

**BENTON COUNTY BUILDING DIVISION
 PROCEDURES AND REQUIREMENTS FOR OBTAINING
 FACTORY ASSEMBLED STRUCTURE (FAS) PERMIT FOR PLACEMENT
 IN MANUFACTURED HOME PARK**

Completion of this form DOES NOT authorize placement of the FAS

Permits are issued at the Building Div., 102206 E. Wiser Parkway, Kennewick WA 99338 - (509) 735-3500, between **8:00 am-12:00 pm and 1:00 pm-5:00 pm, Monday through Friday (except holidays)**. Per BCC 3.20.040, no manufactured home/FAS shall be located on a lot until a FAS permit has been obtained from the Benton County Building Div. No person shall deliver a FAS until they have verified that the owner or installer has obtained a permit for the location of the FAS. Placement of a FAS on any parcel prior to permit issuance will be assessed a fine double the original permit cost. A FAS permit does not authorize the construction or attachment of carports, garages, decks, etc., for which a separate building permit is required. Structures that are placed on slopes greater than 15% may be required to have noncombustible siding and/or soffits and decks may be required to have noncombustible skirting. Contact the Benton County Fire Marshal at (509) 735-3500.

- FAS's built prior to June 15, 1976, require Dept. of Labor & Industries Fire and Safety Inspection approval documentation.
- One complete plot plan. All required elements shall be shown, see attached sample.
- Declaration of Owner if owner is acting as general contractor. Form available at the Building Division.
- Copy of registration, title, purchase agreement or other proof of manufactured date.
- Blocking diagrams required on-site at first inspection.
- FAS structures require a minimum of 6' separation from other structures.

FAS OWNER _____ HM PHONE _____

CURRENT MAILING ADDRESS _____ WK PHONE _____

SITE ADDRESS _____ SP # _____

MH PARK _____ MH PARK PARCEL # 1- _____ - _____ - _____ - _____

LENDING FIRM _____ PHONE _____

ADDRESS _____

Is this FAS new? YES NO Moved from another county? YES NO

If moved from within Benton County: ADDRESS MOVED FROM: _____

TAX PARCEL #1- _____ - _____ - _____ - _____ (moved from)

FAS INFORMATION: *(All required information shall be completed. All license #'s shall be written in.)*

YEAR _____ MAKE _____ MODEL NAME & # _____ # BEDROOMS _____

#BATHROOMS _____ # SECTIONS _____ COLOR _____ SIZE _____ SERIAL # _____

FAS VALUATION (COST) _____ APPROX. MOVING DATE _____

MOVER'S NAME _____ PHONE _____

ADDRESS _____

DOT LICENSE NO. _____ EXPIRATION DATE _____

GENERAL CONTRACTOR _____ PHONE _____

ADDRESS _____

L&I CONTRACTOR NO. _____ - _____ - _____ - _____ - _____ - _____ - _____ - _____ - _____ EXPIRATION DATE _____ (MO/DY/YR)

FAS DEALER _____ PHONE _____

ADDRESS _____ LICENSE # _____

Benton County Code requires that a first/occupancy and a final inspection be completed prior to the expiration date on the FAS permit. Violation of this code is subject to a fine and requires a reapplication fee. It is the responsibility of the FAS permit holder or their authorized agent to call for inspections. Flood Elevation Certificate, if applicable. All structures located within a Floodplain are subject to the requirements of BCC 3.26, including certification by a Washington State Registered Surveyor and/or Engineer.

NOTE: Structures that are placed on fill and or placed on or near slopes may require the approval of a Washington State Registered Geo Technical Report.

An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing

Community Development Department

Prosser Office:
620 Market Street, 1st Floor
Prosser, WA 99350
www.co.benton.wa.us



Building Division

102206 E. Wiser Parkway
Kennewick, WA 99338
Phone: (509) 735-3500
www.co.benton.wa.us

INFORMATION REQUIRED ON PLOT PLAN

One complete scaled drawing on 8 1/2" x 11" sheet of paper showing the following:

1. Property lines and dimensions
2. Direction of North
3. The proposed structure and all existing buildings
4. Setback of proposed structure from all property lines
5. Indicate main driveway location and distance from centerline of the driveway at the property line to nearest property corner. For parcels that are accessed through an adjacent property or a private road easement, indicate the route from the property line to the public road that will be used for access
6. All road names
7. Existing easements and any adjacent utility/access easements
8. Location of septic tank, drain field or sewer lines
9. Well location
10. Property address
11. Tax parcel number
12. Specify scale
13. Describe adjacent properties ground cover (sagebrush, pasture grass, weeds, etc.)
14. Identify all slopes greater than 10%
15. Date and signature of person drawing plot plan
16. Canals, streams, or drainage easements that your driveway must cross
17. Any proposed permanent or temporary structure including, but not limited to: buildings, signs, fences, etc. within 20 ft. of any PUD facility, such as power lines, power poles, and transformers, require prior approval from the PUD

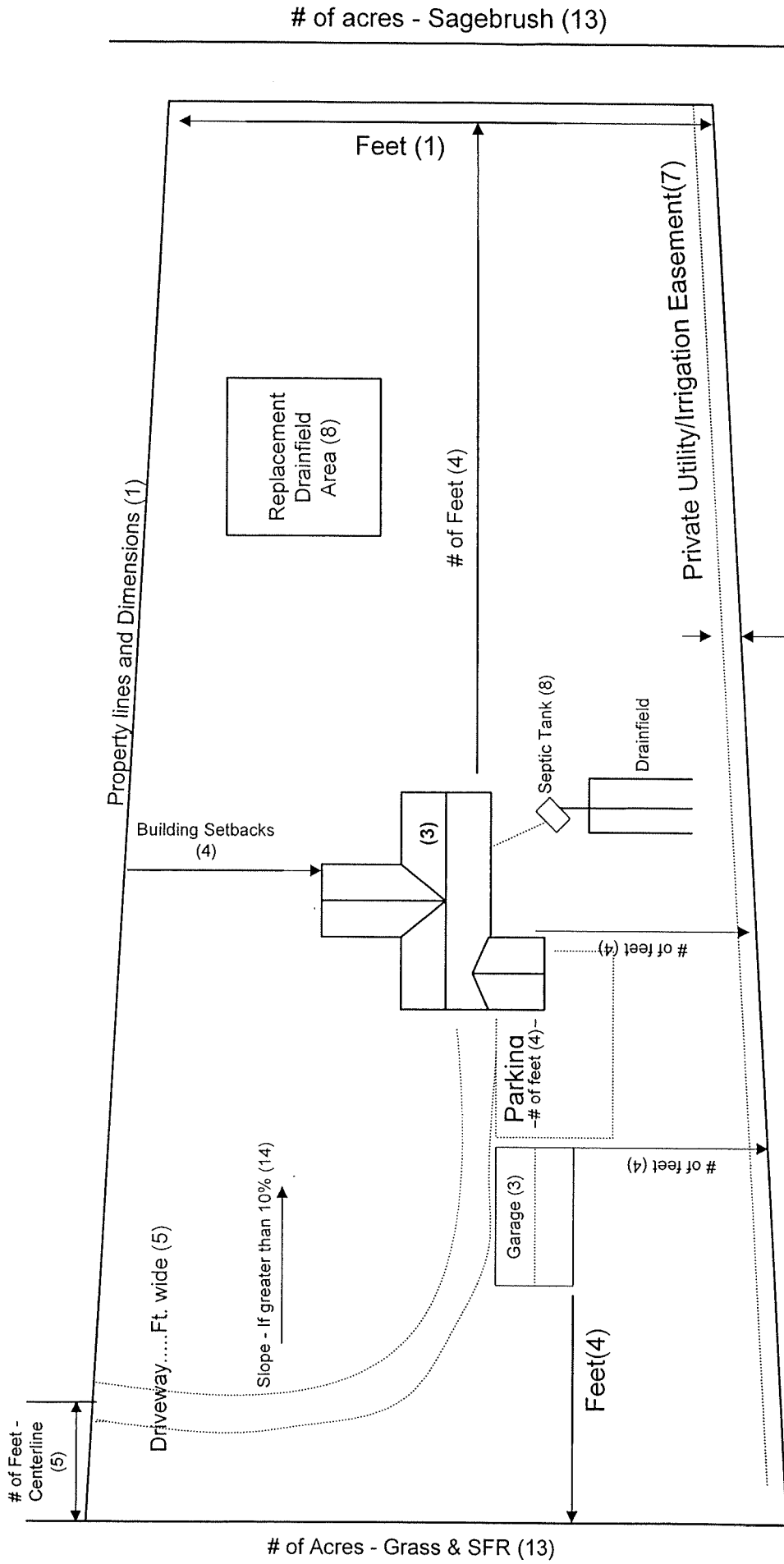


North Arrow (2)

SAMPLE PLOT PLAN

Parcel # (11)
Name and
Street Address (10)

Street or Road Name (6)



of acres - Sagebrush (13)

