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RESIDENTIAL BUILDING PERMIT APPLICATION CHECKLIST COMPANION

This handout is meant to work with the “Residential Building Permit Application Checklist” and will provide additional information and examples for a better understanding of what is required to be on the plans for review. You can have your plans professionally drawn or you can draw them yourself as long as they are detailed, clear, and to scale. Be sure to label what is new and what is existing on the plans when remodeling or converting existing space. For example: (N) 2 x 6 walls or (E) 2 x 6 walls, (N) 4 x 8 beam, or (E) 4 x 8 beam. Color coding, symbols, or solid/dashed lines work too! Just provide a legend if needed. That way we have a clearer picture of what’s being done and what is not.

1.) Erosion Control

Include drainage-way protection, silt fence design and location of catch basin protection, etc.

A City of Milwaukie erosion control permit is required for all activities disturbing between 500 square feet to 5 acres of soil. The purpose of the erosion control permit is to prevent any sediment, via runoff or dust, from leaving the work site. The erosion control permit is a separate permit (site development permit). An erosion control plan is required with your submittal. This is a map of your job site including a north arrow and relevant street names, plus all proposed erosion control measures such as silt fencing and/or a construction entrance. Sometimes additional measures will be needed on the street near the work site. Please see the erosion control website for additional information and an example erosion control plan.

2.) Site/Plot Plan Drawn To Scale

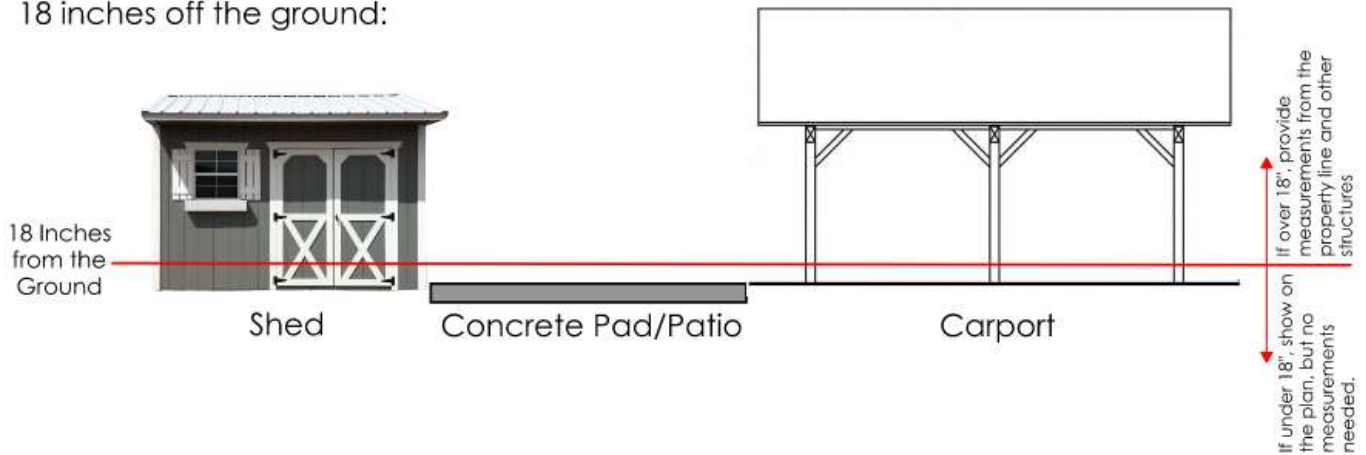
The plan must show lot and building setback dimensions; property corner elevations (if there is more than a 4ft elevation differential in the property, plan must show contour lines at 2-ft intervals, and if there is more than a 4ft elevation differential within the foundation, a geo tech report is required); location of easements and driveway; footprint of structure (including decks, patios, etc.); location of wells/septic systems/drywells; utility locations; direction indicator; lot area; building coverage area; percentage of coverage; vegetation area; impervious area (new and existing); and existing structures on site.

A site plan is required when you are changing the outside of a structure. This includes new windows and/or doors. Your site plan is a very important piece of the plan and will be reviewed by multiple departments. It will need to show measurements showing how far your structures are from the property lines and each other. Planning will review this to be sure you are meeting your setbacks. Engineering will review this (if applicable) to be sure you aren't building over easements, utility lines, etc. Building will ensure buildings have fire separation from the property line and other existing structures or ensure fire walls are provided. Sometimes openings such as doors or windows aren't allowed on one side due to the location. It's easier and cheaper to find out at this stage that we might have to shift a structure over or make a building smaller.

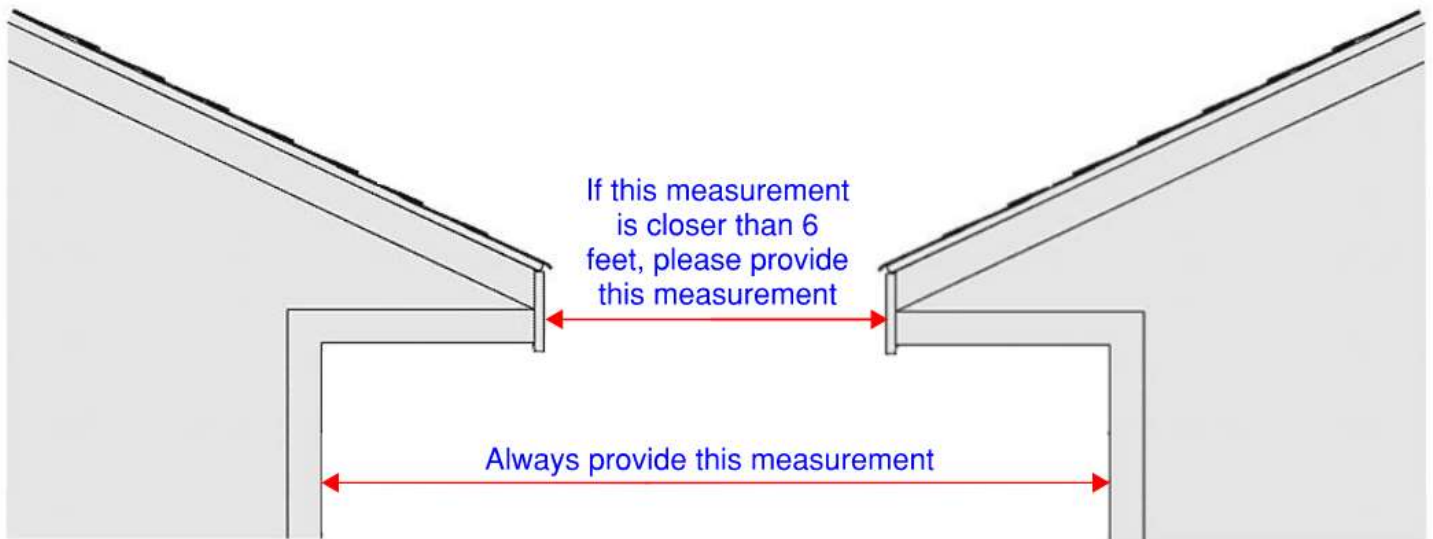
Any project exceeding 18 inches in height is considered a structure and needs to be shown on the site plan.

