum size 1-inch (25.4 mm) red letters on a contrasting background. Labels shall be placed on the interior wall surface above or below the exit on the interior ceiling surface within 8 inches (203 mm) of the opening in an unobscured visible location, or shall be installed in the interior of the exit frame, or on the moveable portion of the exit approximately midway between the sides.

303.6 Identification of Exit Handles. Handles that must be operated to open alternate exits shall be colored red.

Exceptions:

1. Exterior and interior passage door handles need not be colored.
2. On alternate exit windows in which normal horizontal or vertical slider operation results in an opening size that complies with Section 303.4 and does not require any other operation to comply, latches, locks, or handles need not be colored.

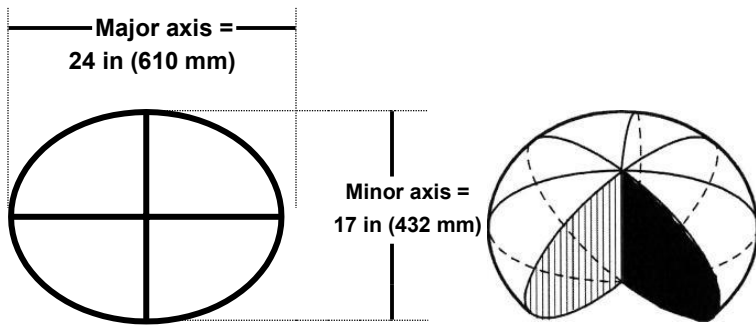


FIGURE 303.4

SECTION 304 STAIRWAYS AND ACCESS LADDERS

304.1 Size Requirements for All Stairways.

304.1.1 Width. Stairways shall not be less than 17 inches (432 mm) in clear width at all points at or above the permitted handrail. The minimum width below the handrail height shall not be less than 20 inches (508 mm).

304.1.2 Treads and Risers. Treads shall be a minimum of 7 inches (178 mm) and risers shall be a maximum of 12 inches (305 mm). Tread depth and riser height shall be permitted to be calculated based upon the following formula:

Minimum tread depth = 20" (508 mm) minus $\frac{4}{3}$ riser height

OR

Maximum riser height = 15" (381 mm) minus $\frac{3}{4}$ tread depth

304.1.3 Uniformity of Treads and Risers. The greatest riser height within any flight of stairs, other than the top riser, shall not exceed the smallest by more than $\frac{3}{8}$ inch (10 mm).

304.2 Special Stair Requirements.

304.2.1 Winder Stairs. Winder stairs shall be permitted provided that the width of the tread at a point not more than 12 inches (305 mm) from the side where the treads are narrower is not less than 10 inches (254 mm) and the minimum width of any tread is not less than 6 inches (152 mm). A continuous handrail shall be provided on the side where the tread is narrower.

304.2.2 Spiral Stairs. Spiral stairs shall be permitted, provided the minimum width shall be 26 inches (660 mm) with each tread having a $7\frac{1}{2}$ inches (190 mm) minimum tread width at 12 inches (305 mm) from the narrow edge. All treads shall be identical, and the rise shall be installed in accordance with the manufacturer's instructions or calculation. Calculations shall include concentrated loads totaling actual dead load plus 250 pounds (93kg).

304.2.3 Alternating Tread Devices. Alternating tread devices shall be permitted, provided the width complies with Section 304.1.1, the handrail complies with Section 305.1, have a minimum projected tread of $8\frac{1}{2}$ inches (216 mm), a minimum tread depth of $10\frac{1}{2}$ inches (266.7 mm), and a maximum tread rise of 8 inches (204 mm).

304.3 Access Ladders.

304.3.1 Size and Capacity. Ladders supplied for access to a loft shall have 12 inches (305 mm) minimum rung width and 10 inches (254 mm) to 14 inches (356 mm) spacing between rungs. Ladders shall support a 300-pound (136 kg) load. Rung spacing shall be uniform within $\frac{3}{8}$ inches (9.5 mm).

304.3.2 Stability. Ladders shall be designed to prevent lateral movement in excess of 2 inches (50.8 mm) when in use and ladders shall be designed to be installed at 70 to 80 degrees (1.22 to 1.40 rad).

SECTION 305 HANDRAILS/GUARDRAILS

305.1 Handrails. Handrails having minimum and maximum heights of 30 inches and 38 inches (762 mm and 965 mm), respectively, measured vertically from the nosing of the treads shall be provided on at least one side of stairways of three or more risers. Spiral stairways shall have the required handrail located on the outside radius. All required handrails shall be continuous the full length of the stairs. Ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space not less than $1\frac{1}{2}$ inches (38 mm) between the wall and the handrail.

Exceptions:

1. Handrails shall be permitted to be interrupted by a newel post at a turn.
2. The use of a volute, turnout, or starting easing shall be allowed over the lowest tread.

305.2 Handrail Grip Size. Handrails shall have either a circular cross-section with a diameter of $1\frac{1}{4}$ inches (32 mm) to 2 inches (51 mm) or a non-circular cross-section with a perimeter of at least 4 inches (102 mm) but not more than $6\frac{1}{4}$ inches (159 mm) and a largest cross-section dimension not exceeding $2\frac{1}{4}$ inches (57 mm). Edges shall have a minimum radius of $\frac{1}{8}$ inches (3.2 mm).

305.3 Guardrail Requirements. Guardrails on open sides of stairways, raised floor areas, lofts, or balconies, shall have intermediate rails or ornamental closures, which do not allow passage of an object 4 inches (102 mm) or more in diameter. Raised floor surfaces located more than 30 inches (762 mm) above the floor below shall have guardrails not less than 36 inches (914 mm) in height or one-half ($\frac{1}{2}$) the maximum clear height to the ceiling, whichever is less. Open sides of stairs with a total rise of more than 30 inches (762 mm) above the floor or grade below shall have guardrails not less than 34 inches (864 mm) in height measured vertically from the nosing of the treads.

Exception: The triangular opening formed by the riser, tread, and bottom rail of a guard at the open side of a stairway may be of such a size that a sphere 6 inches in diameter (152 mm) cannot pass through.

SECTION 306 MINIMUM SPACE REQUIREMENTS/USABILITY

306.1 General. All *transitional housing units* shall be provided with the minimum space requirements required by this section.

306.2 Circulation. An interior route is required to connect all rooms. An interior route cannot pass through bathrooms or closets in order to get to living areas. The interior route must be at least 36 inches (914 mm) wide. The width of the interior route may reduce to 32 inches (813 mm) wide for a distance of no more than 24 inches (610 mm) (such as doorways or between fixtures).

306.3 Clear Floor Space. Each room providing living space in a *transitional housing unit* must include at least one clear floor space providing either of the following dimensions:

1. **Circular Space:** A floor area of 60 inches (1524 mm) in diameter, or
2. **T-Shaped Space:** The T-shape 60 inches (1524 mm) on long side, 36 inches (914 mm) on other “T” sides with at least 12 inches (305 mm) clearance on either side, and a “T” depth of at least 36 inches (914 mm).

306.4 Clear Floor Space at Appliances, Fixtures, and Operable Equipment. A clear floor space measuring 30 inch × 48 inch (762 mm × 1219 mm) minimum is required to be adjacent to all appliances, fixtures, and operable equipment. The clear space may provide for either a front or side approach.

306.5 Kitchen Countertops. Kitchens must have countertops mounted at a maximum height of 34 inches (864 mm) above the floor at both the sink and at a 30-inch-wide (762 mm) kitchen work surface adjacent to the range.

306.6 Bathrooms. A clear 30 inch × 48 inch (762 mm × 1219 mm) floor space shall be provided for each individual fixture. The clear space may provide for either a front or side approach. Clear floor spaces may overlap, but doors may not swing into the clear floor space unless there is a 30 inch × 48 inch (762 mm × 1219 mm) clear floor space outside of the swing of the door.

306.6.1 Water Closets/Lavatories. The specific clear floor spaces and the size of the clear floor space may vary depending on the location of the lavatory. If the lavatory is outside of the water closet clear floor space, then the size of the clear floor space is 60 inches (1524 mm) wide minimum by 56 inches (1422 mm) deep minimum. The water closet must have a centerline positioned 18 inches (457 mm) from the side wall surface.

An arrangement where the lavatory is adjacent to the water closet and overlaps the water closet clear floor space is permitted if the depth of the water closet clear floor space is increased to 60 inches × 66 inches (1524 mm × 1676 mm).

306.6.2 Blocking. Blocking must be included in bathroom walls at specific heights to support grab bars in accordance with this section. It is not required that grab bars be installed.

306.6.2.1 Water Closet. Blocking shall be installed at a height spanning from 32 inches (813 mm) to 40 inches (1016 mm) above the floor on both the near side wall and the rear wall of the water closet, for a distance of 48 inches (1219 mm) and 60 inches (1524 mm) from the corner respectively.