Drawn to Scale - Note Scale on plot plan ___" = ___' (12)

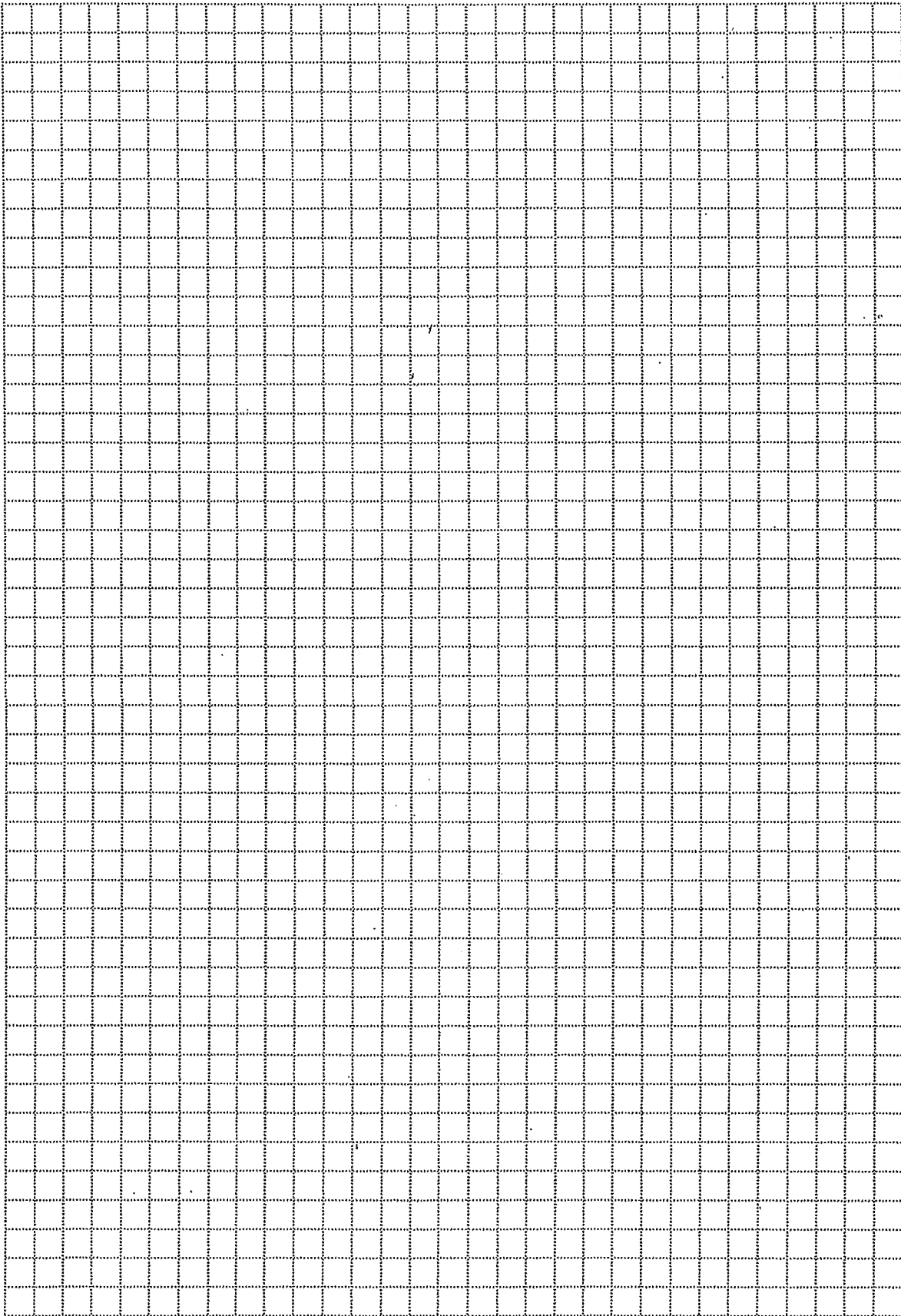
NOTE!! All Easements must be shown and identified.

SITE PLAN FOR _____

Scale 1" = 50' or 1" = 100'

Please specify

PLEASE INDICATE NORTH



STATE OF WASHINGTON)
County of Benton)

**To be completed by property/building owner.
Please initial applicable items where marked "INT" and
complete bottom signature area in full.**

1. DECLARATION OF OCCUPANCY USE (Accessory buildings only, i.e., garages, shops, barns, etc.)

INT _____ I **agree** that the structure for which a building permit is requested does not permit the occupancy of the structure for any use other than what was approved/permitted, or that does not comply with the requirements for the zone which it is placed per Title 11 BCC, unless approved by the Benton County Planning Division or by Conditional Use Permit. This structure will not be used or occupied for any use not permitted in accordance with the adopted International Residential and/or Building Codes. Violations will result in **five hundred dollar (\$500.00) infraction(s) for the first violation; a second or subsequent violation of the same provision, any person or contractor shall be found guilty of a misdemeanor. [BCC 3.04.065 and/or BCC 11.43.170]**

A misdemeanor is a crime punishable by a fine of not more than one thousand dollars, or by imprisonment in a county jail for not more than ninety days, or by both such fine and imprisonment. [RCW 9A.20.010 (2)]

**2. DECLARATION OF ACCESS CONSTRUCTION AND MAINTENANCE
(NOT REQUIRED for accessory buildings)**

INT _____ Said structure is served by perpetual non-exclusive access easement, auditor's file number _____, a private driveway in excess of 200' or an unimproved county right of way (contact B.C. Public Works for construction details) and the responsibility for construction and maintenance of this access to the location that the building will be constructed on shall be vested with the property owner and not Benton County.

INT _____ Said structure is served by an access easement, private driveway or unimproved county right of way not reflected by an auditor's file number, but one of the following applies.
(Initial one statement only)

INT _____ The following access easement, unimproved country right of way or private driveway has been granted a trail access permit to utilize the unimproved county right of way (access permit attached): _____

INT _____ The following access easement or private driveway is or will be graded and compacted with two (2) inches of base course crushed surfacing; the base course (1 1/2" minus) is to be in accordance with the specifications set forth in Standard Specifications for Road, Bridges and Municipal Construction published by the Washington State Department of Transportation. A minimum improved Fire apparatus turn around shall be provided for private driveways in excess of 150'. BCC 3.18.045: _____

INT _____ The following access easement or private driveway is or will be graded and compacted with two (2) inches of base course crushed surfacing; the base course (1 1/2" minus) is to be in accordance with the specifications set forth in Standard Specifications for Road, Bridges and Municipal Construction published by the Washington State Department of Transportation: _____

3. INT _____ Is your property accessed across a private bridge: YES _____ NO _____

4. DECLARATION OF OWNER BUILDER

INT _____ There will not be a general contractor (required to be registered) performing any work on the structure. The owner will verify Sub-contractor(s) license registration.

I, _____, certify under penalty of perjury under the laws of
(PRINT NAME)

the State of Washington that the foregoing initialed statement(s) for the structure is (are) true and correct.
Property parcel number _____ for proposed structure location.

Signature of property/building owner Date City, State (where signed)

BENTON COUNTY BUILDING DIVISION
INSPECTIONS REQUIRED FOR FACTORY ASSEMBLED STRUCTURES (FAS)

The FAS permit shall be placed on the outside of the structure facing the access road and remain in place until final inspection approval. Manufacturer set-up instructions and the approved site plan shall be onsite and readily available for inspector's use. **Written final septic approval from B-F District Health Dept. shall be onsite or submitted to the Building Div. by the FAS owner prior to the first inspection approval.**

FOOTING/SETBACK INSPECTION

1. Post Address at site
2. Job/Inspection card and approved site plan shall be on site.
3. Provide manufactures footing requirements, or Benton County approved detail.