Here are a few examples:

Examples of projects over
18 inches off the ground:



Keep in mind taller patios, covers, decks, etc. over 18" off the ground will need the measurements marked on the plan. Measurements should be from the foundation to the property line (setbacks) or foundation to foundation (when measuring between buildings). Eaves are allowed to overhang into setbacks no more than 18". If eaves are closer than 6 feet to other eaves or closer than 3 feet from the property line, those measurements will need to be shown also.

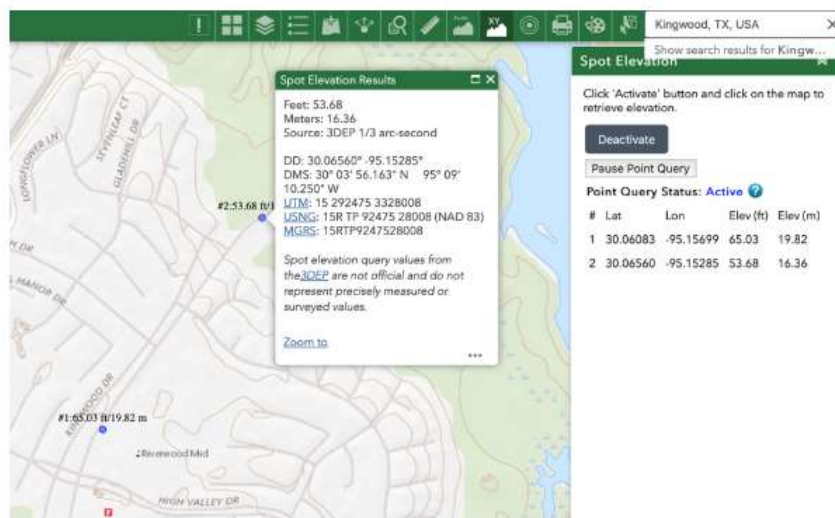


Elevations should be provided for each corner of the property along with the finished floor elevation. A land surveyor should be able to do this for you for a fee (most accurate) or you can find them online.

<https://apps.nationalmap.gov/viewer/>

To Find Elevation

- Go to this [U.S. Geological Survey](#) website called the *National Map Viewer*.
- Enter an address or just zoom into the area of interest.
- Select a base map by clicking on the icon with the four squares that form another square. Different base maps allow different degrees of zooming and show various features such as streets, water features, topography, etc., so experiment.
- Above the map area, click on the icon that shows an XY.
- A box will pop up on the right side of the screen. Within it, click "Activate."
- Click on the map location or locations that interest you.
- An info box will pop up that shows the location and elevation at the blue dot(s) where you clicked.
- To erase the points you selected, click "Deactivate."



Elevations for Riverwood and East End Park Parking Lot

You can click as many different points as you want. A list of ALL the places you clicked with their elevations will show up in the right hand box.

A geo technical engineer looks at the ground and soils to determine if it's safe to build on by taking samples of the soils and providing feedback. These are usually only required in steep slope areas, when the elevation changes significantly under the foundation (more than 4 feet), or when building on fill.

Easements will need to be shown on your site plan to ensure construction isn't in an easement. Easements either allow access through your property or allow for utilities to run through your property depending on what type of easement it is. Construction is not allowed in that area to maintain access or to work on anything buried there. You can find any recorded easements on your title report. Title reports are supplied during the property sale or a title company can run the report for you for a fee.

Driveways are required to be at least 7 ½' from neighboring property lines and a maximum of 20' wide. Please provide these measurements on your plan.

The footprint of the structure should show both the foundation and the roof eave lines. Decks, patios, etc. should show the ground they cover.

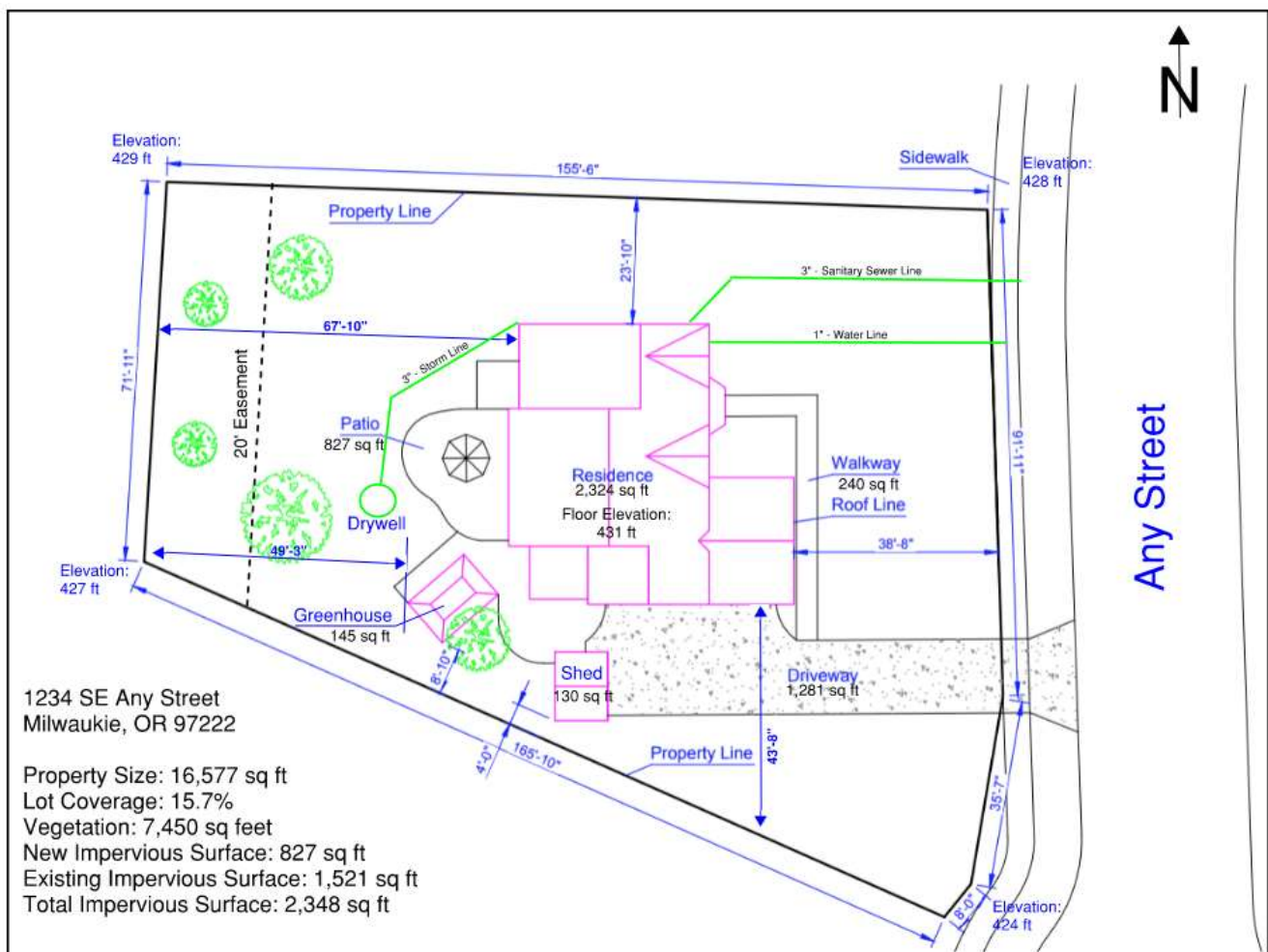
Any wells, septic tanks, drywells, and/or utility lines should be shown on the plans. Some of these items are required to be a certain distance from other things such as foundations and excavation. Drywells are required to be 10' from foundations and 5' from all property lines. You can find these by calling a locating company (such as 811 in Oregon) if you're unsure what's on the property or where they are.