306.6.2.1.1 Blocking Type. Blocking shall be of one of the following types:

1. 2-inches × 10-inches (50.8 mm × 254 mm) board or ³/₄-inch (19.1 mm) thick plywood mounted between the studs and under the gypsum board wall surface.
2. Sixteen-gauge metal sheet blocking able to withstand a 250-pound load applied to the grab bar in any direction.

306.6.2.2 Showers and Tubs. Blocking for grab bars at showers and tubs shall be provided at the locations specified in ANSI A117.1 for the intended installation.

306.7 Pipe Protection. *Pipe* protection is required to protect residents from contact with hot water *pipes* and abrasive or sharp surfaces under all sinks and lavatories. Sinks must have the drain opening at the rear of the sink. If a garbage disposal is installed, it must also not intrude into the knee and toe clearance.

306.8 Controls. Thermostat controls, locations for HVAC filters, controls for fans and lighting, as well as the electric panel breaker boxes, must be between 15 inches and 48 inches (381 mm and 1219 mm) above the floor.

306.9 Doors. Doors allowing passage into a space or room must provide a clear opening width of 32 inches (813 mm) minimum and must also be a minimum of 80 inches (2032 mm) tall. At a swinging door, the actual dimension of the clear opening is measured between the face of the door opened to 90 degrees (1.57 rad) and the face of the stop. The clear door opening may not be less than 32 inches (813 mm). At a pocket door or sliding door, the actual dimension of the clear opening is measured from the edge of the door fully retracted to the face of the stop. The opening with the door fully retracted must have a clear width of 32 inches (813 mm).

306.9.1 Door hardware. The operable parts of the hardware, including deadbolts, must be mounted at a height between 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the floor.

306.9.2 Threshold Profile. A threshold up to ¹/₄ inches (6.4 mm) high can simply be a vertical face and does not require any bevel. Thresholds taller than ¹/₄ inches (6.4 mm) and up to ¹/₈ inches (3.2 mm) high can have a beveled profile that combines a ¹/₄ inches (6.4 mm) vertical face with 1:2 sloped beveled edges and a flat top. Thresholds of any height are allowed when sloped for its entire length at a 1:12 slope or less.

SECTION 307 HAZARD DETECTION/SUPPRESSION EQUIPMENT

307.1 Smoke Alarms. Smoke alarms shall be installed in accordance with the *Oregon Residential Specialty Code*.

307.1.1 Installation of Smoke Alarm. The smoke alarm shall be installed in accordance with its listing.

307.2 Portable Fire Extinguishers. Each *transitional housing unit* equipped with fuel-burning equipment or 120/240-volt electrical system shall be provided with a *listed* portable fire extinguisher with a minimum rating of 1-A:10-B: C as defined in NFPA 10-2013, Standard for Portable Fire Extinguishers. The fire extinguisher shall be installed in accordance with its listing and Chapter 6 of NFPA 10-2013, Standard for Portable Fire Extinguishers, and shall be located within the *transitional*

housing unit interior within 24 inches (609 mm) horizontally of the opening for the primary means of exit.

307.4 Carbon Monoxide (CO) Alarms. All *transitional housing units* shall be equipped with a carbon monoxide alarm listed under the requirements of UL 2034 and installed according to the terms of its listing.

SECTION 308 CEILING HEIGHT

308.1 Minimum Height. Every *habitable room* and bathroom shall have a minimum ceiling height of not less than 6 feet 6 inches (1982 mm) for a minimum of 50 percent of the room's floor area. The remaining area may have a ceiling with a minimum height of 6 feet (1829 mm).

SECTION 309 LIGHT, VENTILATION, AND HEATING

309.1 Habitable Rooms. *Habitable rooms* shall be provided with exterior windows, skylights, or doors having a total glazed area of not less than 8 percent of the room gross floor area. An area equivalent to not less than 4 percent of the room gross floor area shall be openable for ventilation.

309.2 Bathrooms. Each bathroom shall be provided with artificial light and, in addition, be provided with external windows or vents having not less than one square foot of fully openable area except where a mechanical ventilation system to the exterior is provided capable of producing a change of air every 12 minutes.

309.3 Required Heating. Every *transitional housing unit* shall be provided with heating facilities capable of maintaining a minimum room temperature of 68°F (20°C) at a point 3 feet (914 mm) above the floor and 2 feet (610 mm) from exterior walls in all *habitable rooms* at the design temperature. The installation of one or more portable space heaters shall not be used to achieve compliance with this section.

SECTION 310 LOFTS

310.1 General Requirements. Only one *loft area* is allowed in a *transitional housing unit*. The *loft area* shall comply with the provisions in this section.

310.2 Loft Areas. The *loft area* shall be provided with exterior windows, skylights, or doors having a total glazed area of not less than 8 percent of the gross floor area. An area equivalent to not less than 4 percent of the loft gross floor area shall be openable for ventilation.

310.3 Means of Escape. The *loft area* shall have a minimum of one exit in addition to the staircase or ladder into the *loft area*. This exit shall provide direct access to the exterior and comply with Sections 303.2 through 303.6.

310.4 Fire Detection. In addition to the smoke alarm(s) located on the main floor, the *loft area* shall have at least one smoke alarm installed that shall comply with the requirements listed in Section 307.1.

310.5 Adjacent Loft Areas. Light, ventilation, exit, and fire detection requirements may be combined with adjacent areas if a clear opening between the two areas of at least 60 inches (1524 mm) in width and the full height floor to ceiling in the *loft area* is provided.

SECTION 311 INSULATION

311.1 General. Insulation shall be rated by the insulation manufacturer.

311.2 Floor Cavity. A minimum of R-5 is required in floor cavities.

311.3 Wall Cavity. A minimum of R-5 is required in wall cavities.

311.4 Ceiling Cavity. A minimum of R-7 is required in ceiling cavities.

311.4.1 Condensation Control. Ceiling cavities shall have a vapor barrier having a permeance no greater than 1 perm (dry cup method) on the interior side of (under) the insulation.

Exception: Ceiling panels faced with polyvinyl chloride film of at least 4 mils in thickness (0.1 mm) shall be deemed to meet this requirement.

CHAPTER 4 PLACEMENT

SECTION 401 GENERAL

401.1 Other Laws. Each site shall be suitable for its intended use and shall comply with applicable federal, state, and local laws.

401.2 Applicable Standards. All *transitional housing units* shall be attached to a foundation. Foundation systems shall be designed and constructed in accordance with Section 403.

SECTION 402 SITE PREPARATION

402.1 Unforeseen Factors. When, during preparation of the site, unforeseen factors such as rock formation, high ground water levels, springs, or biological generated gasses are encountered, corrective work shall be taken prior to the siting of the *transitional housing unit*.

402.2 Grade. Grades shall slope downward away from patios, walls, foundations, and water supply wells.

402.3 Site Grading and Drainage. Site grading and drainage shall:

1. Provide a diversion of any surface water away from the *transitional housing unit*, accessory building, and structures except as necessary for controlled irrigation; and
2. Prevent standing water and soil saturation from becoming detrimental to structures and site use.
3. Grading, plantings, or drainage systems shall be constructed to prevent erosion of the *transitional housing unit* foundation from high velocity water runoff.
4. Where natural soils or controlled fill (free of grass and organic material) are used, such soils or fill shall support the loads imposed by the support system of the *transitional housing unit* placed thereon.
5. Up to 6 inches (152 mm) of non-compacted crushed rock or gravel, no smaller than $\frac{3}{4}$ inch (19mm) minus, may be placed on a *transitional housing unit* foundation base without affecting the soil bearing capacity of the foundation.

SECTION 403 FOUNDATION SYSTEMS

403.1 Application. The provisions of this section shall control the design and construction of the foundation and foundation spaces for *Transitional Housing Units*. Conformity to the specifications herein or the use of other materials or methods of construction accomplishing the purpose intended by this standard and *approved* by the building official shall be accepted as complying with this Standard.

403.2 Requirements. The foundation and its structural elements shall be capable of accommodating all lateral loads, superimposed live, dead, and other loads as required by the

adopting municipality and in accordance with the provisions of this standard or accepted engineering design practice. Fills which support footings and foundations shall be designed, installed and tested in accordance with accepted engineering practice.

403.3 Drainage. Lots shall be provided with adequate drainage and shall be graded so as to drain surface water away from foundation walls. The grade away from foundation walls shall fall a minimum of 6 inches (152 mm) within the first 10 feet (3048 mm), except as restricted by lot lines where the fall will be a minimum of 6 inches (152 mm) regardless of the horizontal distance available.