SETUP/OCCUPANCY- To be completed prior to occupancy - Do not install skirting WAC 296-150M

1. The street number and/or space number shall be posted in contrasting colors 4" or larger on the front of the dwelling facing the road. The address shall also be temporarily posted at the driveway approach. Check at Building Division for specifics.
2. Water line shall be hooked up to the FAS with a shut-off valve accessible. Water line shall be insulated or heat taped.
3. Building drainage system shall comply with the Uniform Plumbing Code (see attached diagram).
4. Foundation and/or pier blocks shall comply with ANSI A225.1 or manufacturer setup instructions. Tie-downs required for all new and relocated FASs per WAC 296-105M and 296-150M-0610.
5. Vapor barrier/ground cover required. Six (6) mil black polyethylene or equal.
6. Cross-over ventilation line shall be supported four inches (4") from ground.
7. Septic system shall be approved for use by B.F. District Health Dept. **Written final approval provided on site or submitted to the Building Div. by the FAS owner.** All trenches shall be back-filled prior to first inspection.
8. Electrical meter shall be set, approved (green-tagged) for use by the Dept. of L&I and there shall be power to the FAS.
 - a. If L & I has green-tagged the job but the meter has not been set or another health/safety violation is found, a correction notice listing the violations, notification that the first/occupancy inspection was not approved and a statement of "DO NOT OCCUPY" shall be posted on site.
 - b. If a first/occupancy inspection is completed prior to electric meter installation and a request is made for an occupancy inspection separate from or prior to the final inspection, a special inspection fee shall be paid prior scheduling said inspection.
9. Temporary steps shall be at one door minimum.
10. Access easement and/or private driveway shall be installed. See Access Declaration for requirements.
11. Road approach shall be approved by Benton County Public Works (Engineering). If existing this may not be required, see road approach application. **Written final approval provided on site or submitted to the Building Dept. by the FAS owner.**

FINAL INSPECTION - To be completed prior to permit expiration

1. Approved weather resistant/approved skirting material (i.e., metal, concrete block, pressure treated wood) required around perimeter of FAS. Under-floor and water shut-off access (18x24 min.) installed.
2. Vent openings shall have a net area of one (1) sq. ft. per each one hundred and fifty (150) sq. ft. of underfloor area, per ANSI A225.1-6.8, or if vents are within 3' of corners 1/1500.
3. Dryer vent shall exhaust to exterior of structure/skirting. Smooth metal duct, no screws, with approved vent cap.
4. Hot water pressure relief valve shall drain to exterior of structure/skirting with a 90E bend pointing downward to a height of not more than 24" to 6" above finished grade.
5. All steps, landings, stairs and handrails shall comply with the International Building Code. Any decks/porches over 30" above grade and all covered decks require a separate building permit. Handout available upon request.
6. All surrounding grade shall slope away from structure.
7. Certified Installers name and WAINS # shall be posted on job card

The following instructions must be used for an initial or relocated manufactured home installation:

1. **Installation of a new manufactured home.**

- (a) The initial manufactured home installation must be conducted according to the manufacturer's instructions.
- (b) If the manufacturer's instructions do not address an aspect of the installation, you may request:
 - (i) Specific instructions from the manufacturer; or
 - (ii) Specific instructions from a professional engineer or architect licensed in Washington State.For example: (A) A manufactured home is installed over a basement and the manufacturer's instructions do not address this application; (B) A manufactured home is installed on a site where the specific soil bearing capacity is not addressed in the manufacturer's instructions.
- (c) A manufactured home must be **anchored** per the manufacturer's installation instructions or per the design of a professional engineer or architect licensed in Washington State.
- (d) A manufactured home must have a skirting around its entire perimeter. It must be installed per the manufacturer's installation instructions or if the manufacturer is not specific, to the standards in this section. It must be vented and allow access to the under floor area per the manufacturer's installation instructions or per the standards in subsection (3) of this section.
- (e) A manufactured home site must be prepared per the manufacturer's installation manual or per ANSI A225 .1, 1994 edition, section 3.
- (f) Heat duct crossovers must be installed per the manufacturer's installation instruction manual or per the standards in subsection (6) of this section.
- (g) Dryer vents must exhaust to the exterior side of the wall or skirting.
- (h) Hot water tank pressure relief lines must exhaust to the exterior side of the exterior wall or skirting and must exhaust downward.
- (i) Water piping must be protected against freezing as per the manufacturer's installation instructions or by use of a heat tape listed for use with manufactured homes and installed per the heat tape manufacturer's installation instructions.
- G) The testing of water lines, waste lines, gas lines and electrical systems must be as per the manufacturer's installation instructions or per HUD standard CFR 3280.

2. **Relocation installation of a manufactured home.**

- (a) A relocated manufactured home installation should be conducted according to the manufacturer's instructions.
- (b) If the manufacturer's instructions are unavailable, you may use:
 - (i) The American National Standard Institute (ANSI) standard ANSI A225.1 Manufactured Homes Installation, 1994 edition instructions; or
 - (ii) The instructions of a professional engineer or architect licensed in Washington State.
- (c) A manufactured home must be **anchored** per the manufacturer's installation instructions. If the manufacturer's installation instructions are not available, you may use:
 - (i) The American National Standard Institute (ANSI) standard ANSI A225.1 Manufactured Homes Installation, 1994 edition instructions; or,
 - (ii) The instructions of a professional engineer or architect licensed in Washington State.

**Table 5-1 – Normal Home Installations
(Single- Or Multisection Homes)**

**Types Of Foundation Systems –
Main Components**

Piers–Ground anchors:

The manufactured home rests on piers of concrete block; formed-in-place concrete; permanent wood; or steel pedestals on permanent wood, crushed stone, or concrete footers. The ground anchors in the soil are angled to resist straps or embedded in dead-men in the soil. Straps are tied to the frame, with or without over-the-top straps.

Concrete slab or continuous footings:

The manufactured home rests on a concrete slab or ribbons of concrete. The straps are tied between the frame and the perimeter footers or concrete slab.

Pile/post system:

The manufactured home rests on piles or posts placed sufficiently deep in the ground to resist all wind, snow, and earthquake forces. Straps fasten the home to the piles or posts or to caps placed thereon.

**Concrete, concrete block, or wood-
foundation; load-bearing, perimeter walls:**

The manufactured home rests on exterior load-bearing walls that sit on concrete or gravel footings. Straps fasten the home to the walls to resist all external forces.

**5.4 Cross-over connections for multisection
manufactured homes**

5.4.1 Utility cross-overs

Connect water, drainage, gas, electricity, and telephone utility cross-overs. The correct procedures are outlined in 8.

5.4.2 Duct-work cross-overs. Clamp the flexible air conditioning or heating ducts or both to the sleeves projecting through the bottom covering, seal the ducts' adjustable collars with several wrappings of duct tape, and suspend/support them above the ground (see figure 5-1).

5.5 Anchoring instructions

After blocking and leveling, the installer should secure the manufactured home against the wind, unless the jurisdiction permits otherwise. The type of installation is the determining factor in deciding how this should be done, as is described in the following sections.

5.5.1 Normal installations

Table 5-1 summarizes and defines the types of normal installations. The pier-and-ground-anchor system, as provided in this standard, is most common. When using another type of installation, consult a registered engineer.

NOTE – The anchoring or foundation system shall be capable of meeting the loads required by the MHCS.

5.5.1.1 Number and location of anchors

Select the number and location of straps and anchors from the chart and diagram in figure 5-2. Use either the single- or the double-strap method. Use only approved ground anchors capable of resisting at least the minimum loads given in the chart for the method selected.

5.5.1.2 Installation of anchors

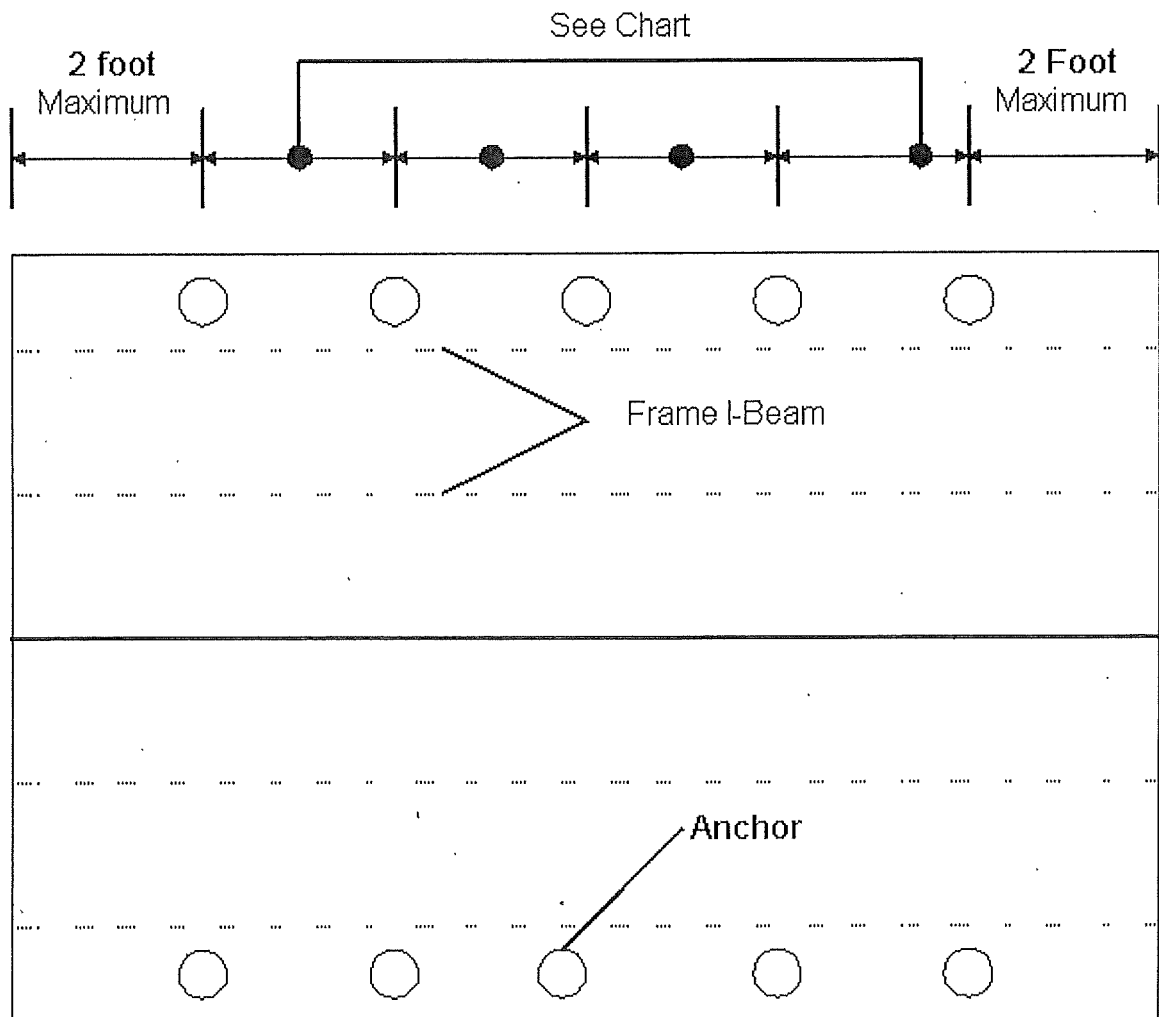
The following is one example: Install the anchors at the locations selected from figure 5-2 when the home manufacturer's installation instructions are not available. Follow the anchor manufacturer's instructions. Use single-headed anchors at all "frame-tie-only" locations when using the single-strap method, and double-headed anchors when employing the double-strap method. Install single- or double-headed anchors at all over-the-roof-tie locations. When using a single strap, line up the shaft of each anchor with its strap (see figure 5-3). When connecting more than one strap to a single anchor, line the shaft of the anchor with the results achieved by calculating the combined forces (see figures 5.4). The ground anchors must be sized for the direction of the load and the type of soil. (See figures 5.3 and 5.4 for additional information on the installation of anchors and tiedowns.)