Your lot dimensions and size (in square feet) are required to be on the site plan.

Building coverage area should include all buildings over 18" (as described above) on the property. Individual square footages for each structure, the total square footages for all structures, and/or the percentage of coverage in relation to the property size are all acceptable to show building coverage.

Vegetation/landscaped areas can either be supplied by the square footage or by the percentage.

Impervious surface areas should include any surface that doesn't allow water to absorb or penetrate through such as roofs, asphalt driveways, concrete patios, decks, etc. Please provide the existing area and the new proposed area on your plan broken out.



3.) Complete Set of Digital Plans

Must be drawn to scale, showing conformance to applicable local and State building codes. Lateral design details and connections must be incorporated into the plans or on a separate full-size sheet attached to the plans with cross references between the plan location and details. Plan review cannot be completed if copywrite violations exist.

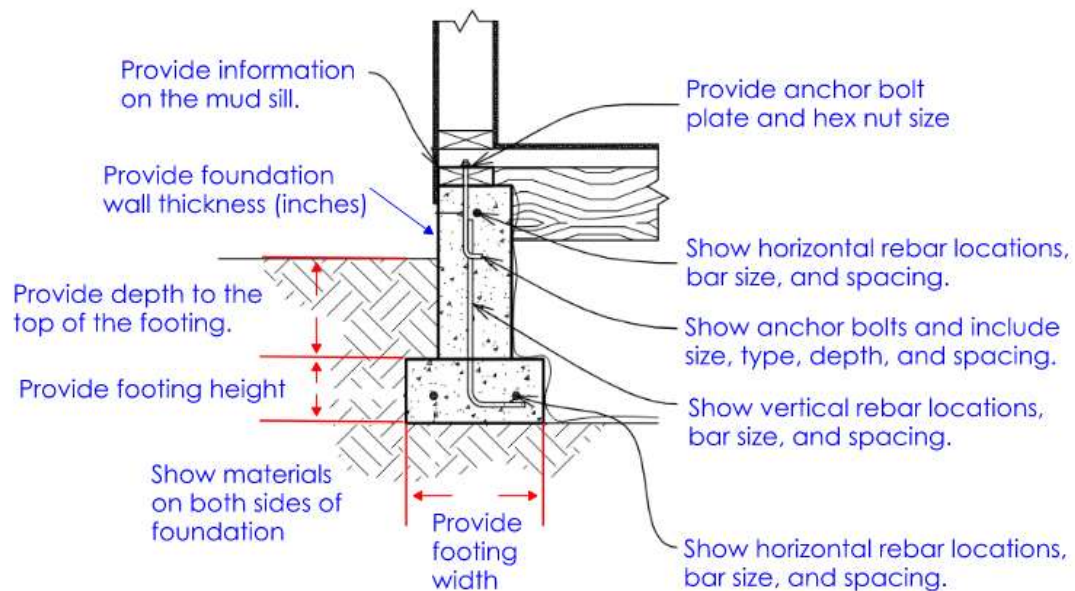
A full set of all documents needed to construct your project are required including all truss details, truss layout, beam calculations, engineering, plans, etc (if applicable). Drawings should be to scale (with measurements) and should show details of all scopes of the project.

A cover page usually includes the code and year of the design, design criteria, any framing notes - studs (sizes and spacing), typical header sizes, etc. It shows any insulation information, R-values, additional energy measure selections if applicable (Chapter 11 in the residential code), the U-value of doors and windows, etc.

4.) Foundation Plan

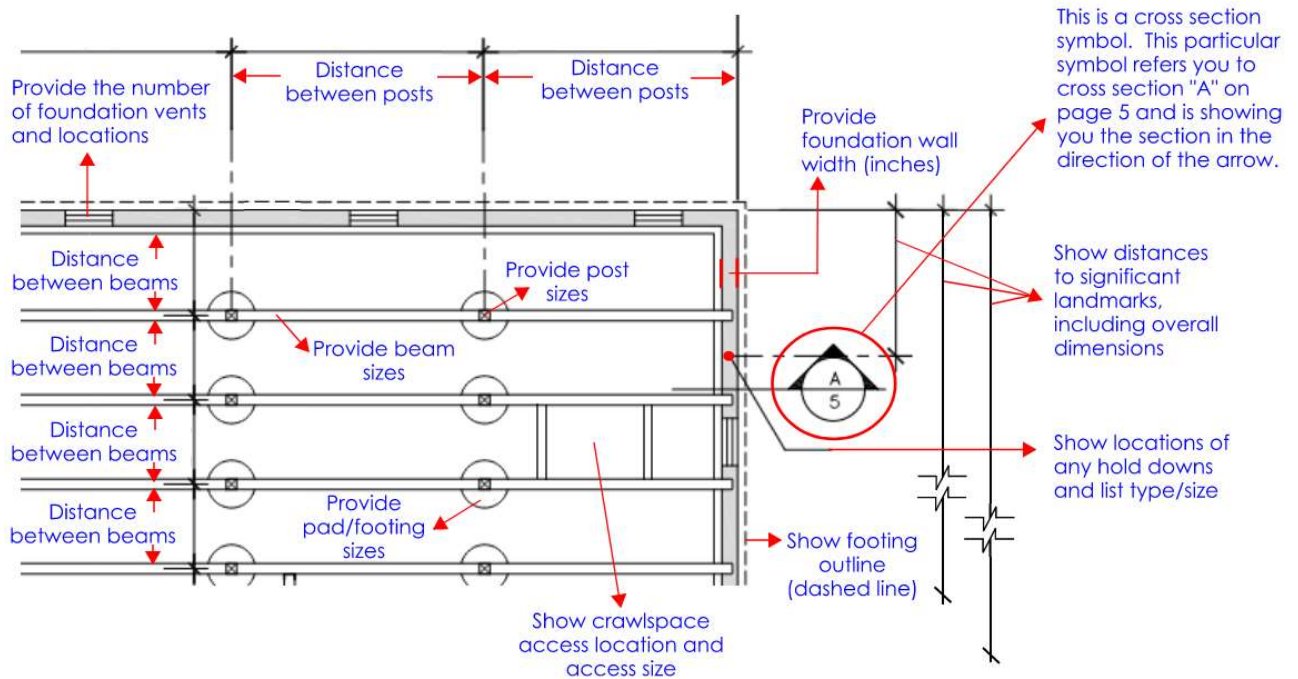
Show dimensions, footings, anchor bolts, any hold-downs and reinforcing pads, connection details, step details, rebar, vent size, and locations.