403.4 Soil tests. In areas likely to have expansive, compressible, shifting, or other unknown soil characteristics, the building official may require a soil test to determine the soil's characteristics at a particular location. The building official may require that this determination be made by an *approved* agency using an *approved* method.

403.5 Expansive, Compressible, or Shifting Soil. When top or subsoils are expansive, compressible or shifting, such soils shall be removed to a depth and width sufficient to assure stable moisture content in each active zone and shall not be used as fill; or stabilized within each active zone by chemical, dewatering, pre-saturation or equivalent techniques when *approved* by the building official; or remain where footings, foundations and foundation slabs are designed in accordance with *approved* methods to prevent structural damage and excessive differential movement.

SECTION 404 MATERIALS

404.1 Wood Foundations. Wood foundation systems shall be designed and installed in accordance with the provisions of this Standard.

404.1.1 Fasteners. Fasteners used below grade to attach plywood to the exterior side of crawlspace wall studs, or fasteners used in knee wall construction, shall be of Type 304 or 316 stainless steel. Fasteners used above grade to attach plywood and all lumber-to-lumber fasteners except those used in knee wall construction shall be of Type 304 or 316 stainless steel, silicon bronze, copper, hot-dipped galvanized (zinc coated) steel nails, or hot-tumbled galvanized (zinc coated) steel nails. Electro galvanized steel nails and galvanized (zinc coated) steel staples shall not be permitted.

404.1.2 Wood Treatment. All lumber and plywood shall be pressure-preservative treated and dried after treatment in accordance with AWPA U1 (Commodity Specification A, Use Category 4B and Section 5.2), and shall bear the label of an accredited agency. Where lumber or plywood is cut or drilled after treatment, the treated surface shall be field treated with copper naphthenate, the concentration of which shall contain a minimum of 2 percent copper metal, by repeated brushing, dipping or soaking until the wood absorbs no more preservative.

404.2 Concrete. Concrete subject to weathering shall have a minimum specified compressive strength of f'_c , and be air entrained as specified in **Table 404.2**. The maximum weight of fly ash, other pozzolans, silica fume, slag or blended cements that is included in concrete mixtures for slabs and for exterior porches, carport slabs and steps that will be exposed to deicing chemicals shall not exceed the percentages of the total weight of cementitious materials specified in Section 4.2.3 of ACI 318. Materials used to produce concrete and testing thereof shall comply with the applicable standards listed in Chapter 3 of ACI 318 or ACI 332.

SECTION 406 FOUNDATION WALLS

406.1 Concrete and Masonry. Foundation walls shall be constructed in accordance with the provisions of this section with footings as shown in **Figure 405** and in accordance with ACI 318, ACI/ASCE 530, or NCMA TR68-A.

406.2 Backfill Damage. Foundation walls shall extend at least 8 inches (203 mm) above the finished grade adjacent to the foundation at all points. Backfill adjacent to the wall shall not be placed until the wall has sufficient strength or has been sufficiently braced to prevent damage by the backfill.

406.3 Masonry or Concrete Foundation. Masonry and concrete foundation walls shall be constructed as set forth in **Table 406.3**.

**TABLE 404.2
MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE**

TYPE OR LOCATIONS OF CONCRETE CONSTRUCTION	MINIMUM SPECIFIED COMPRESSIVE STRENGTH ^a (f'_c)		
	Weathering Potential ^b		
	Negligible	Moderate	Severe
Foundations not exposed to the weather	2,500	2,500	2,500 ^c
Interior slabs on grade, except garage floor slabs	2,500	2,500	2,500 ^c
Foundation walls, exterior walls, and other vertical concrete work exposed to the weather	2,500	3,000 ^d	3,000 ^d
Porches, carport slabs and steps exposed to the weather and garage floor slabs	2,500	3,000 ^d	3,000 ^d

- a. At 28 days psi.
- b. Weathering potential as prescribed by the authority having jurisdiction.
- c. Concrete in these locations that may be subject to freezing and thawing during construction shall be air-entrained concrete in accordance with Footnote d.
- d. Concrete shall be air entrained. Total air content (percent by volume of concrete) shall be not less than 5 percent or more than 7 percent.

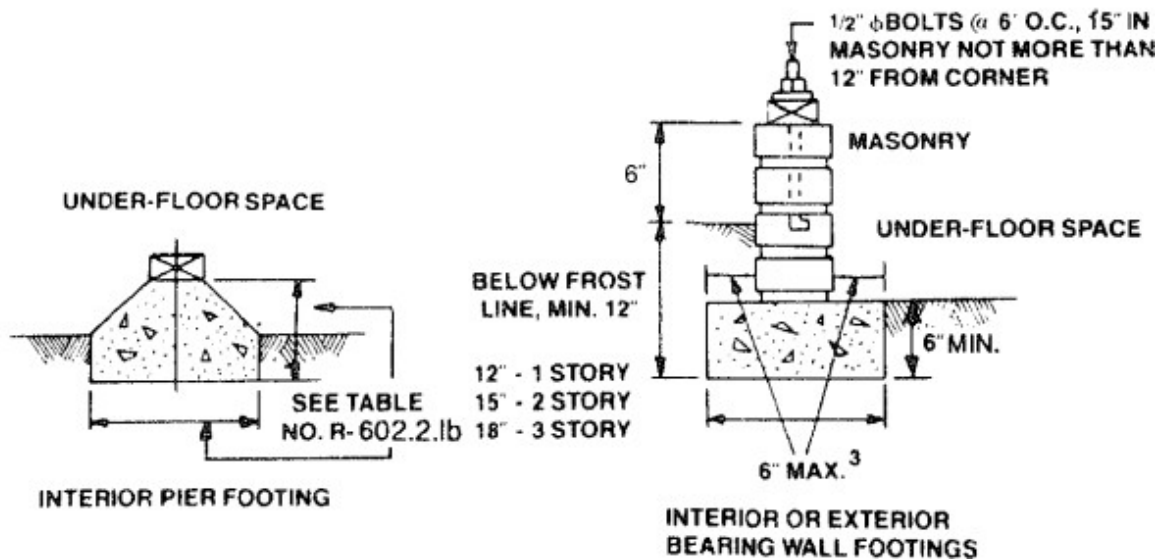
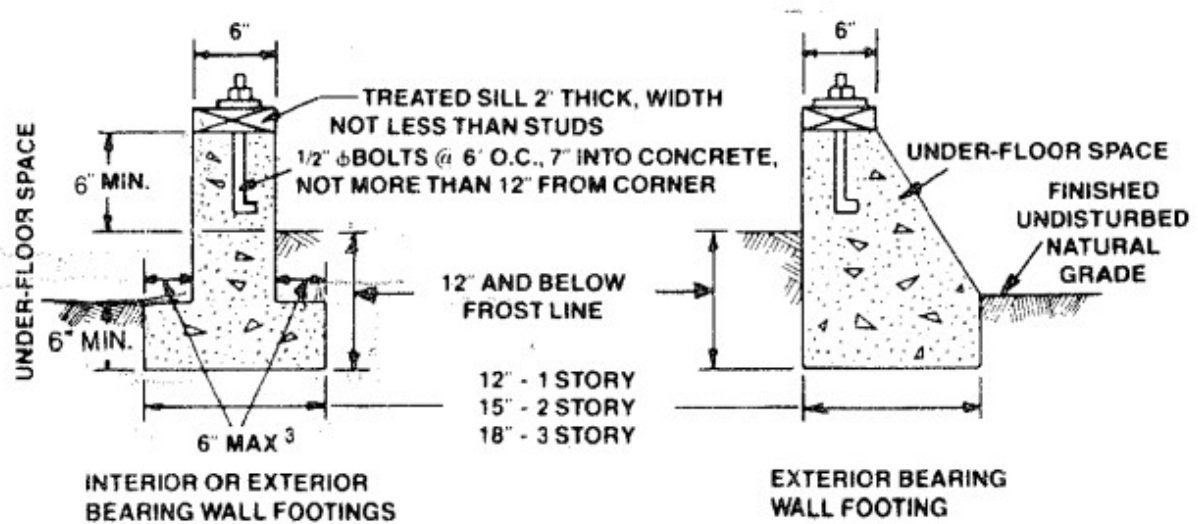
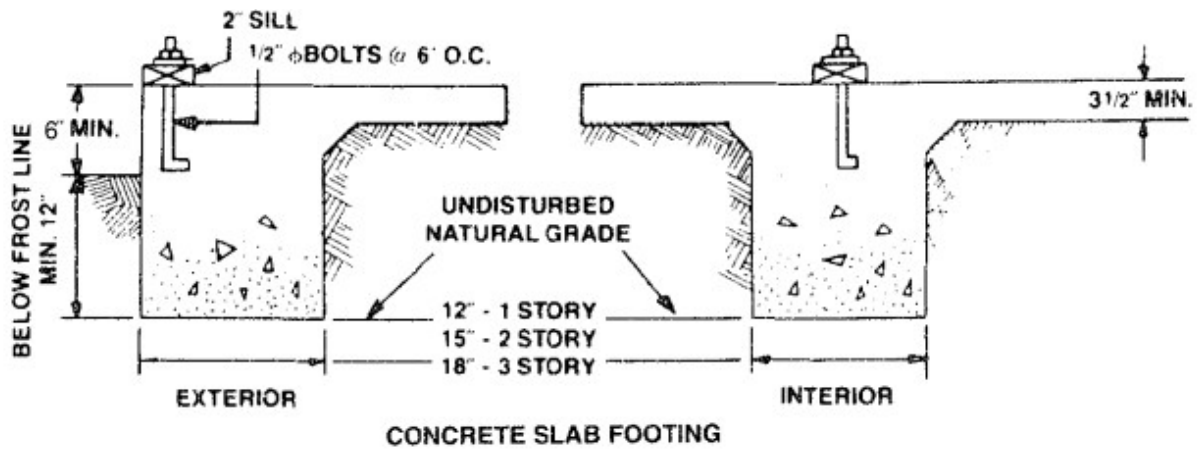
SECTION 405 FOOTINGS