Number and location of straps and ground anchors

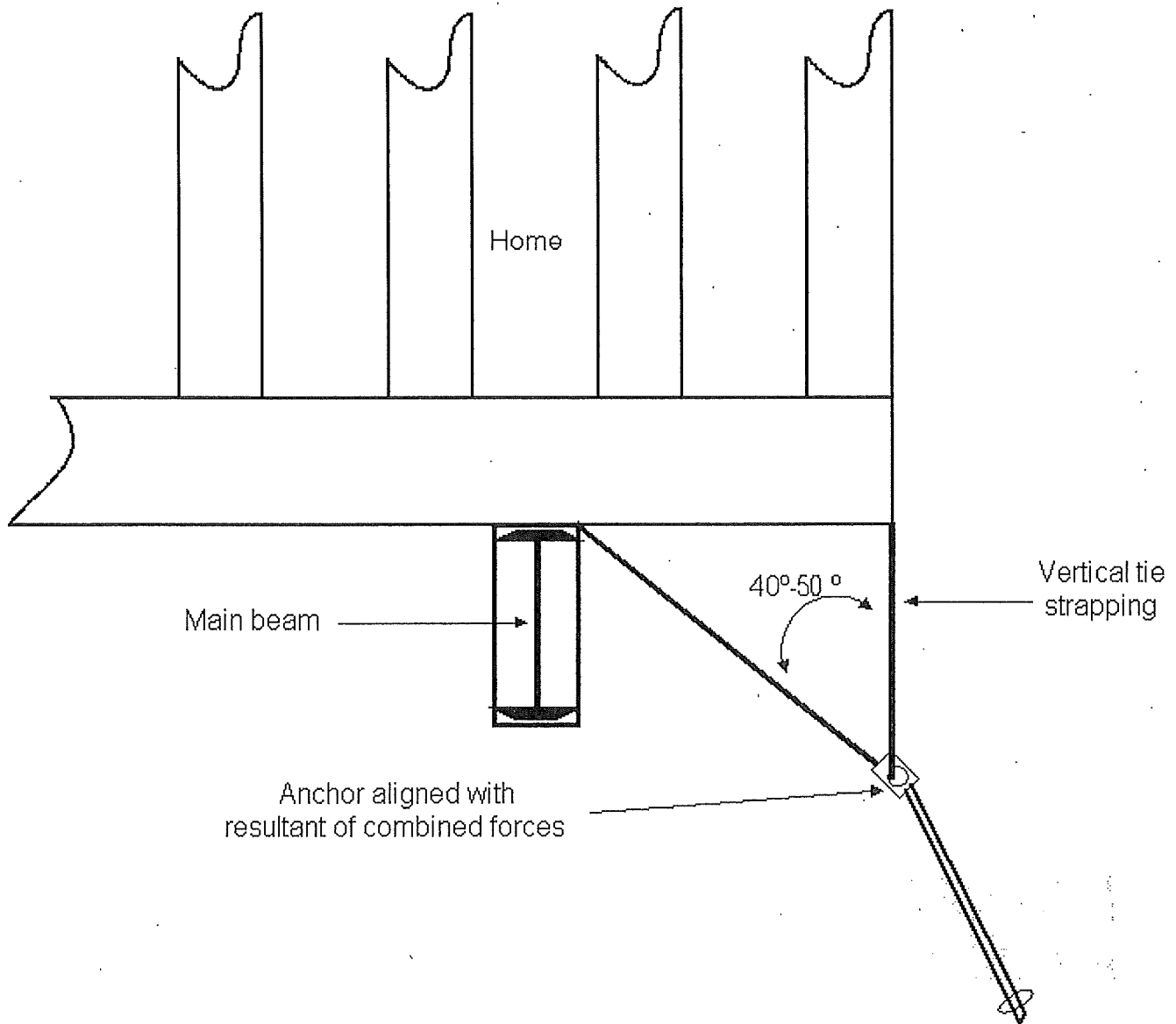
Strap Method	Anchor Minimum Ultimate Load Capacity	Minimum Anchor Spacing Zone 1
Single Strap	4725 lbs.	11'-0"
Double Strap	4725 lbs. ¹	11'-0" ²

Note -

1. Unless listed/labeled for a higher capacity by the anchor manufacturer
2. Unless a greater spacing is specified by the anchor manufacturer



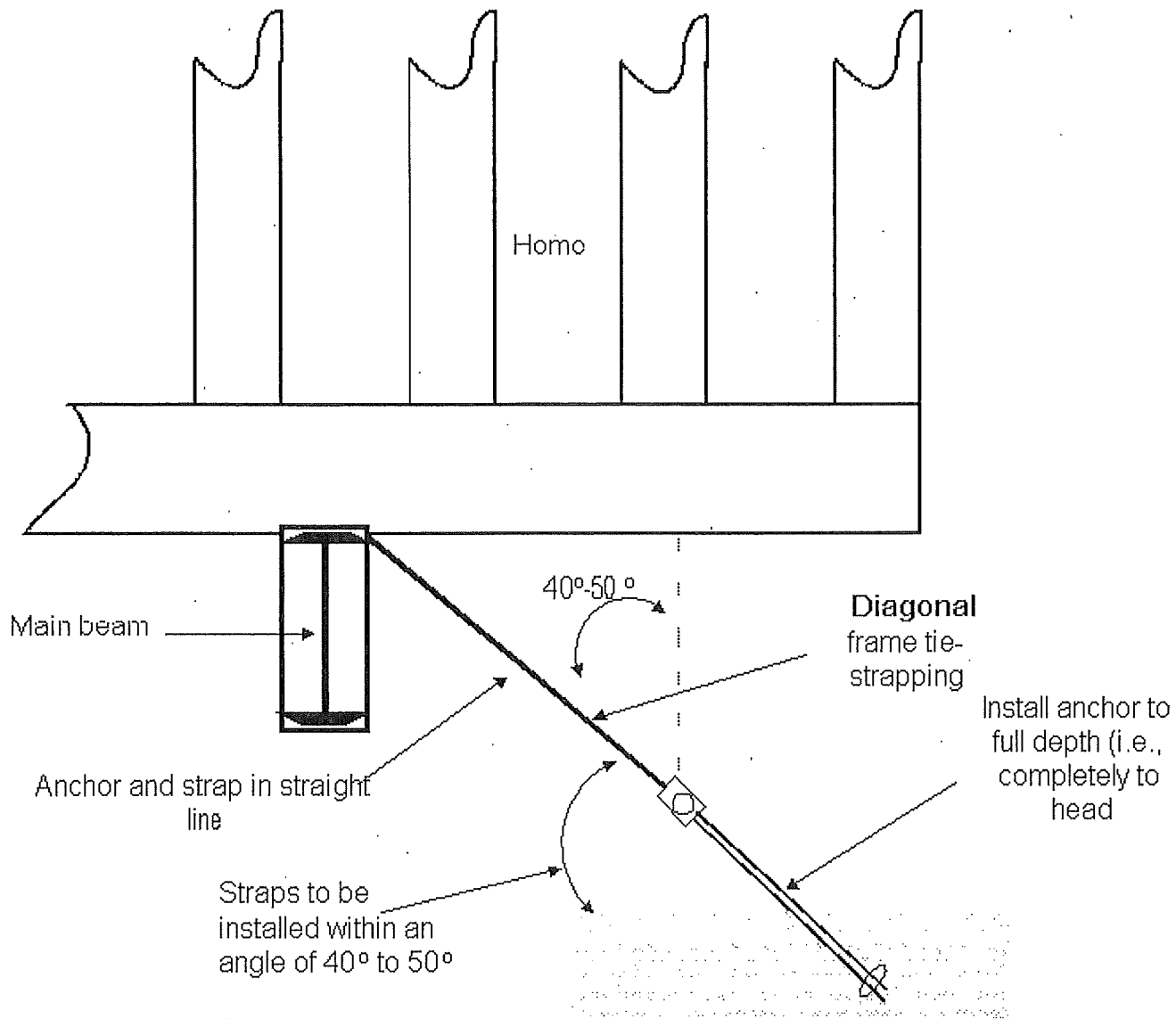
Diagonal and vertical ties



NOTE:

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

Diagonal ties

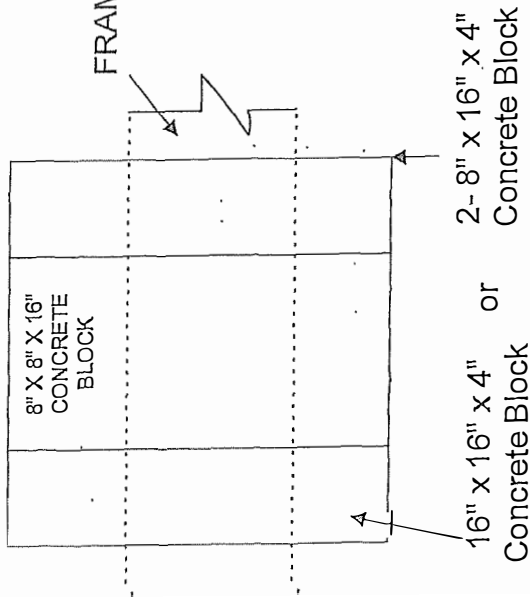


NOTE:

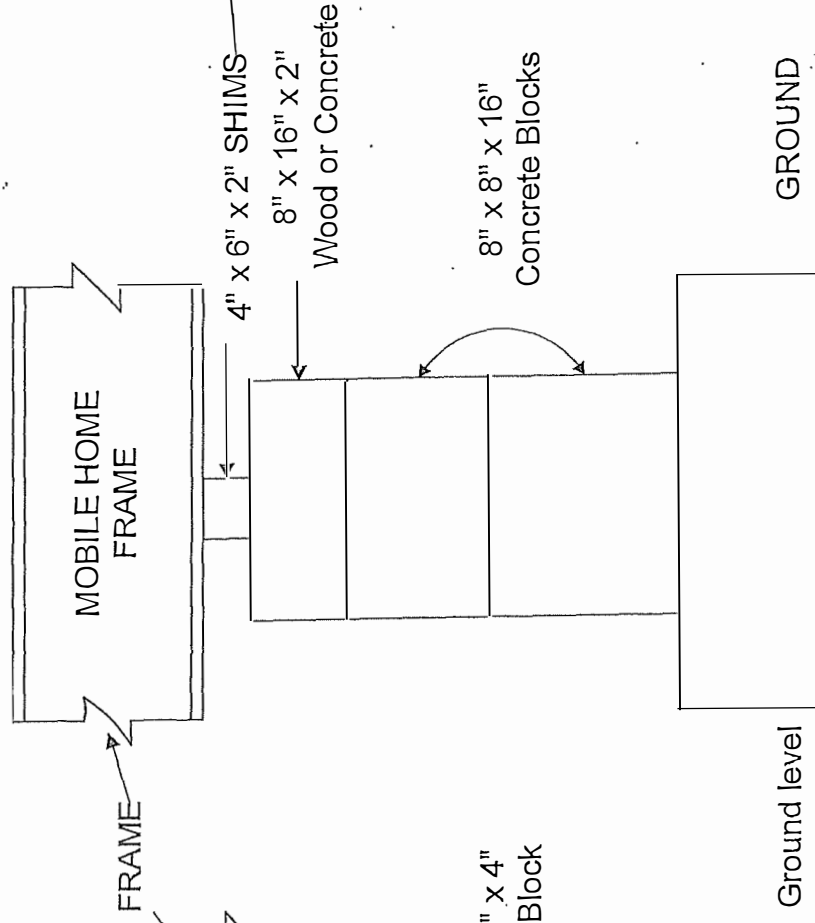
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BENTON COUNTY BUILDING DIVISION

PLAN VIEW



ELEVATION



GROUND

Ground level

Single 16" x 16" x 4" Concrete Block

2 - 8" X 16" X 4" Concrete Blocks

FOOTINGS AND BLOCKING

1. Footings shall be placed on cleared undisturbed soil (no fill) & evenly bedded & leveled, not to exceed 8' x 0" apart and not more than 2 feet from ends of frame.
2. Mobile homes with more than one section must have center line blocking at end walls and at any other point of connection of the sections that are a ridgebeam bearing support. Blocking is also required at both ends of a door opening that is 6 feet or more wide in an exterior wall.
3. All blocks shall be set with the cores placed vertically.
4. Wood Plates and shims must be of hem-fir 3" from the ground unless it is pressure Douglas fir, or spruce pine fir. A shim shall be at least 4 in, wide & 6 in, long and not more than 2 inches thick.

WATER LINE: Shall be insulated from floor level to 2 feet below ground with shut off valve.
TIE DOWNS: Tie downs are required. See reference page in this handout.
SKIRTING: Skirting shall be approved exterior material. The wood used for skirting shall be at least 3 inches from the ground unless it is pressure treated.

VENT OPENINGS: One (1) square foot per one hundred and fifty (150) square feet of underfloor space with 4 mil plastic ground cover required, or if within 3' of corners 1/4" x 1/4".
STEPS: Steps shall be a minimum of 36" wide with 7 3/4" maximum rise and a minimum of 10" tread, secured properly. Four risers & over shall require a hand rail on each side which shall be 34" to 38" above the step nosing.
ACCESS DOOR: An 18" x 24" access door shall be provided to each section. If mobile home is at ground level, the door shall be installed with an area well.

Benton County

Department of Public Works

Post Office Box 1001 - Courthouse
Prosser WA 99350-0954

June 12, 2001

TO: All Mobile Home Sales
All Mobile Home Transporters

From: Norm Childress
Traffic Engineer

RE: Oversize Load Permits

In order to secure an oversize load-moving permit Benton County requires two-(2) business days notice prior to the date of transport. This allows our staff time to evaluate the route proposed.

Should weather conditions prohibit transporting on the original dates, adjustments will be made.

Authorized loads will be permitted Monday through Thursday during daylight hours only. On Friday, loads under ten (10) feet wide will be allowed from daylight to 4:00 p.m. Transporting loads over ten (10) feet wide will be allowed on Friday from daylight to 2:00 p.m.

Benton County does not permit movement of oversized loads on County roads on Saturday, Sunday or Holidays.

The moving permit includes the owner's name, size of the load, and license number of the towing vehicle.

This policy is strictly enforced.

Norman W. Childress,
Traffic Engineer

CATCHING RAIN: Low Impact Development — Protecting Our Waters

1

Low Impact Development (LID) is one way we can help keep our waterways, as well as the surrounding land, healthy and safe. This is a beautiful place to live, so it is no wonder that an additional 1.9 million people are expected to move here by 2040. As we grow, we replace forests and prairies with rooftops and pavement, thereby increasing stormwater runoff and the associated pathogens and chemicals it carries to our waterways. The health of humans and our ecosystems is threatened.

What's the problem with stormwater?

Stormwater is created by precipitation (rain or snowmelt) that doesn't soak into the earth but instead creates puddles and runs off. This stormwater can pick up pollution and carry it directly into storm drains, streams, rivers, lakes, inlets, and bays.

Some consequences of stormwater pollution and increased surface runoff include:

- Pollutants such as motor oil, yard chemicals, and pet wastes contaminate local waterways, threatening human health and wildlife health.
- Numerous beaches are too polluted to harvest shellfish.
- Several fish species face the threat of extinction.
- Groundwater is not replenished, decreasing drinking water supplies and drying out streambeds.
- Winter rain quickly runs off paved surfaces and into streams, leading to the scouring of stream channels.

What is Low Impact Development and how can it help?

LID seeks to manage stormwater onsite—either by encouraging it to soak into the ground or using plants to transpire it back to the atmosphere. LID helps keep pollution out of our waterways. It focuses on recreating or protecting existing natural landscape features to minimize the amount of impervious (hard) surfaces. Stormwater is then treated with soils that have been amended with compost, vegetation, and other techniques.