A foundation plan will be required if foundation work is part of your project. Typically a foundation plan and detail are both submitted to fully show the scope of the work. Here's an example of a foundation detail and the items that should be shown:



Sometimes multiple section drawings of different areas like this are helpful, such as the pad/footing sections for decks, porches, and/or basement portions of the house. If the house or basement is a slab on grade floor, you'll want to show the slab thickness, any turned down footings, measurements, and the insulation under it.

Here's an example of a partial foundation plan. We will need a full foundation plan for your project:

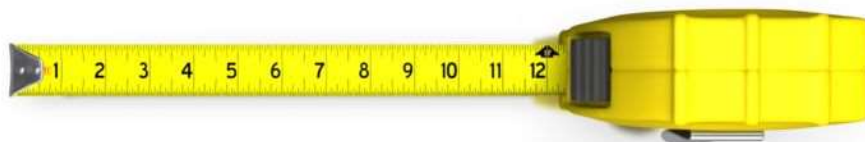


5.) Floor Plans

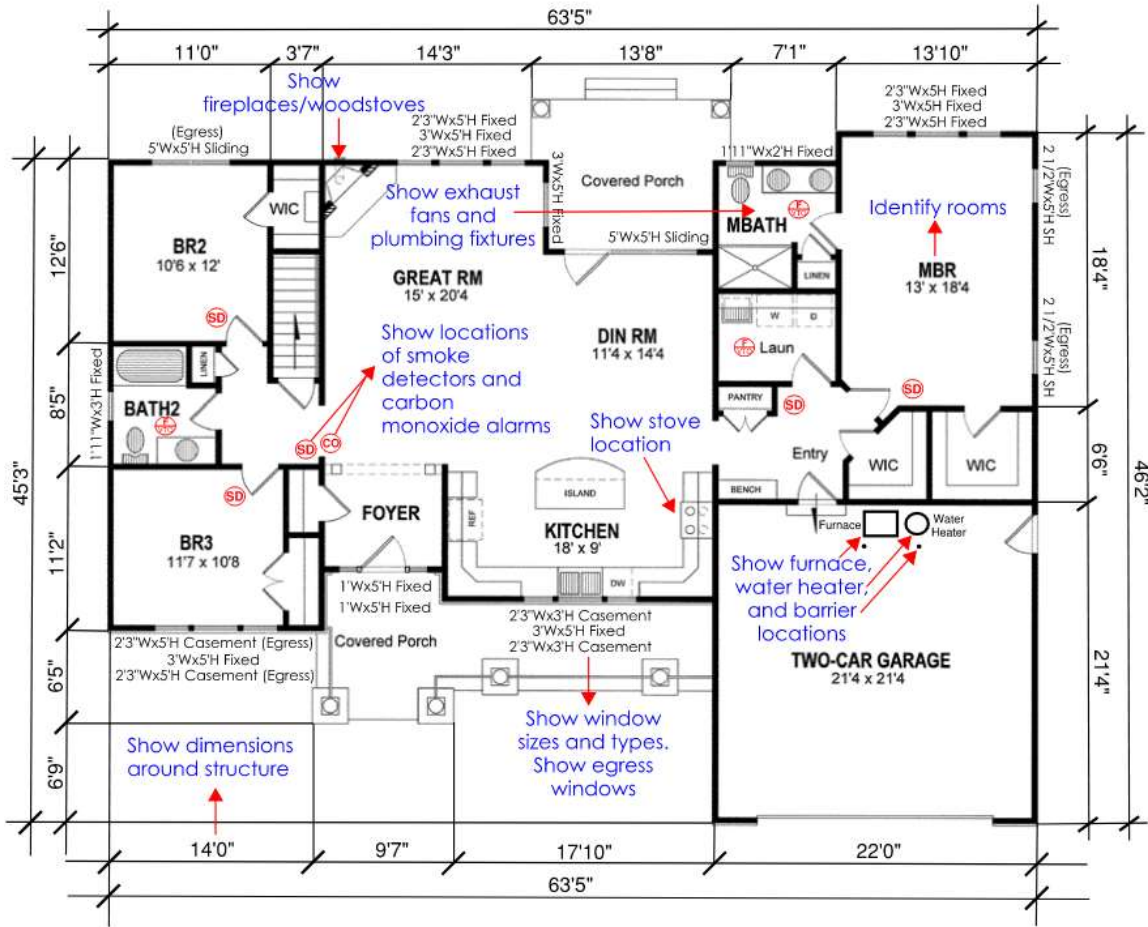
Show all dimensions, room identification, window size and type, location of smoke detectors and carbon monoxide detectors, water heater, furnace, ventilation fans, plumbing fixtures, any exterior landings and/or any steps down from doors to the ground, balconies and decks 30 inches above grade, etc.

A floor plan is always required to show where the work will be done. It's always best to show a "before" (existing) floor plan and an "after" (proposed) floor plan if you are altering an existing structure. This paints a clearer picture of what will be done. It saves time and money in the long run if all parties fully understand the project. It's much cheaper to change things on paper than to change them after or during construction. Be sure to label rooms (bedroom, closet, living room, den, etc.).

Sometimes people combine the floor plan with the framing plan and that's fine as long as the plan is still clear and legible. You'll want to note which walls are bearing walls, what direction the ceiling joists or floor joists above run, show where existing beams and headers are and where they bear, etc. You can also show these on a separate plan if it's helpful or easier to read (see number 9 for examples of framing plans).



Here's an example of a floor plan. Keep in mind you should have a floor plan for every floor or level of your project.