405.1 Footings. All exterior walls, bearing walls, columns, and piers shall be supported on continuous solid masonry or concrete footings, wood foundations, or other *approved* structural systems which shall be of sufficient design to support safely the loads imposed as determined from the character of the soil, and except when erected upon solid rock or otherwise protected from frost, shall extend below the frost line. Minimum sizes for concrete footings shall be as set forth in **Figure 405**. Footings for wood foundations shall be in accordance with the details set forth in **Figures 406.4**. The top surface of footings shall be level. The bottom surface of footings may have a slope not exceeding 1 in 10. Footings shall be stepped where it is necessary to change the elevation of the top surface of the footings or where the slope of the bottom surface of the footing will exceed 1 in 10.

**TABLE 406.3
MINIMUM THICKNESS AND ALLOWABLE DEPTH OF UNBALANCED FILL FOR UNREINFORCED MASONRY AND CONCRETE FOUNDATION WALLS^{a,d} WHERE UNSTABLE SOIL OR GROUND WATER CONDITIONS DO NOT EXIST**

FOUNDATION WALL CONSTRUCTION	NOMINAL THICKNESS, ^c INCHES	MAXIMUM DEPTH OF UNBALANCED FILL ^a , FEET
Masonry of Hollow Units, UngROUTed	8	4
	10	5
	12	6
Masonry of Solid Units	6	3
	8	5
	10	6
	12	7
Masonry of Hollow or Solid Units, Fully Grouted	8	7
	10	8
	12	8
Plain Concrete	6 ^b	6
	8	7
	10	8
	12	8
Masonry of hollow units reinforced vertically with #4 bars and grout at 24 inches on center. Bars located not less than 4 ½ inches from pressure side of wall.	8	7
Rubble Stone	Foundation wall of rubble stone shall be at least 16 inches thick. Rough or random rubble shall not be used as foundations for walls exceeding 35 feet in height.	

- a. Maximum depths of unbalanced fill may be increased with the approval of the building official when soil conditions warrant such increase. Unbalanced fill is the height of outside finish grade above the inside grade.
- b. 6-inch plain concrete walls shall be formed on both sides.
- c. The actual thickness shall not be more than ½ inch less than the required nominal thickness specified in the table.
- d. The height between lateral supports shall not exceed 8 feet.



NOTES:

- ¹ Foundations shall extend not less than 12 inches below the finished natural grade or engineered fill and in no case less than the frost depth line.
- ² Footing sizes are based on soil with an allowable soil pressure of 1,500 pounds per square foot. Footings on soil with lower allowable soil pressure shall be designed in accordance with accepted engineering practice.
- ³ Footing projections shall not exceed the footing thickness.
- ⁴ Transitional Housing Units are limited to 1 story.

**FIGURE 405
MINIMUM FOUNDATION REQUIREMENTS^{1,2,3,4}**

**TABLE 406.4
PLYWOOD GRADE AND THICKNESS FOR WOOD FOUNDATION CONSTRUCTION
(30 PCF equivalent-fluid weight soil pressure)**

HEIGHT OF FILL (inches)	STUD SPACING (inches)	FACE GRAIN ACROSS STUDS			FACE GRAIN PARALLEL TO STUDS		
		Grade ^a	Minimum Thickness (inches)	Identification Index	Grade ^a	Minimum Thickness (inches) ^{b,c}	Identification Index
24	12	B	15/32	32/16	A B	15/32 15/32 ^c	32/16 32/16
	16	B	15/32	32/16	A B	15/32 ^c 19/32 ^c (4, 5 ply)	32/16 40/20
36	12	B	15/32	32/16	A B B	15/32 15/32 ⁵ (4, 5 Ply) 19/32 (4, 5 Ply)	32/16 32/16 40/20
	16	B	15/32 ^c	32/16	A B	19/32 23/32	40/20 48/24
48	12	B	15/32	32/16	A B	15/32 ^c 19/32 ^c (4, 5 ply)	32/16 40/20
	16	B	19/32	40/20	A A	19/32 ^c 23/32	40/20 48/24

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per cubic foot = 0.1572kN/m³.

- a. Plywood shall be of the following minimum grades in accordance with DOC PS 1 or DOC PS2:
 1. DOC PS 1 Plywood grades marked:
 - 1.1. Structural I C-D (Exposure 1)
 - 1.2. C-D (Exposure 1)
 2. DOC PS 2 Plywood grades marked:
 - 2.1. Structural I Sheathing (Exposure 1)
 - 2.2. Sheathing (Exposure 1)
 3. Where a major portion of the wall is exposed above ground and a better appearance is desired, the following plywood grades marked exterior are suitable:
 - 3.1. Structural I A-C, Structural I B-C or Structural I C-C (Plugged) in accordance with DOC PS 1
 - 3.2. A-C Group 1, B-C Group 1, C-C (Plugged) Group 1 or MDO Group 1 in accordance with DOC PS 1
 - 3.3. Single Floor in accordance with DOC PS 1 or DOC PS 2
- b. Minimum thickness 15/32 inch, except crawl space sheathing may be 3/8 inch for face grain across studs 16 inches on center and maximum 2-foot depth of unequal fill.
- c. For this fill height, thickness and grade combination, panels that are continuous over less than three spans (across less than three stud spacings) require blocking 16 inches above the bottom plate. Offset adjacent blocks and fasten through studs with two 16d corrosion-resistant nails at each end.

**SECTION 407
PROTECTION OF WOOD AND WOOD
BASED PRODUCTS AGAINST DECAY**

407.1 Location Required. Protection of wood and wood based products from decay shall be provided in the following locations by the use of naturally durable wood or wood that is preservative-treated in accordance with AWP A U1 for the species, product, preservative and end use. Preservatives shall be listed in Section 4 of AWP A U1.

1. Wood joists or the bottom of a wood structural floor when closer than 18 inches (457 mm) or wood girders when closer than 12 inches (305 mm) to the exposed ground in crawl spaces or unexcavated areas located within the periphery of the building foundation.
2. All wood framing members and sill plates in contact with concrete or masonry foundation walls.
3. Sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated from such

slab by an impervious moisture barrier such as 6-mil-thick (0.15 mm) polyethylene sheeting or equivalent.

4. The ends of wood girders entering exterior masonry or concrete walls having clearances of less than 1/2 inch (12.7 mm) on tops, sides and ends.
5. Wood siding, sheathing and wall framing on the exterior of a building having a clearance of less than 6 inches (152 mm) from the ground or less than 2 inches (51 mm) measured vertically from concrete steps, porch slabs, patio slabs, and similar horizontal surfaces exposed to the weather.
6. Wood structural members supporting moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier.
7. Wood furring strips or other wood framing members attached directly to the interior of exterior masonry walls or concrete walls below grade except where an *approved*

vapor retarder is applied between the wall and the furring strips or framing members.

407.1.1 Field Treatment. Field-cut ends, notches and drilled holes of preservative-treated wood shall be treated in the field in accordance with AWWA M4.

407.1.2 Ground Contact. All wood in contact with the ground, embedded in concrete in direct contact with the ground or embedded in concrete exposed to the weather that supports permanent structures intended for human occupancy shall be *approved* pressure-preservative-treated wood suitable for ground contact use, except untreated wood may be used where entirely below groundwater level or continuously submerged in fresh water.

407.1.3 Wood Columns. Wood columns shall be *approved* wood of natural decay resistance or *approved* pressure-preservative-treated wood.