LID strategies can be used in virtually every situation—residential homes or commercial businesses, in rural or urban settings. Some benefits include:

- Creates more beautiful and easily managed landscapes.
- Encourages water to soak into the ground, replenishing drinking water supplies.
- Reduces contamination of local waterways, including recreational and shellfish growing areas.
- Preserves or restores trees and other vegetation, attracting birds, butterflies and other wildlife.
- Can reduce development costs (decreased infrastructure and land clearing costs) as well as stormwater management costs.

Vegetation Preservation and Restoration

During site development, clearing and grading should be minimized as much as possible. This will protect native soils and vegetation while also preventing compacted soils that do not allow water to soak in as readily. Mature trees are not easy to replace and their contribution to managing stormwater run off and preventing erosion is invaluable. When clearing land, small native plants can be removed and saved for replanting once development is complete.

Reducing lawn sizes and replacing that space with native or water-wise plants reduces maintenance and watering needs and may reduce the need for fertilizers and pesticides.

Look for the other helpful fact sheets in this series:

- ✓ 1. Low Impact Development
- 2. LID Stormwater Regulations
- 3. LID Development Process
- 4. Pavement Maintenance
- 5. Rain Garden Maintenance
- 6. Rain Garden Construction Checklist
- 7. Rain Garden Construction Sequencing



Green roof, Portland, OR. Photo: Erica Guttman

CATCHING RAIN: Washington's New LID Stormwater Regulations

2

Washington State has new rules for how cities and counties manage stormwater runoff. Washington cities and counties under a Municipal Stormwater Permit have a legal obligation to prevent pollution from rainwater that washes over roofs, driveways and developed areas. The new rules will require many future developments to incorporate certain Low Impact Development (LID) techniques.

LID techniques imitate the natural processes that help rainfall absorb into the ground, instead of running into pipes and large holding ponds that drain to streams and water bodies. LID measures, such as rain gardens, bioretention facilities, and permeable pavements, treat and retain stormwater at the source. These practices help preserve fish and wildlife by keeping natural waters clean.

Washington State Municipal Stormwater Permits, administered by the Department of Ecology, govern how cities and counties manage stormwater runoff. Three separate permits covering different parts of the state were recently updated, and LID requirements were added. The Phase I permit applies to Tacoma, Seattle, and the four most populous counties in Western Washington. The Phase II permit for Western Washington covers 80 cities and the urban portion of four counties. The Phase II permit for Eastern Washington covers 18 cities and urban areas of six counties.

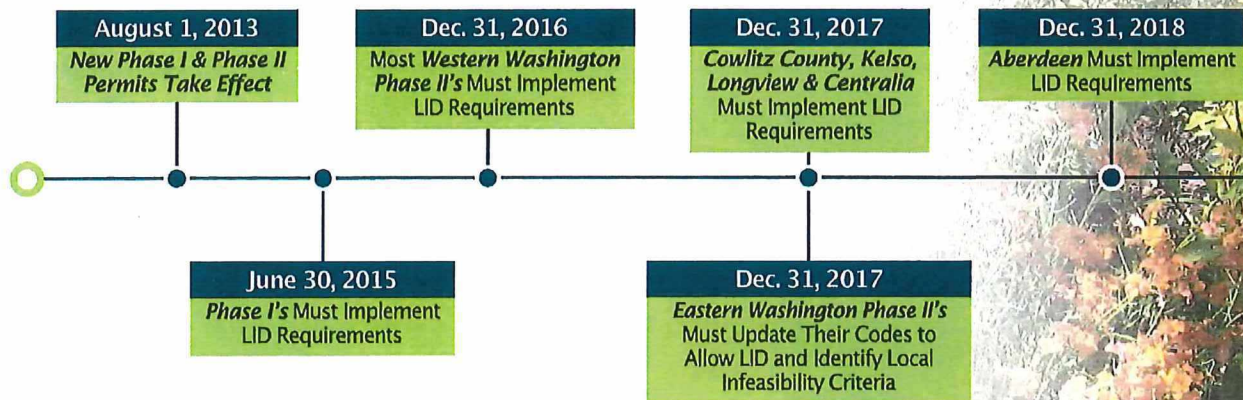
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1. Low Impact Development
- ✓ 2. LID Stormwater Regulations
3. LID Development Process
4. Pavement Maintenance
5. Rain Garden Maintenance
6. Rain Garden Construction Checklist
7. Rain Garden Construction Sequencing

Local Development Codes will be Revised to Include LID Measures

The new permits require Phase I cities and counties to enact codes incorporating LID measures by June 30, 2015, and most Phase II jurisdictions in Western Washington must follow suit by the end of 2016. The Stormwater Manual for Western Washington, revised in 2012, contains the LID design details. The Eastern Washington permittees must update their codes, if needed, by December 31, 2017. The Department of Ecology, in collaboration with Eastern Washington permittees, is still developing a stormwater manual with LID practices for the east side of the state.

Timeline for New LID Requirements in Washington State



The permits for eastern and western portions of the state take substantially different approaches, because the soil, climate and geology vary substantially between the two regions, and these factors have a major influence on how stormwater runoff behaves. The LID measures for Eastern Washington are less developed, requiring only that initial steps be taken to implement LID techniques. For example, new developments in Eastern Washington will be required to retain runoff on-site or in regional stormwater facilities. Most Eastern Washington cities and counties covered by the permit already meet this requirement; the others can develop criteria for when LID measures are not feasible. LID measures must be allowed in Eastern Washington, but will not be required.

Continued >

Amending Soils

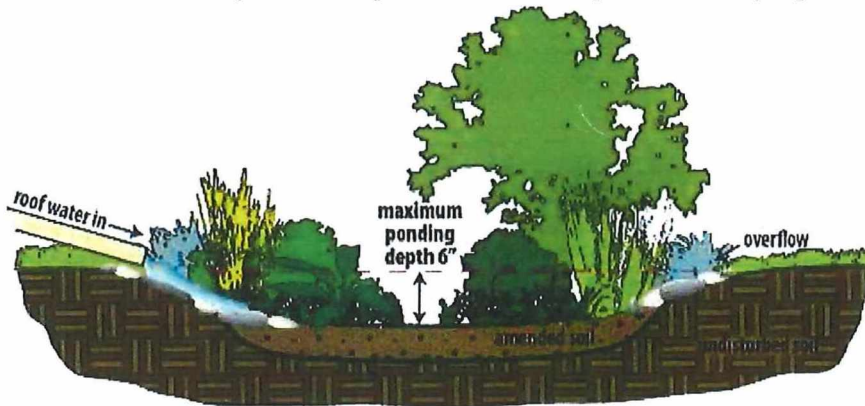
Healthy soil grows healthier plants, allows stormwater to soak in, stores water for plants in the summer, and reduces the need for chemicals such as pesticides and fertilizers.

Where soil must be disturbed, breaking up compaction, replacing topsoil or tilling in compost is very beneficial.

Rain Gardens

Rain gardens are a landscape amenity that also serves to treat polluted runoff and manage drainage by using natural processes: plants and soils work together to filter and absorb water from streets, rooftops, driveways and other hard surfaces.

This landscaping technique is beautiful and inviting to birds and butterflies. Using native plants and amended soils can reduce maintenance needs. Rain gardens can be constructed in many different shapes and can be landscaped with a variety of plants.



Managing Water on Roofs

Green Roofs:

Green roofs are a great way to absorb and slow down roof runoff. They improve aesthetics to the residence or business as well as reduce noise and lower heating and cooling costs. Unlike conventional roofs, green roofs have less UV degradation, so they last much longer—it is recommended that after 50 years the waterproof membrane be replaced, but all other components can be reused on the same roof!

Directing Downspouts:

If green roofs are not an option, water can be directed from downspouts to areas such as a rain garden or planted area (versus pavement), where it can soak into the ground.

Rainwater Harvesting:

Rainwater harvesting combines two important LID goals: reduce flows from rooftops, and conserve water that comes from drinking-water supplies. Rainwater can be collected in rain barrels or cisterns where it can be stored. The collected water can then be used for a variety of things such as watering and cleaning jobs around the outside of homes.



Compost in landscapes filters and slows rainwater and results in healthier soils and plants. Photo: Erica Guttman



A rain garden is an attractive way to manage polluted runoff on site. Photo: Erica Guttman



Photos: Erica Guttman, Nora Moloney





Ribbon driveway, steppable plants with stones, permeable concrete & permeable pavement.
 Photos: Curtis Hinman, Erica Guttman, Interlocking Concrete Pavement Institute



Options to Reduce Hard Surfaces

Driveways and walkways often account for a large amount of impervious area surrounding homes. Several LID solutions allow stormwater runoff to soak into the earth, preventing pollution from entering waterways and decreasing possible flooding risks.