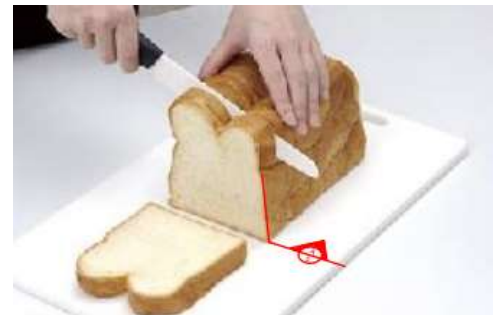


* New furnaces and/or new ductwork may be required to be located inside the building envelope per the new 2021 Oregon Residential Specialty Code – N1105.2 and N1105.3

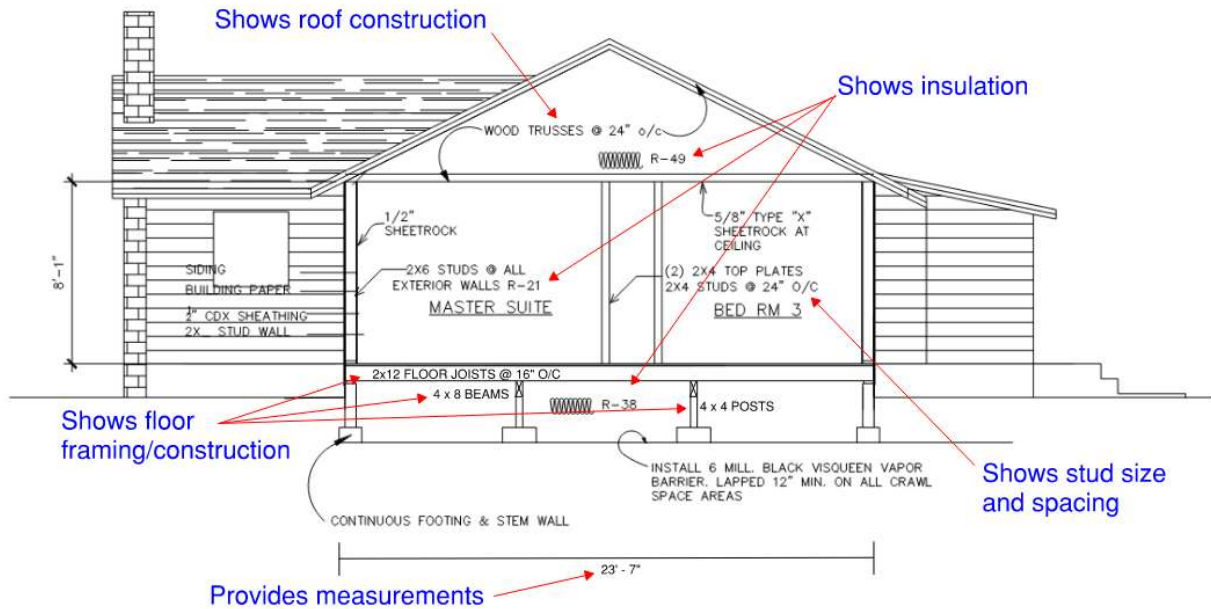
6.) Cross Section(s) and Details

Show all framing member sizes and spacing such as floor beams, headers, joists, sub-floor, wall construction, roof construction, etc. More than one cross-section may be required to clearly portray construction. Show details of all wall and roof sheathing, roofing, roof slope, ceiling height, siding material, footings and foundation, stairs, fireplace construction, thermal insulation, etc.

Cross sections should be provided if you need to show a clearer picture of the project from an inside angle. They are like bread. If you picture your house like a loaf of bread with lots of slices through it, a cross section would be like looking straight at a piece of that bread straight on. Your plan should also have an arrow showing where that slice belongs in the loaf (an example of that symbol is on the sample foundation plan above. You can see where the "cut" is and which way you're looking at it by the arrow shown).



There are two typical cross section types: a true cross section that shows the whole structure and a cross section detail that shows a portion of the section up close.



7.) Elevation Views

Provide elevations for new construction; minimum of two elevations for additions and remodels. Exterior elevations must reflect the actual grade if the change is greater than 4-ft at the building envelope. Full size sheet addendums showing foundation elevations with cross references are acceptable.

Elevations should be provided when the exterior of the building is changed. These are basically future photos of the house – what it will look like when the project is complete. We use these to see window placements, steps on the exterior, heights, what the roof will look like, etc. They're very helpful.

Here are some examples:



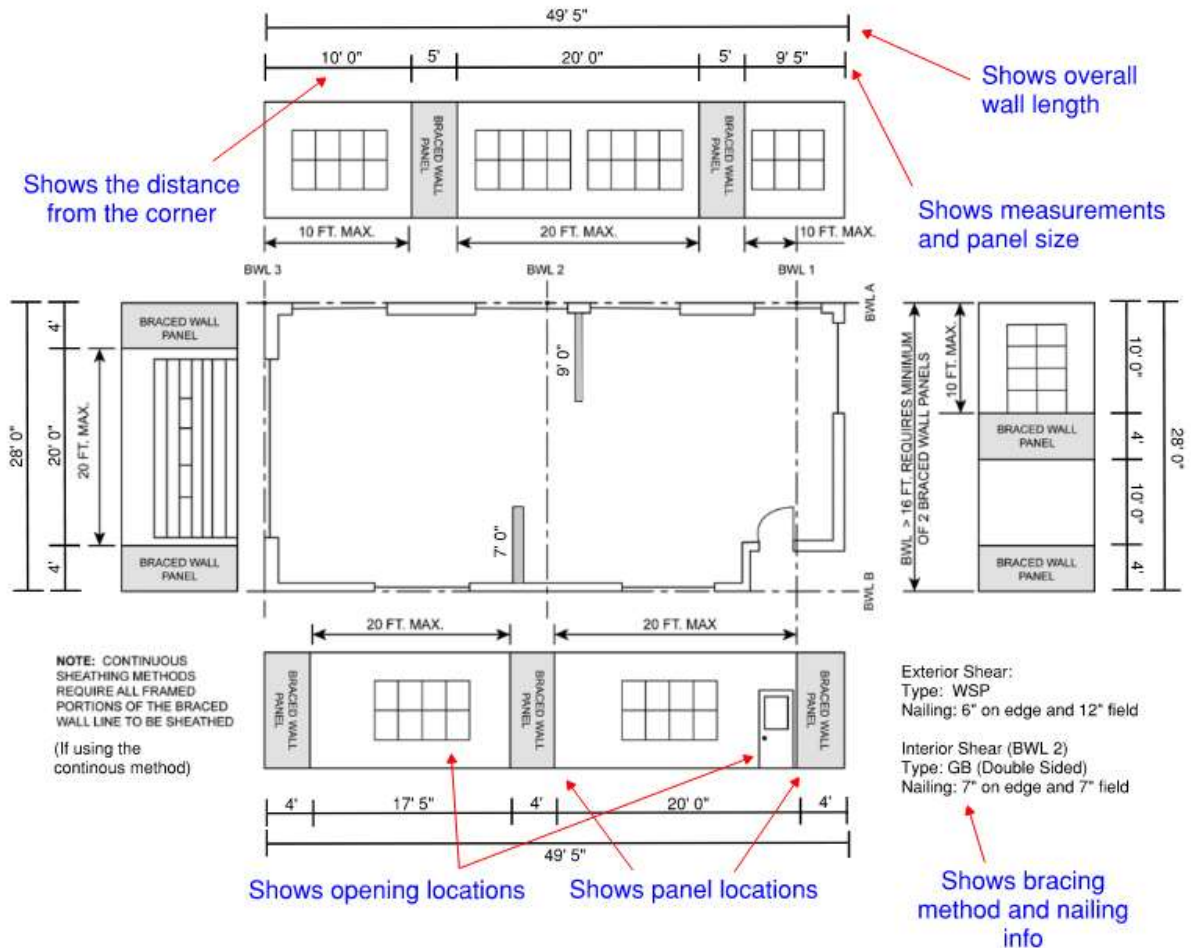
8.) Wall Bracing (Prescriptive Path) and/or Lateral Analysis Plans

Must indicate details and locations; for non-prescriptive path analysis provide specifications and calculations to engineering standards.