Exceptions:

1. Columns exposed to the weather when supported by concrete piers or metal pedestals projecting 1 inch (25.4 mm) above a concrete floor or 6 inches (152 mm) above exposed earth and the earth is covered by an *approved* impervious moisture barrier such as 6-mil-thick (0.15 mm) polyethylene sheeting or equivalent.
2. Columns in enclosed crawl spaces or unexcavated areas located within the periphery of the building when supported by a concrete pier or metal pedestal at a height more than 8 inches (203mm) from exposed earth and the earth is covered by an impervious moisture barrier.

407.1.4 Exposed Glued-Laminated Timbers. The portions of glued-laminated timbers that form the structural supports of a building or other structure and are exposed to weather and not properly protected by a roof, eave or similar covering shall be pressure treated with preservative, or be manufactured from naturally durable or preservative-treated wood.

407.2 Quality mark. Lumber and plywood required to be pressure-preservative-treated in accordance with Section 407.1 shall bear the quality mark of an *approved* inspection agency that maintains continuing supervision, testing and inspection over the quality of the product and that has been *approved* by an accreditation body that complies with the requirements of the American Lumber Standard Committee treated wood program.

407.2.1 Required Information. The required quality mark on each piece of pressure-preservative-treated lumber or plywood shall contain the following information:

1. Identification of the treating plant.
2. Type of preservative.
3. The minimum preservative retention.
4. End use for which the product was treated.
5. Standard to which the product was treated.
6. Identity of the *approved* inspection agency.
7. The designation "Dry," if applicable.

Exception: Quality marks on lumber less than 1 inch (25.4 mm) nominal thickness, or lumber less than nominal 1 inch × 5 inch (25.4 mm × 127 mm) or 2 inch × 4 inch (51 mm by 102 mm) or lumber 36 inch (914 mm) or less in length shall be applied by stamping the faces of exterior pieces or by end labeling not less than 25 percent of the pieces of a bundled unit.

407.3 Fasteners and Connectors in Contact with Preservative-Treated and Fire-Retardant-Treated Wood.

Fasteners and connectors in contact with preservative-treated wood and fire-retardant-treated wood shall be in accordance with this section. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A153.

407.3.1 Fasteners for Preservative-Treated Wood.

Fasteners for preservative-treated wood shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Coating types and weights for connectors in contact with preservative-treated wood shall be in accordance with the connector manufacturer's recommendations. In the absence of manufacturer's recommendations, a minimum of ASTM A653 type G185 zinc-coated galvanized steel, or equivalent, shall be used.

Exceptions:

1. ½ inch (12.7 mm) diameter or greater steel bolts.
2. Fasteners other than nails and timber rivets shall be permitted to be of mechanically deposited zinc coated steel with coating weights in accordance with ASTM B695, Class 55 minimum.

407.3.2 Fastenings for Wood Foundations. Fastenings for wood foundations shall be as required in AF&PAPWF.

407.3.3 Fasteners for Fire-Retardant-Treated Wood Used in Exterior Applications or Wet or Damp Locations.

Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper. Fasteners other than nails and timber rivets shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B695, Class 55 minimum.

407.3.4 Fasteners for Fire-Retardant-Treated Wood Used in Interior Applications.

Fasteners for fire-retardant treated wood used in interior locations shall be in accordance with the manufacturer's recommendations. In the absence of the manufacturer's recommendations, Section 407.3.3 shall apply.

407.4 Wood/Plastic Composites. Wood/plastic composites used in exterior deck boards, stair treads, handrails and guardrail systems shall bear a label indicating the required performance levels and demonstrating compliance with the provisions of ASTM D7032.

407.4.1 Wood/plastic composites shall be installed in accordance with the manufacturer's instructions.

**SECTION 408
CRAWL SPACE**

408.1 Ventilation. The space between the bottom of the floor joists and the earth under any building shall be provided with a sufficient number of ventilating openings through foundation walls or exterior walls to ensure ample ventilation. Ventilating openings shall be provided with corrosion-resistant wire mesh, or equivalent, with the least dimension being $\frac{1}{8}$ inch. The minimum net area of ventilation openings shall be not less than 1 square foot (0.0929 m²) for each 150 square feet (14 m²) of crawl space area. One such ventilating opening shall be within 3 feet (914 mm) of each corner of said building.

Exceptions:

1. Ventilating openings may be vented to the interior of buildings where warranted by climatic conditions.
2. The total area of ventilation openings may be reduced to 1,500 square feet (139 m²) of the under-floor area


where the ground surface is treated with an *approved* vapor barrier material and one such ventilation opening is within 3 feet of each corner of said buildings. The vents may have operable louvers.

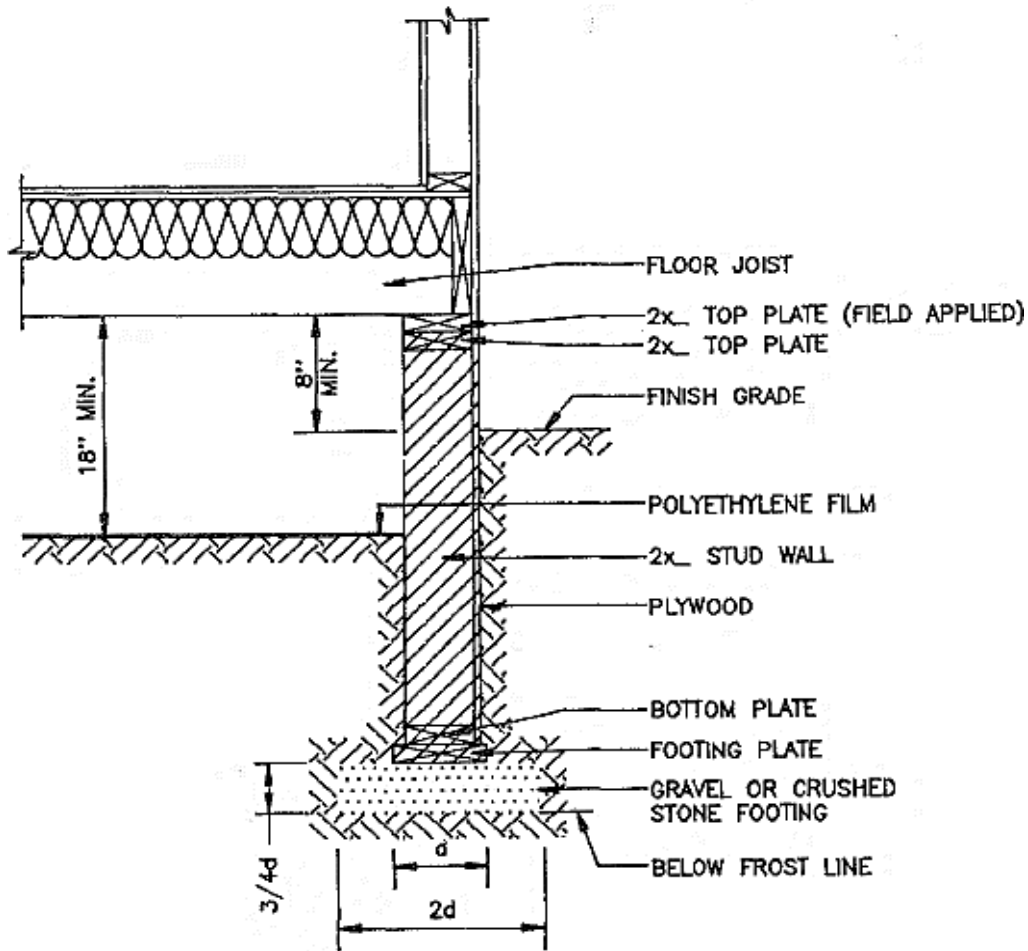
3. Ventilating openings may be omitted on one side.

408.2 Access. An access crawl hole 18 inches \times 24 inches (457 mm \times 610 mm) shall be provided to the under-floor space.

408.3 Removal of Debris. The under-floor grade shall be cleaned of all vegetation and organic material.

408.4 Finished Grade. The finished grade of under-floor space may be located at the bottom of the footings; however, where there is evidence that the groundwater table can rise to within 6 inches (152 mm) of the finished grade at the building perimeter or where there is evidence that surface water does not readily drain from the building site, the grade in the under-floor space shall be as high as the outside finished grade, unless an *approved* drainage system is provided.

 PRESSURE-TREATED WOOD



**FIGURE 406.4
TYPICAL DETAILS FOR WOOD FOUNDATION CRAWL SPACE WALLS**

CHAPTER 5 CONSTRUCTION

SECTION 501 MATERIALS

501.1 General. All materials shall be installed in accordance with the manufacturer's installation instructions where available.

501.2 Resistance to Elements. Exterior coverings and openings for window equipment or vents shall be designed to resist the infiltration of air and water into the roof or wall cavity except for designed ventilation.