Driveways and Parking Lots:

Many beautiful and functional materials and strategies allow rainwater to soak into driveways and parking lots. Reducing the length and width of driveway and parking areas is a perfect way to start reducing impermeable surfaces. Some style and material alternatives include the ribbon driveway, broken-concrete mosaic, permeable pavers, grid aggregate containment systems, pervious concrete and porous asphalt.

Walkways, Patios, and Decks:

Traditional concrete or mortared patios and walkways can be replaced with a variety of LID options. Raised decks made from recycled plastics are an excellent alternative. Walkways and patios can be constructed using stones or broken concrete with plantings in the gaps between stones to absorb water. Pervious systems, including stone pavers and interlocking plastic grids are great options as well.

Foundations

When planning new construction or an addition to a home or business, a key strategy is to disturb soils as little as possible. Two LID techniques include:

Small Footprint:

A building's footprint can be reduced by decreasing the amount of space taken up all together or by creating two stories instead of a large one-story.

Minimal-excavation Foundation:

A minimal-excavation foundation dramatically limits soil disturbance over traditional grading and foundation installation.



Photo: PIN Foundations

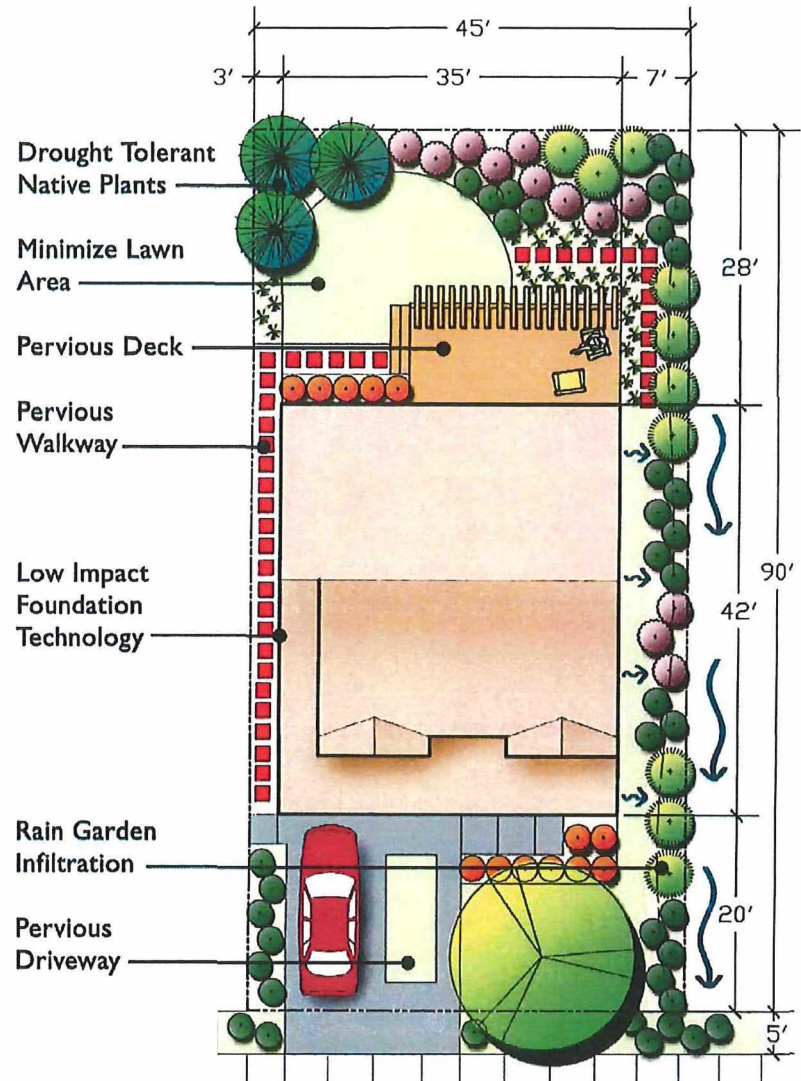


Residential Area with LID Features

LID practices may be incorporated around homes and businesses in countless ways. Just a few methods can be used or an entire lot can be designed and developed using LID techniques for everything from building design to landscape design. These techniques create beautiful homes and yards, keeping the sites safer from flooding risks. Utilizing LID methods helps to absorb polluted water into the earth, which protects water bodies, wildlife, and human health.



Pervious pavers filter and manage water on site.
Photo: Interlocking Concrete Pavement Institute.



Resources:

Washington Stormwater Center: <http://www.wastormwatercenter.org/>
 Washington Department of Ecology: <http://www.ecy.wa.gov/programs/wq/stormwater/>
 Puget Sound Partnership: <http://www.psp.wa.gov/stormwater.php>
 Municipal Research and Services Center of Washington: Local Stormwater Programs and Regulations
<http://www.mrsc.org/subjects/environment/water/sw-local.aspx>
 EPA Low Impact Development: <http://water.epa.gov/polwaste/green/>
 WSU Rain Garden Website: <http://raingarden.wsu.edu>

Online Publications and Videos:

2012 Stormwater Management Manual for Western Washington
<http://www.ecy.wa.gov/programs/wq/stormwater/manual.html>
 Low Impact Development Technical Guidance Manual for Puget Sound
http://www.psp.wa.gov/LID_manual.php
 Building a Raingarden: Keeping our Pacific Northwest Waters Clean Video: <http://vimeo.com/21474307>
 Raingarden Handbook for Western Washington Homeowners
http://county.wsu.edu/mason/nrs/water/Documents/Raingarden_handbook.pdf



WASHINGTON STATE UNIVERSITY
EXTENSION



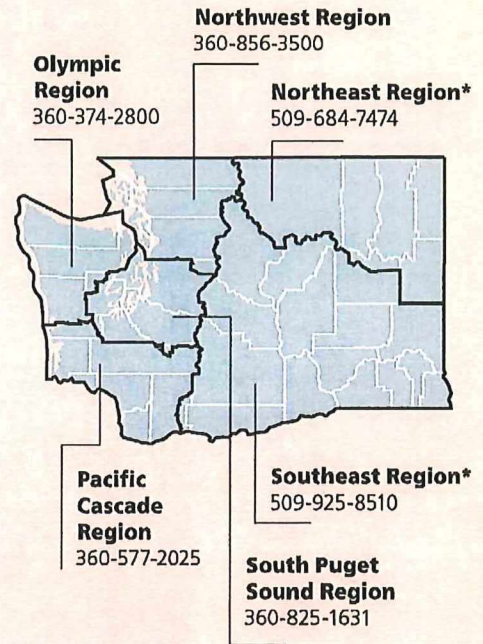
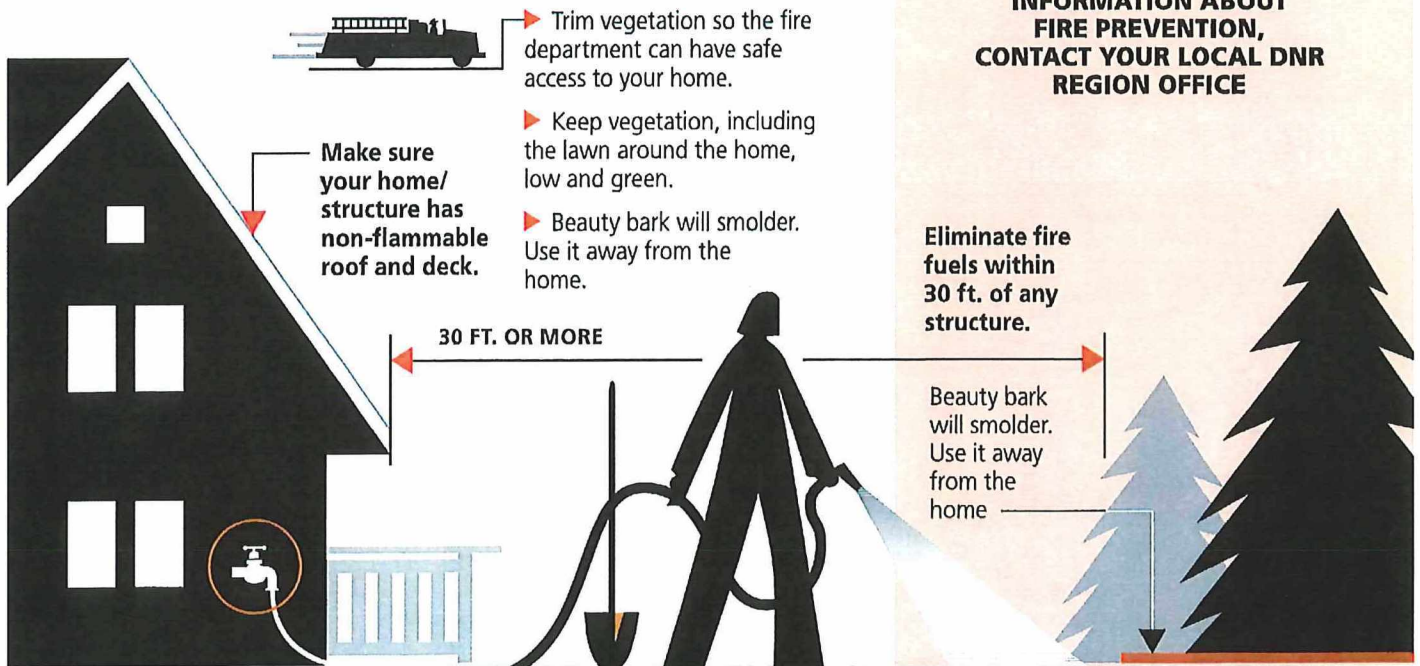
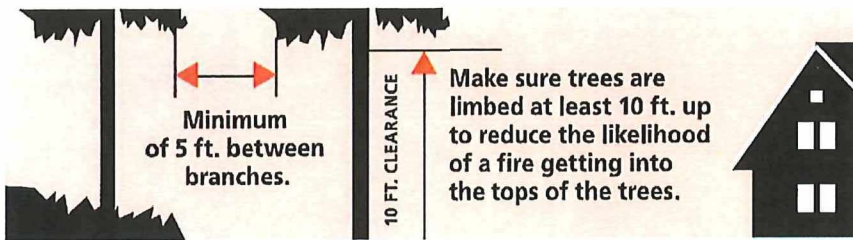
WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands

Fire Prevention

Defend Your Home from Wildfire

NO COST EVALUATION

* If you live in DNR's Northeast Region, 509-684-7474 or DNR's Southeast Region, 509-884-3472, DNR foresters can come out and assess your home at no cost.



FOR MORE INFORMATION ABOUT FIRE PREVENTION, CONTACT YOUR LOCAL DNR REGION OFFICE

dnr.wa.gov

TO REPORT A FIRE, PLEASE CALL 1-800-562-6010



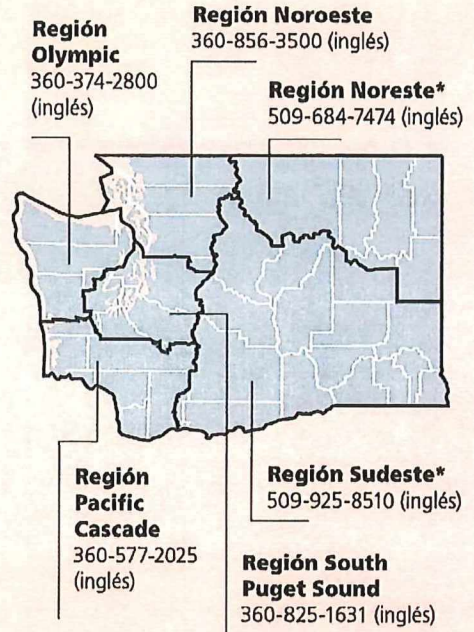
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Peter Goldmark - Commissioner of Public Lands

Prevención de Incendios

Defienda Su Casa de Incendios Forestales

EVALUACIÓN GRATIS

* Si vive en la **Región Noreste de DNR (Departamento de Recursos Naturales)**, **509-684-7474** (inglés) o en la **Región Sudeste de DNR**, **509-925-8510** (inglés), y no está seguro de cuan segura es su casa contra incendios, personal de DNR puede venir a evaluar su casa sin costo alguno.



- ▶ Recorte el césped y vegetación para que los bomberos puedan llegar a su casa sin problemas.
- ▶ Mantenga la vegetación y césped alrededor de su casa bien cortado y verde.
- ▶ No use material orgánico (hojas, partículas de corteza (beauty bark), paja, etc.) cerca de su casa. Éstos arden fácilmente.

Asegúrese que su casa ó estructura tiene patio y techo anti-inflamable.

30 PIES (9 M.) O MÁS DISTANCIA DE ESPACIO LIBRE

Elimine materiales combustibles dentro de 30 pies (9 metros) de cualquier estructura.

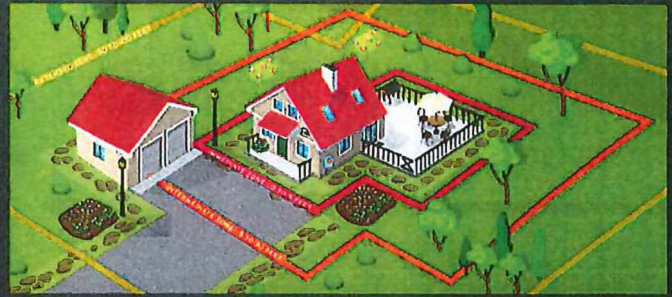
No use material orgánico (hojas, partículas de corteza (beauty bark), paja, etc.) cerca de su casa. Éstos arden fácilmente.

PARA MÁS INFORMACIÓN SOBRE PREVENCIÓN DE INCENDIOS, COMUNÍQUESE CON LA OFICINA REGIONAL DE DNR MÁS CERCANA

dnr.wa.gov

PARA REPORTAR UN INCENDIO, POR FAVOR LLAME AL 1-800-562-6010 (INGLÉS)

HOW TO PREPARE YOUR HOME FOR WILDFIRES



WILDFIRE RISK REDUCTION STEPS THAT CAN MAKE YOUR HOME SAFER DURING A WILDFIRE

VEGETATION MANAGEMENT

1. HOME IGNITION ZONES

Limiting the amount of flammable vegetation, choosing fire-resistant building materials and construction techniques, along with periodic exterior maintenance in the three home ignition zones - increases the chances your home will survive a wildfire when exposed to embers and/or a surface fire. The zones include the **Immediate Zone**: 0 to 5 feet around the house; **Intermediate Zone**: 5 to 30 feet; and the **Extended Zone**: 30 to 100 feet.

2. LANDSCAPING AND MAINTENANCE

To reduce ember ignitions and fire spread, trim branches that overhang the home, porch and deck and prune branches of large trees up to (depending on their height) 6 to 10 feet from the ground. Remove plants containing resins, oils and waxes and ensure mulches in the **Immediate Zone** (0 to 5 feet around the house) are non-combustible options like crushed stone and gravel. Maintain vegetation annually.

FIRE RESISTIVE CONSTRUCTION

3. ROOFING AND VENTS

Class A fire-rated roofing products offer the best protection. Examples include: Composite shingles, metal, concrete and clay tiles. Inspect shingles or roof tiles and replace or repair those that are loose or missing to prevent ember penetration. Box-in eaves, but provide ventilation to prevent condensation and mildew. Roof and attic vents should be screened to prevent ember entry.

4. DECKS AND PORCHES

Never store flammable materials underneath decks or porches. Remove dead vegetation and debris from under decks/porches and between deck board joints.

5. SIDING AND WINDOWS

Embers can collect in small nooks and crannies and ignite combustible materials; radiant heat from flames can crack windows. Use fire-resistant siding such as brick, fiber-cement, plaster or stucco and dual-pane tempered glass windows.

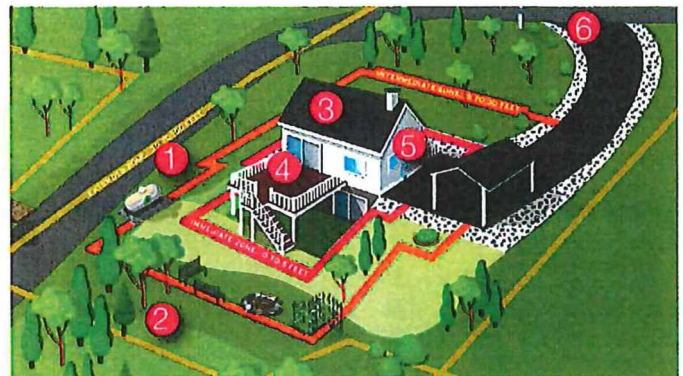
6. EMERGENCY RESPONDER ACCESS

Ensure your home and neighborhood has legible and clearly marked street names and numbers. Driveways should be at least 12 feet wide with a vertical clearance of 15 feet, for emergency vehicle access.

BE PREPARED

Develop, discuss and practice an emergency action plan with everyone in your home. Include details for pets, large animals and livestock. Know two ways out of your neighborhood and have a pre-designated meeting place. Always evacuate if you feel it's unsafe to stay - don't wait to receive an emergency notification if you feel threatened from the fire.

Conduct an annual insurance policy check-up to adjust for local building costs, codes and new renovations. Create/update a home inventory to help settle claims faster.



OTHER CONSIDERATIONS

- Store firewood away from the home
- Mow the lawn regularly
- Prune low-hanging tree branches
- Landscape with fire-resistant plants
- Create small fuel breaks with hardscaping features

TALK TO YOUR LOCAL FORESTRY AGENCY OR FIRE DEPARTMENT TO LEARN MORE ABOUT THE SPECIFIC WILDFIRE RISK WHERE YOU LIVE.



FIREWISE USA™
RESIDENTS REDUCING WILDFIRE RISKS

VISIT FIREWISE.ORG FOR MORE DETAILS

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Order a Reducing Wildfire Risks in the Home Ignition Zone checklist/poster at Firewise.org