Wall bracing should be provided when making changes to or adding exterior walls. That includes new opening (windows and doors). Wall bracing consists of brace panels, hold downs, and/or straps, etc to resist seismic and wind loads on a structure. You can use the codebook to calculate what you need, or you can use a program such as the Simpson Wall Bracing Length Calculator, or the APA Wall Bracing calculator, etc. If you use a program, be sure to print off the report and turn it in with your plans. The plans should show the braced wall lines, type of bracing/panels, the length of the wall, the length of the panels, panel locations, the hold down locations and types (if applicable), etc.

CS-WSP is the easiest and most common method. You won't have set individual "panels" like the example below because it's continuously sheathed (not intermittent). We'll still need the opening sizes, distances from corners, wall length measurements between all the openings, distances between the braced wall lines, etc.

Here is an example of a lateral bracing plan using the WSP (intermittent) method:

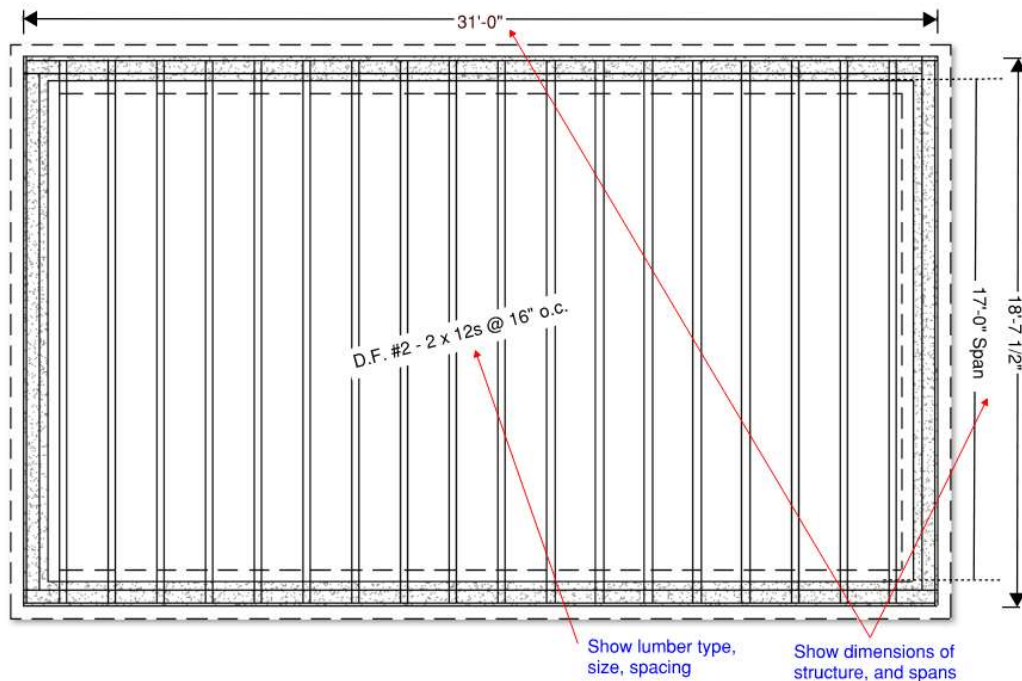


9.) Floor/Roof Framing

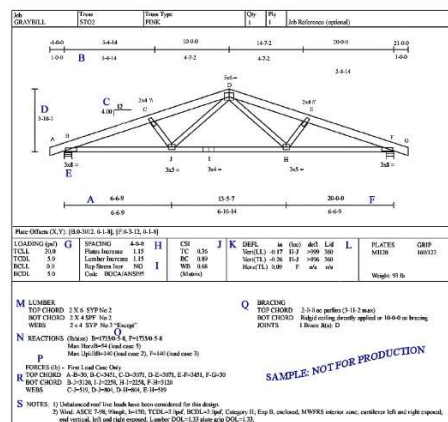
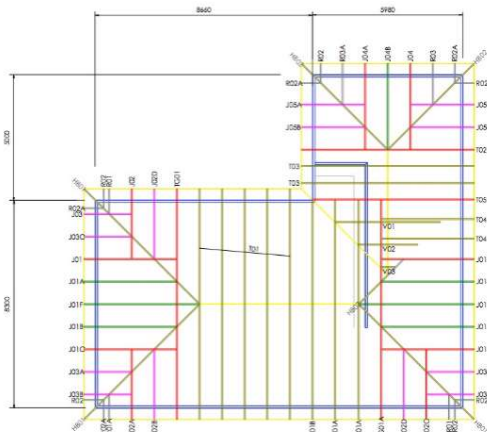
Provide plans for all floors/roof assemblies, indicating member sizing, spacing, and bearing locations. Show attic ventilation.

If your project includes structural work on the floor or roof, we'll need plans. Examples would be new or altered floor joists, i-joists, rafters, ceiling joists, trusses, etc.