501.3 Lumber Grading. All lumber used in structural applications shall be graded by an association or independent grading agency.

501.4 Trusses. Trusses shall be tested or calculated to meet the requirements of this chapter. All lumber used in trusses shall bear grade marks prior to cutting.

SECTION 502 STRUCTURAL DESIGN REQUIREMENTS

502.1 General. *Transitional housing units* shall be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads, and seismic loads prescribed by the authority having jurisdiction.

502.2 Design. The construction of *transitional housing units* shall result in a system that provides a complete load path that meets all requirements for the transfer of all loads from their point of origin through the load-resisting elements to the foundation. Sizes and connections for structural members not specified in this chapter shall be designed in accordance with generally accepted engineering practice.

502.2.1 Minimum Loads. Structural components which are not constructed as specified in this chapter shall be designed to provide the following loads at a minimum:

1. Floor Design Live Load 30 psf (1.436 kPa)
2. Roof Design Live Load 30 psf (1.436 kPa)

502.2.2 Allowable Deflection. Structural components which are not constructed as specified in this Chapter shall be designed to provide the following maximum live load deflection:

1. Floor Components - L/240
2. Roof Components - L/180
3. Load Bearing Wall Headers - L/180

502.2.3 Test Procedures. All test procedures shall be conducted in accordance with accepted engineering practices and shall be observed by a Registered Professional Engineer or an independent third-party agency. Test procedures and test

results shall be certified by the observing professional or an independent third-party agency.

502.2.3.1 Ultimate Load Tests. Ultimate Load tested materials or assemblies shall sustain an ultimate load of the dead load plus 2.5 times the design live load.

502.2.3.2 Proof Load Tests. Proof load tested materials or assemblies shall sustain a proof load of the dead load plus 1.75 times the design live load for a duration of three (3) hours with residual deflection which is equal to or less than the allowable deflection when measured within twelve (12) hours after the load is removed.

SECTION 503 FLOOR CONSTRUCTION

503.1 General. Floor assemblies shall comply with either this section or Chapter 5 of the *Oregon Residential Specialty Code*. Floors that are not built in accordance with Chapter 5 of the *Oregon Residential Specialty Code* and that are not verified by test or calculation shall be constructed as specified below. Fastening shall be in accordance with the fastening schedule at the end of this Chapter.

503.1.1 Moisture Resistance. Wood floors or subfloors in kitchens, bathrooms, (including water closet *compartments*), laundry areas, water heater *compartments*, and other areas subject to excessive moisture shall be made moisture-resistant by sealing or by an overlay of non-absorbent material applied with water resistant adhesive.

503.1.2 Floors. Floors shall be constructed of wood members mounted on a steel frame. The wood members shall be not less than 2 inches × 4 inches (51 mm × 102 mm) (nominal) spaced at 16 inches (406 mm) on centers maximum for longitudinal joists or 2 inches × 6 inches (51 mm × 152 mm) (nominal) if spaced at 24 inches (610 mm) on centers maximum for longitudinal or transverse joists.

503.1.3 Subflooring. Subflooring shall be plywood, oriented strand board, particleboard, or equivalent which is rated for the application and installed in accordance with the manufacturer's recommendations. Minimum subflooring thickness shall be in accordance with the following chart:

MAXIMUM JOIST SPACING	PLYWOOD / OSB	PARTICLEBOARD
16" (406 mm) o.c.	1/2" (12.7 mm)	5/8" (15.87 mm)
20" (508 mm)	5/8" (15.87 mm)	11/16" (17.46 mm)
24" (610 mm)	3/4" (19.05 mm)	13/16" (20.64 mm)

503.2 Steel Frames.

503.2.1 Transverse Floors. Steel frames shall be constructed from the following materials as a minimum for floor assemblies with transverse joist orientation:

1. **Main rails.** 8 inches (203 mm) × 6.5 # I-beam spaced not less than 75 inches (1905 mm) apart.
2. **Cross members.** 1¼ inches (32 mm) × 2 inches (51 mm) by 1¼ inches (32mm) 13 gauge “C” or “Z” section steel.
3. **Outriggers.** 14 gauge “Z” section steel with 1¼ inches (32 mm) minimum top and bottom flanges with 6 inches (152 mm) minimum depth at the main rails.

503.2.2 Spacing of Outriggers and Cross Members. Outriggers and Cross Members shall be placed at the following maximum spacing:

1. **Floor joists 20 inches** (508 mm) or less on centers - 96 inches (2438 mm) on centers maximum.
2. **Floor joists over 20 inches** (508 mm) on centers - 48 inches (1219 mm) on centers.

503.2.3 Longitudinal Floors. Steel frames shall be constructed from the following materials as a minimum for floor assemblies with longitudinal joist orientation:

1. **Main rails.** 8 inches (203 mm) × 6.5# I-beam spaced not less than 75 inches (1905 mm) apart.
2. **Cross members.** Open web steel truss joists constructed as follows at 48 inches (1219 mm) on centers maximum: 1¼ inches (32 mm) by 1¼ inches (32 mm) by 13 gauge steel angle top and bottom members with 6 inches (152 mm) minimum depth at the main rails. 5/16 inches (7.93 mm) (minimum) steel rod web members installed at no more than 45° from vertical. Optionally, cross members may be constructed of 1¼ inches (32 mm) by 6 inches (152 mm) by 1¼ inches (32 mm) “Z” section or “C” section 13 gauge steel.
3. **Outriggers.** 14 gauge “Z” section steel with 1¼ inches (32 mm) minimum top and bottom flanges spaced at 48 inches (1219 mm) on centers maximum with 6 inches (152 mm) minimum depth at the main rails.

SECTION 504 WALL CONSTRUCTION

504.1 General. Wall assemblies shall comply with either this section or Chapter 6 of the *Oregon Residential Specialty Code*. Walls that are not built in accordance with Chapter 6 of the *Oregon Residential Specialty Code* and that are not verified by test or calculation shall be constructed as specified below.

504.1.1 Performance. Load bearing wall assemblies shall be of sufficient strength and rigidity to transfer all vertical loads to the floor.

504.1.2 Framing. Load bearing wall assemblies which are not verified by test or calculation shall be constructed as specified below and fastened in accordance with the fastening schedule **Table 5.1**.

504.2 Stud Requirements.

504.2.1 2 × 3 Studs.

1. Minimum 2 inch × 3 inch (51 mm × 76 mm) (nominal) studs of #3 or stud grade SPF or better spaced no more than 16 inches (406 mm) on centers with not more than 84 inches (2134 mm) in unsupported height.
2. Minimum 2 inch × 3 inch (51 mm × 76 mm) (nominal) studs of #3 or Stud grade SPF or HF or better spaced no more than 16 inches (406 mm) on centers with not more than 96 inches (2438 mm) in unsupported height.

504.2.2 2 × 4 Studs.

1. Minimum 2 inch × 4 inch (51 mm × 101 mm) (nominal) studs of #3 or Stud grade SPF or better spaced no more than 24 inches (610 mm) on centers with not more than 96 inches (2438 mm) in unsupported height.
2. Minimum 2 inch × 4 inch (51 mm × 102 mm) (nominal) studs of #3 or Stud grade SPF or HF or better spaced no more than 16 inches (610 mm) on centers with not more than 120 inches (3048 mm) in unsupported height.

504.2.3 Plate Requirements.

1. All 2 inch × 3 inch (51 mm × 76 mm) (nominal) load-bearing wall assemblies shall be constructed with at least two top plates, each no less than 1½ inches (38 mm) thick by the width of the studs, except that units constructed with the concentrated loads from the roof located within 1½ inches (38 mm) of the wall stud locations shall be permitted to be constructed with single ¼ inches (19 mm) thick top plates. 2x top plates shall be #3 or Stud grade SPF or better while 1x top plates shall be #3 common or better.
2. All 2 inch × 4 inch (51 mm × 102 mm) (nominal) or larger load bearing wall assemblies shall be constructed with at least one top plate which shall be no less than 1½ inches (38 mm) thick by the width of the studs, except that units constructed with the concentrated loads from the roof located within 1½ inches (38 mm) of the wall stud locations shall be permitted to be constructed with single ¾ inches (19 mm) thick top plates. Top plates shall be #3 or Stud grade SPF or better.
3. All load bearing wall assemblies shall be constructed with at least one bottom plate no less than ¼ inches (19 mm) thick by the width of the studs.