Floor construction can either be floor joists, or an engineered product like TJI's. The first-floor plan is typically part of your foundation plan (see the foundation plan example) but it doesn't have to be. If you are using an engineered product like TJI's, your layout and calculations will come from your manufacturer or supplier. If you are using regular lumber for floor joists, we'll need the lumber type, size, spacing, and spans. Your plan should look something like this:

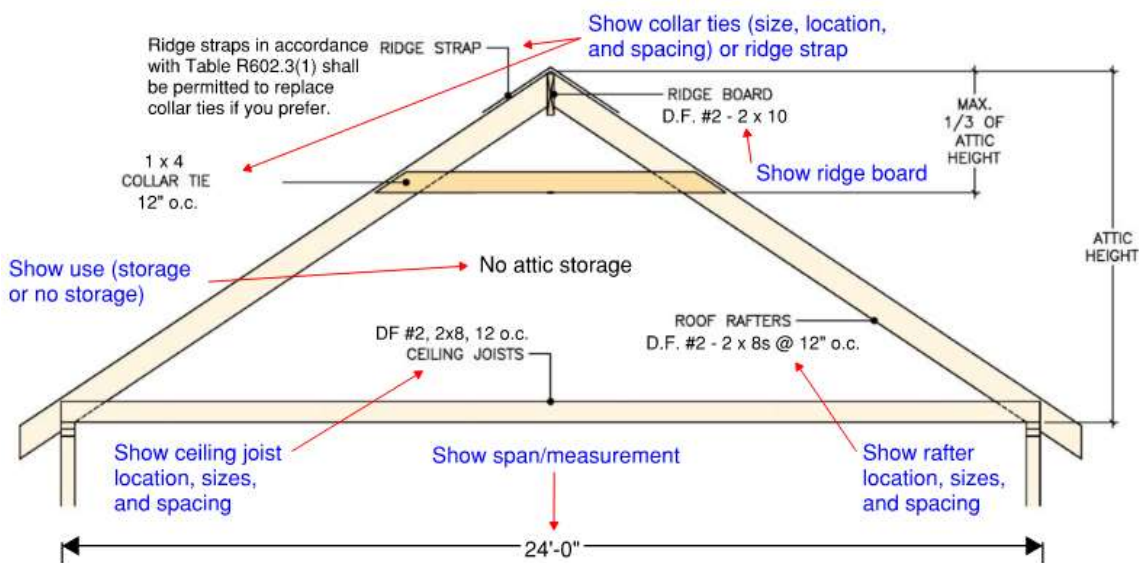
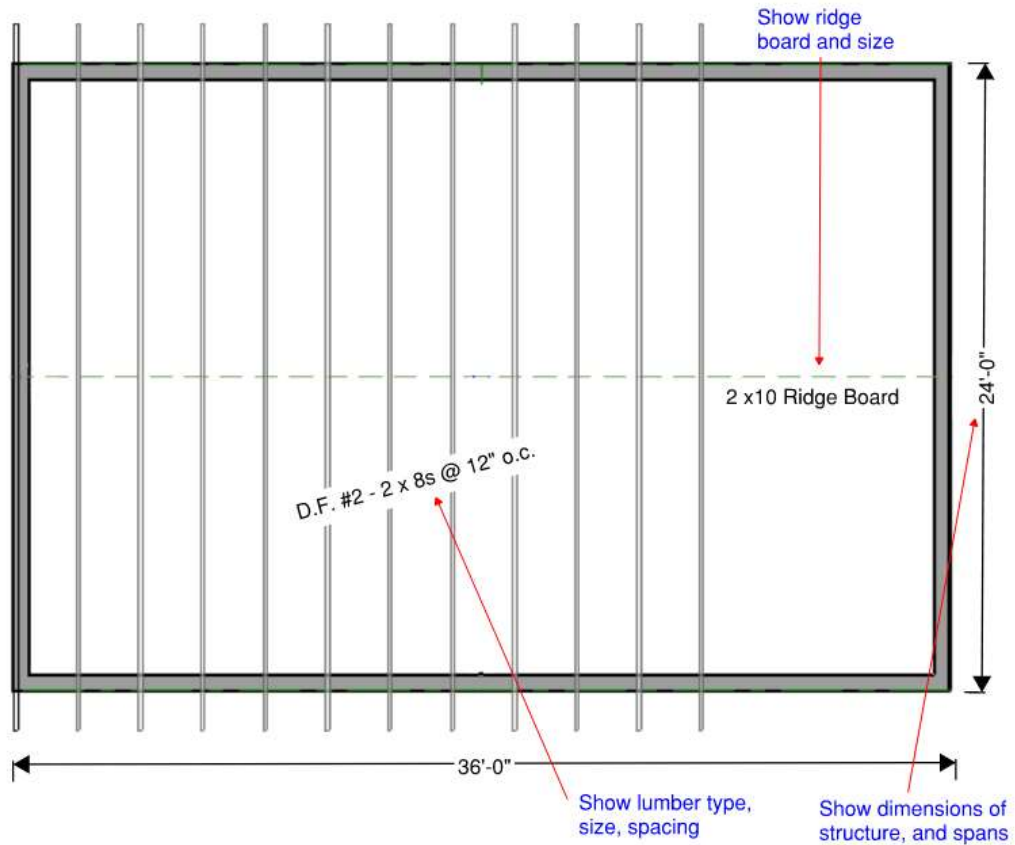


Roof construction can either be rafters and ceiling joists with collar ties or ridge straps, or can be manufactured trusses. If you're using trusses, you should receive a truss layout and a packet of truss details that show information on each truss from your manufacturer or supplier. Here's what they look like (normally full size 8 1/2 x 11):