504.2.4 Framing for Openings in Bearing Walls.

1. **Studs.** Openings in load bearing wall assemblies which exceed 32 inches (813 mm) in width for walls constructed of 2 inch × 3 inch (51 mm × 76 mm) (nominal) lumber, or which exceed 48 inches (1219 mm) for walls constructed of 2 inch × 4 inch (51 mm × 102 mm) (nominal) or larger lumber, shall be framed with double studs. The inner stud shall extend from the bottom of the header to the wall bottom plate and the outer studs shall extend from the top plate to the bottom plate.
2. **Headers.**

- a. **2 × 3 Headers.** Headers over openings in load bearing walls constructed of 2 inch × 3 inch (51 mm × 102 mm) (nominal) studs shall be at least one (1) piece 1½ inches (38 mm) thick #3 or stud grade SPF South on edge and one (1) piece ¼-inch (19 mm) thick #3 or stud grade SPF lumber on edge. Filler may be inserted between the members to bring the header to the same thickness as the stud wall.
- b. **2 × 4 or Larger Headers.** Headers over openings in load bearing walls constructed of 2 inch × 4 inch (51 mm × 76 mm) (nominal) or larger studs shall be at least two (2) pieces of 1½ inches (38 mm) thick #3 or Stud grade SPF lumber on edge, separated by appropriate filler pieces to bring the header to the same thickness as the wall stud.
- c. **Header Spans.** Headers shall be at least as deep as the following chart:

MAXIMUM SPAN	2" X 3" WALLS (51 MM X 76 MM)	2" X 4" OR ≤ WALLS (51 MM X 102 MM)
48" (1219 mm)	5.5" (140 mm)	3.5" (89 mm)
72" (1829 mm)	7.25" (184 mm)	5.5" (140 mm)
96" (2438 mm)	9.25" (235 mm)	7.25" (184 mm)
120" (3048 mm)	N/A	9.25" (235 mm)
144" (3658 mm)	N/A	11.25" (286 mm)

504.2.5 Non-Bearing Walls. When trusses are supported by the sidewalls, framing may be constructed as follows:

1. **Studs.**
 - a. 2 inch × 3 inch (51 mm × 76 mm) (nominal) SPF #3 or stud grade 24 inches (610 mm) OC 96 inches (2438 mm) tall.
 - b. 2 inch × 4 inch (51 mm × 102 mm) (nominal) SPF #3 or stud grade 24 inches (610 mm) OC 120 inches (3048 mm) tall.
2. **Plates.** Minimum ¼ inch (19 mm) SPF #3 or stud grade.
3. **Openings.**
 - a. Studs at openings.
 - b. 2 inch x 3 inch (51 mm × 76 mm) (nominal) Studs (one) required at openings not over 31 inches (787 mm).
 - c. 2 inch x 4 inch (51 mm × 102 mm) (nominal) Studs (two) required on all other openings.
4. **Headers.**
 - a. 2 inch × 3 inch (51 mm × 76 mm) (nominal) walls flat member on openings up to 48 inches (1219 mm), 2 inches × 6 inches (51 mm × 152 mm) (nominal) on openings larger. One required at openings not over 48 inches (1219 mm)
 - b. 2 inch × 4 inch (51 mm × 102 mm) (nominal) wall flat member on openings up to 64 inches (1626 mm), 2 inches × 6 inches (51 mm × 152 mm) on openings larger. Two required on all other openings.

SECTION 505 ROOF CONSTRUCTION

505.1 General. Roof assemblies shall comply with either this section or Chapter 8 of the *Oregon Residential Specialty Code*. Roofs that are not built in accordance with Chapter 8 of the *Oregon Residential Specialty Code* and that are not verified by test or calculation shall be constructed as specified below. Fastening shall be in accordance with **Table 5.1**.

505.2 Roof Framing. Roof framing shall consist of certified and *listed* trusses installed in accordance with the terms of their listing.

505.3 Edge Nailing. Roof assemblies shall be constructed with edge rails at least ¼ inches (19 mm) thick. The minimum depth, width, or height of the edge rail shall be the depth of the truss heel or 3½ inches (89 mm), whichever is less.

505.4 Sheathing. If installed, roof sheathing application shall conform to the requirements of the roof finish material manufacturer's installation instructions. If no instructions are available, the minimum fastening is per **Table 5.1**.

SECTION 506 PORCH CONSTRUCTION

506.1 General Requirements. *Porches* that are an integral part of the *transitional housing unit* shall be constructed in accordance with the requirements of this section.

506.1.1 Alternate Methods. Nothing in this section shall prohibit alternate methods of construction which can be proven by test or calculation to meet the loading requirements contained herein.

506.1.2 Exterior Finish. The wall of the *transitional housing unit* that is adjacent to the *porch* shall have exterior finish material installed continuous to the bottom of the floor assembly.

506.2 Materials.

506.2.1 Lumber. All lumber used in structural applications shall be graded by an association or independent grading agency and shall be naturally resistant to weather and insect damage or shall be treated to resist weather and insect damage unless completely protected from exposure to the exterior atmosphere.

506.2.2 Installation Instructions. All materials shall be installed in accordance with the manufacturer's installation instructions where available.

506.2.3 Fasteners. All fasteners used in *porch* construction that are exposed to the atmosphere shall be corrosion resistant.

506.3 Design of Structural Elements. The design of structural elements shall be in accordance with accepted engineering practices.

506.4 Floor Construction.

506.4.1 General. All *porch* framing lumber and decking materials shall be graded by a nationally recognized association or independent grading agency and shall be naturally resistant to weather and insect damage or shall be treated to resist weather and insect damage unless completely protected from the atmosphere.

506.4.1.1 Decking. Decking shall be plywood, oriented strand board, particle-board, or equivalent which is rated for the application and installed in accordance with the manufacturer's recommendations. All decking materials shall be *approved* for exterior use or shall be completely protected from exposure to the exterior atmosphere. Minimum decking thickness shall be in accordance with the following chart:

MAXIMUM JOIST SPACING	PLYWOOD / OSB	PARTICLEBOARD
16" (406 mm) o.c	1/2" (12.7 mm)	5/8" (15.88 mm)
20" (508 mm)	5/8" (15.88 mm)	11/16" (17.46 mm)
24" (610 mm)	3/4" (19.05 mm)	13/16" (20.64 mm)

Exception: Decking may consist of $5/4$ inches (32 mm) (nominal) treated deck lumber installed over joists spaced a maximum of sixteen inches (406 mm) on centers and with a minimum $1/8$ inches (3 mm) gap between boards.

506.4.2 Slope. *Porch* floor assemblies shall be sloped away from the main body floor assembly and shall maintain a slope equal to at least $1/4$ inch (6 mm) per 8 foot (2.44 m) span.

Exception: Decks constructed of decking boards as specified in the exception in Section 506.4.1.1 shall not require a slope.

506.4.3. Prohibited Installations.

1. Floor assemblies of decks shall not contain insulation.
2. Floor assemblies shall not contain heating or cooling ducts or facilities to incorporate such ducts.

506.4.4 Floor Coverings. Floor coverings, if installed, shall be designed for exterior use.

506.4.5 Steel Frames. Where steel *frames* are supporting the floor, they shall be constructed identical to and integrated into the *frame* supporting the main unit.

506.5 Guardrail Construction.

506.5.1 General. *Porches* shall have a continuous guardrail on all sides except as provided for access off the *porch*.

506.5.2 Height. Guardrails shall extend at least 36 inches (914 mm) above the floor surface. The distance between the bottom of the guardrail and the deck shall not allow passage of an object 4 inches (102 mm) in diameter.

506.5.3 Intermediate Rails or Ornamental Enclosures. Guardrails shall have intermediate rails or ornamental enclosures which are a minimum of 4 inches (51 mm) on centers and which do not allow passage of an object 4 inches (102 mm) in diameter.

506.5.4 Roof Supports. Guardrails may be interrupted by vertical supports for the roof structure. Vertical supports for the roof structure shall be no closer than 36 inches (914 mm) on centers.

506.6 Screen Enclosures. Removable screen enclosures may be included but shall not contain provisions for installation of windows or other weatherproof materials. Screens and screen enclosures shall not be a structural member that is able to support the roof.

506.7 Roof Construction.

506.7.1 General. Roof assemblies shall be constructed identical to the roof assembly of the transitional house except for insulation or shall be substantiated by calculation or test report.

506.7.2 Prohibited Installations.

1. Roof assemblies of decks shall not contain insulation.
2. Roof assemblies shall not contain heating or cooling ducts or facilities to incorporate such ducts.

506.8 Exterior Outlets.

506.8.1 Receptacle. Each *porch* shall have a minimum of one outdoor receptacle which shall contain ground-fault circuit-interrupter protection for personnel.

506.8.2 Lighting Outlet. At least one lighting outlet controlled by an interior wall-mounted switch shall be installed to illuminate the *porch*. Such lighting shall also be permitted to serve as the required lighting outlet for the adjacent exterior exit door.

TABLE 5.1

FASTENING SCHEDULE FOR TRANSITIONAL HOUSING DESIGNED WITHOUT ALTERNATIVE ENGINEERING SYSTEMS

NOTE: Unless tested, calculated, or otherwise specified in this table all fasteners shall be long enough to permit at least one (1) inch (25.4 mm) penetration into the second member or as specified by the manufacturer of the product. Splitting of members shall be minimized by staggering all fasteners in the direction of the grain and by keeping all fasteners well in from the edges of the member. Transitional housing using alternative engineering systems must obtain confirmation from a registered professional engineer or architect before using this table.

CONSTRUCTION DETAIL	TYPE OF FASTENER	QUANTITY & APPLICATION
FLOOR		
Joist to Perimeter Joist	7/16" (11.11 mm) - 16 Ga. Staples	4 Ea. End of Joist
Perimeter Joist Splice	7/16" (11.11 mm) - 16 Ga. Staples	5 Ea. Side of Joint-80% Glue Coverage
Decking to Joist	7/16" (11.11 mm) - 16 Ga. Staples	6" (152.4 mm) O.C. Edge - 10" (254 mm) O.C. Field - 80% Glue
Bottom Board to Joist	1" x 5/8" (25.4 mm x 16 mm)- 16 Ga. Staples	6" (152.4 mm) O.C. Perimeter of Floor
Multiple Joists	7/16" (11.11 mm) - 15 Ga. Staples	12" (304.8 mm) O.C. Staggered
EXTERIOR WALL		
Stud to Top Plate	7/16" (11.11 mm) - 16 Ga. Staples	2 Ea. End of Stud
Stud to Bottom Plate	7/16" (11.11 mm) - 16 Ga. Staples	2 Ea. End of Stud
Multiple Studs @ Jack Studs	7/16" (11.11 mm) - 16 Ga. Staples	12" (304.8 mm) O.C. - Staggered
Stud to Header	7/16" (11.11 mm) - 16 Ga. Staples	2 Ea. End of Member
Finish Material to Stud	5/32" x 3/4" (4.0 mm x 19.05 mm) -.025 Staples	6" (152.4 mm) O.C. Edge - 12" (304.8 mm) O.C. Field - 80% Glue
Wall to Floor	#8-3" (76.2 mm) Wood Screws #10-4" (114.3 mm) Wood Screws 10d Nails (.131") x 3"	8" (203.2 mm) O.C. 16" (406.4 mm) O.C. 8" (203.2 mm) O.C.
Sidewall to Endwall	#8 - 3" (76.2 mm) - Wood Screws	16" (406.4 mm) O.C.
30 Ga. Steel Strap to Stud Roof & Floor	7/16" (11.11 mm) - 16 Ga. Staples	4 Ea. End of Strap
Plate Splice	7/16" (11.11 mm) - 16 Ga. Staples	5 Ea. Side of Joint - 80% Glue
Blocking to Stud	7/16" (11.11 mm) - 16 Ga. Staples	2 Ea. End
Exterior Finish to Wall Framing	Per Installation Instructions	
INTERIOR PARTITIONS		
Stud to Top Plate	7/16" (11.11 mm) - 16 Ga. Staple	2 Ea. End of Stud
Stud to Bottom Plate	7/16" (11.11 mm) - 16 Ga. Staples	2 Ea. End of Stud
Multiple Studs @ Jack Studs	7/16" (11.11 mm) - 16 Ga. Staples	12" (304.8 mm) O.C. - Staggered
Stud to Header	7/16" (11.11 mm) - 16 Ga. Staples	2 Ea. End of Header (2 Ea. End (38 mm) member when jack studs are not installed)
Finish Material to Stud	5/32" x 3/4" (4.0 mm x 19.05 mm) -.025 Staples	6" (152.4 mm) O.C. Edge, 12" (304.8 mm) O.C. Field
Wall to Floor	7/16" (11.11 mm) - 16 Ga. Staple	16" (406.4 mm) O.C.
Partition to Partition	7/16" (11.11 mm) - 16 Ga. Staples	16" (406.4 mm) O.C.
Partition to Sidewall @ Endwall	7/16" (11.11 mm) - 16 Ga. Staples	16" (406.4 mm) O.C.
Plate Splice	7/16" (11.11 mm) - 16 Ga. Staples	8 Ea. Side of Joint
Blocking to Stud	7/16" (11.11 mm) - 16 Ga. Staples	2 Ea. End of Block
ROOF		
Edge Rail Splice Block	7/16" (11.11 mm) - 16 Ga. Staples	8 Ea. Side of Splice & 80% Glue
Truss to Edge Rail	7/16" (11.11 mm) - 16 Ga. Staples	2 Ea. End of Truss
Blocking to Truss	7/16" (11.11 mm) - 16 Ga. Staples	2 Ea. End
Edge Rail to Top Plate	#8 - 3" (76.2 mm) - Wood Screws	16" (406.4 mm) O.C. Toe Driven
Truss to Top Plate	#8 - 3" (76.2 mm) - Wood Screws	2 Ea. Toe Driven
Roof Sheathing to Truss	7/16" (11.11 mm) - 16 Ga. Staples	3/4" (19.05 mm) Penetration 6" (152.4 mm) O.C. Edges, 12" (304.8 mm) O.C. Field
Roofing Paper to Sheathing	Per Installation Instructions	
Shingles to Sheathing	Per Installation Instructions	

CHAPTER 6 ELECTRICAL

SECTION 601 GENERAL

601.1 General. All electrical installations in *transitional housing units* shall be installed in accordance with the residential provisions of the *Oregon Electrical Specialty Code*.

SECTION 602 REQUIREMENTS

602.1 Ancillary Power Supply. Accessory equipment, structures, and other buildings shall not be powered by the *transitional housing unit* electrical system.

602.2 Testing. At the time of installation, the *transitional housing units* shall be tested to the following criteria:

1. All 110 volt electrical receptacle outlets shall be subjected to a polarity test to determine all connections have been made properly; and
2. All electrical lights, equipment, arc fault and ground fault circuit interrupters, and appliances shall be subjected to an operational test to demonstrate all equipment is connected and in working order.

602.3 External Connections. *Transitional housing units* shall be connected to power sources in accordance with the *Oregon Electrical Specialty Code*.

CHAPTER 7 PLUMBING

SECTION 701 GENERAL

701.1 General. All plumbing installations in *transitional housing units* shall be installed in accordance with the residential provisions of the *Oregon Plumbing Specialty Code*.

SECTION 702 REQUIREMENTS

702.1 External Connections. *Transitional housing units* containing plumbing systems shall be connected to water sources and waste disposal terminals in accordance with the *Oregon Plumbing Specialty Code*.

702.2 Shutoff Valve. A full way shutoff valve shall be provided on the water supply serving each *transitional housing unit*.

702.3 Pressure Regulator. Where static water pressure exceeds 80 pounds per square inch, a pressure regulator shall be installed.

702.4 Testing. The water distribution system of the *transitional housing unit* and the supply connection shall be subjected to a test to assure there is no evidence of leakage under normal operating pressure. If water under normal operating pressure is not available, the transitional house water distribution system shall show no evidence of leakage, by sustaining 50 pounds per square inch of air pressure for 15 minutes.

702.5 Sewer Connection. Each *transitional housing unit* shall be connected to the sewer inlet by means of a 3-inch diameter drain connector consisting of *approved pipe*, not less than schedule 40, appropriate directional fittings and *listed* and *approved* rubber molded couplings at each end of the *pipe*.

702.6 Drainage Testing. The *transitional housing unit* drainage *pipng* system shall be connected to the lot or site drain inlet and tested by allowing water to flow into all fixtures and receptors, including the clothes washer standpipe, for a period of three minutes. If water under pressure is not available, the drainage *pipng* system shall be tested by dumping at least three gallons of water into each fixture and receptor. Each P-trap shall be visible during this test to assure there is no evidence of leaks.

CHAPTER 8 MECHANICAL, FUEL SYSTEMS AND EQUIPMENT

SECTION 801 GENERAL

801.1 Quality of Design and Installation. Mechanical systems, appliances, and equipment shall comply with the *Oregon Residential Specialty Code* Chapters 12 through 16, 21, and 23.

801.2 Prohibitions. Propane systems, propane cylinders, and propane, gas, and fuel burning appliances are prohibited in structures built under this standard.

801.3 Required Information.

801.3.1 Instructions for Appliances. Operating instructions shall be provided for each appliance, including air-conditioning appliances.

801.3.2 Warnings. Each *transitional housing unit* shall be provided with a warning printed in English that states:

1. Portable fuel-burning equipment, including wood and charcoal grills and stoves, shall not be used inside the *transitional housing unit*. The use of this equipment inside the *transitional housing unit* can cause fires or asphyxiation.
2. Not to bring or store *propane* containers, gasoline, or other flammable liquids inside the *transitional housing unit* because a fire or explosion can result.