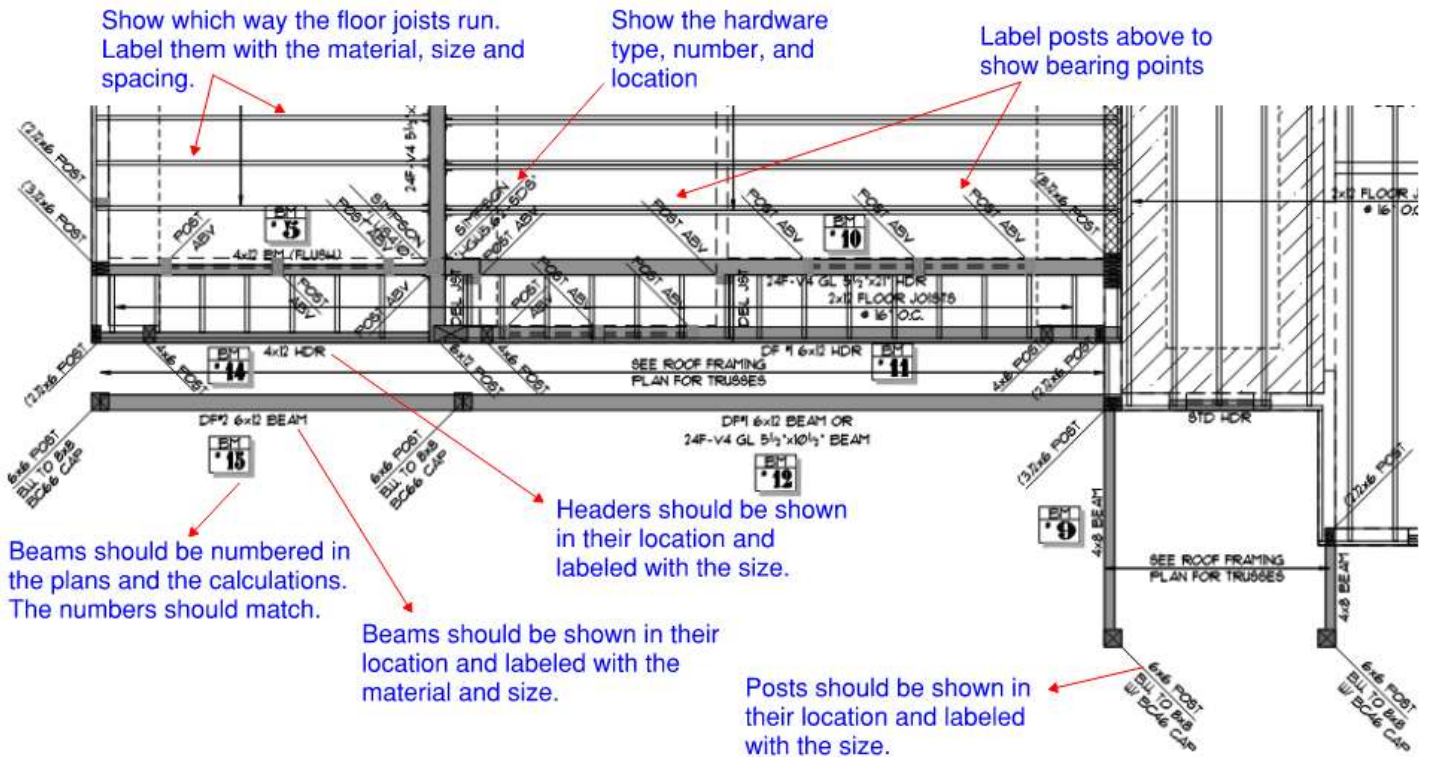


SAMPLE NOT FOR PRODUCTION

If you are using rafters with ceiling joists and collar ties, we'll need a roof plan along with a side view. Here are examples of both:



Here's another example of a partial framing plan:



10.) Basement and Retaining Walls

Provide cross sections and details showing placement of rebar. For engineered systems, see item 14, "Engineer's Calculations".

This looks like the foundation detail from the side as shown in the foundation section of this handout. All the rebar sizes and spacing will need to be labeled/noted. Be sure to add your connections (top and bottom), show the slab, and slab insulation, etc.

If you are using an engineer, we will need the plans and calcs stamped and signed by the engineer. They should provide you with this information.

11.) Beam Calculations

Provide one digital set of calculations using current code design values for all beams and multiple joists over 10 feet long and/or any beam/joist carrying a non-uniform load.

Beam calculations (calcs) come from a beam calculation software that you can run yourself or a structural engineer can run them for you. There are free beam calc programs and there are programs you may have to pay for. Some examples would be ForteWEB, StruCalc, SkyCiv, BeamChek, etc. The program should give you a report on each beam.

Here's an example of what they look like (this is not a full sheet).

Beams should be numbered in the calcs and plans and should match together.

The location should be noted

Beams should be designed and calculated by the current code. The code edition should be noted.

The beam size and type of material

Calculations should show if the beam is adequate

The beam calc should also show all the weights, loads, and calculations, etc.

A loading diagram shows the span length, the bearing points, and any point loads on the beam.

Location: Beam Nr. 01 - Roof Beam at Covered Entry
Roof Beam
[2015 International Residential Code(2015 NDS)]
3.5 IN x 9.25 IN x 7.5 FT
#2 - Douglas-Fir-Larch - Dry Use
Section Adequate By: 41.1%
Controlling Factor: Moment

DEFLECTIONS		Center	
Live Load	0.05	IN	L/1698
Dead Load	0.05	in	
Total Load	0.10	IN	L/897
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180	

REACTIONS		A	B
Live Load	1032	lb	1032
Dead Load	922	lb	922
Total Load	1954	lb	1954
Bearing Length	0.89	in	0.89

BEAM DATA	
Span Length	7.5 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	0 ft
Roof Pitch	10 :12
Roof Duration Factor	1.15
Notch Depth	0.00

MATERIAL PROPERTIES			
#2 - Douglas-Fir-Larch			
	<u>Base Values</u>	<u>Adjusted</u>	
Bending Stress:	Fb = 900 psi	Fb' = 1242 psi	
	Cd=1.15 CF=1.20		
Shear Stress:	Fv = 180 psi	Fv' = 207 psi	
	Cd=1.15		
Modulus of Elasticity:	E = 1600 ksi	E' = 1600 ksi	
Comp. \perp to Grain:	Fc \perp = 625 psi	Fc \perp ' = 625 psi	
Controlling Moment:	3662 ft-lb		
	3.75 ft from left support		

LOADING DIAGRAM

A loading diagram shows the span length, the bearing points, and any point loads on the beam.

ROOF LOADING

Side One:
Roof Live Load: LL = 30 psf
Roof Dead Load: DL = 20 psf
Tributary Width: TW = 1.5 ft

Side Two:
Roof Live Load: LL = 30 psf
Roof Dead Load: DL = 20 psf
Tributary Width: TW = 7.7 ft

Wall Load: WALL = 0 plf

SLOPE/PITCH ADJUSTED LENGTHS AND LOADS

Adjusted Beam Length: Ladj = 7.5 ft

12.) Manufactured Floor/Roof Truss Design Details

This is covered under #9 – “Floor/Roof Framing”

13.) Energy Code Compliance

Identify the prescriptive path or provide calculations. A gas-piping schematic is required for four or more appliances.

This is all about energy efficiency and energy conservation. You'll want to show what type of insulation that you'll be using, the r-value, and where it's going (underfloor, exterior walls, ceiling, etc). We'll need to know the u-value of windows and doors. Depending on how large your project is, you may need to select additional measures from the additional measures table. Those can be found in Chapter 11 of the Oregon Residential Specialty Code. Most of these can just be noted somewhere on the plans and shown where they appear as shown in #6 – “Cross Section(s) and Details”.

14.) Engineer's Calculations

When required or provided, (i.e., shear wall, roof truss) shall be stamped by an engineer or architect licensed in Oregon and shall be shown to be applicable to the project under review.

Engineer's calculations are not required if your project is prescriptive (right out of the code). If you want to deviate from the code, then calculations are required. Typically, this is a packet you receive from them or from calculation software if you have it. The cover page should be stamped and signed by the engineer (if used). They should reference the current code and the design criteria used in the calculations.

15.) Soils Report

Must carry original applicable stamp and signature on file with application.

This is required on properties with slopes (over 4 feet), fill, or poor soil. Please see #2 "Site/Plot Plan Drawn To Scale" for more information and contact our office if you have any questions regarding this. In most cases, this is not needed.

16.) Land Use Actions Completed

Please work with our planning division to complete any land use actions.

Planning: planning@milwaukieoregon.gov or 503-786-7630

17.) Zoning

Flood plain, solar balance points, seismic soils designation, historic district, etc.

Please work with our planning division to answer any zoning questions you may have.

Planning: planning@milwaukieoregon.gov or 503-786-7630

Jurisdictional Specifics:

18.) All submitted documentation shall be uploaded online directly to the coordinating permit.