



Residential Garage

Document Submittal Requirements

Attached Garage

- 5 copies of site plan
- 4 copies of construction plans
- 2 copies of Energy Code calculations (may be on plans) if building will be heated
- 1 copy structural calculations (if applicable)

Detached Garage

- 5 copies of site plan
- 4 copies of construction plans
- 2 copies of Energy Code calculations (may be on plans) if building will be heated
- 1 copy structural calculations (if applicable)
- 1 copy Fire Flow calculations - (contact your water purveyor. For City of Kent Water Customers, email criege@kentwa.gov)

**** Any new portions of the structure must comply with the requirements of the 2015 International Residential Code (IRC) or 2015 International Building Code (IBC); the 2015 Uniform Plumbing Code; and WSEC as adopted and amended by the State of Washington and the City of Kent.**

If converting an existing garage to residential use, see Residential Alteration handout.

NOTE: Effective July 01, 2016, the City of Kent enforces the 2015 International Residential Code (IRC). Design Criteria for Kent for IRC Table R301.2.(1) are as follows:

Seismic Design Category: D2
Windspeed 85 MPH
Ground Snow Load 20
Frost Line Depth 6"
Winter Design Temp 21
Mean Annual Temp 50
Ice Shield Underlayment Not required
Air Freezing Index 0-100
Subject to Damage from:
Weathering Moderate
Termite Slight to Moderate
Decay Slight
Flood Hazards: NFIP November 4, 1974; FIRM & FBFM May 16, 1995

Minimum Requirements for Construction Drawings

Plans shall be of sufficient clarity to indicate the location, nature, and extent of the work proposed and show that it will conform to the provisions of the adopted Codes and ordinances.

Acceptable drawings sizes are those that are 24" x 36" in size and drawn to an appropriate scale as listed below. Plans shall be drawn in indelible ink. Plan sheets that are cut and pasted, taped, or that have been altered by any means (pen, pencil, marking pens, etc.) will not be acceptable for plan check.

Washington State law requires that any registered professional who prepares or supervises the preparation of drawings and construction documents stamp and sign such documents. Where multiple copies of stamped submittal documents are submitted, at least one set must bear an original wet seal.

Site Plan

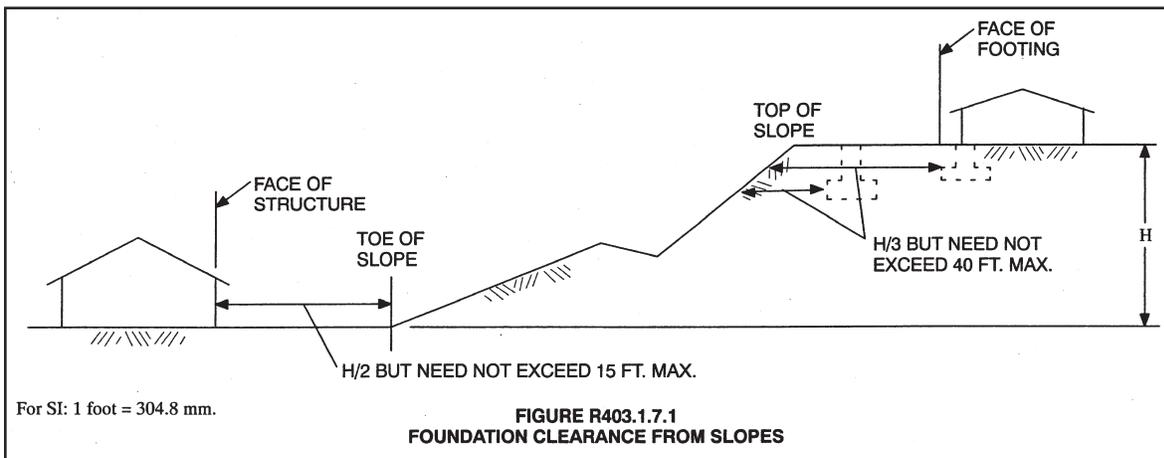
- ❑ 1. Provide scale and north arrow. Use an Engineering scale (**not** an architectural scale). Preferred scale 1"=20', or maximum 1"=40'.
- ❑ 2. Show property lines, including lengths and bearings.
- ❑ 3. Label streets and tracts on the site plan.
- ❑ 4. Show contour lines on lot at 2-foot intervals. For a flat lot, provide elevation readings at corners of lot and house.
- ❑ 5. Show proposed grade elevations, finished floor elevations, and directional arrows to show surface drainage.
- ❑ 6. Show the sizes, locations, and uses of existing and proposed buildings.
- ❑ 7. Show dimensions of setbacks of structure(s) from all property lines.
- ❑ 8. Show the location of utilities (water, sewer, storm water stub-out, gas, and electricity).
- ❑ 9. Identify any existing structures, or portions thereof, that are to be removed or demolished.
- ❑ 10. Indicate the location and dimensions of driveways and describe paving materials. If applicable, show connectivity of driveway from edge of existing street pavement to property with an asphalt apron, or show curb, gutter & sidewalk with driveway opening.
- ❑ 11. Show **all** easements (public and private), tracts, and right of ways, i.e. utility, railroad, ingress and egress, drainage, water, sanitary sewer on the property with labels and dimensions.

- ❑ 12. Show location and dimensions of roof downspout infiltration trench system per Std Plan 5-26 in the Kent 2009 Design & Construction Standards. Show connection to the storm stub-out.
- ❑ 13. List the lot square footage, total impervious area (including driveway) in square feet and the total percentage of lot coverage.
- ❑ 14. Show all manmade or natural features on-site or adjacent to the site, i.e. streams, creeks, drainage ditches, railroad tracks, lakes, etc.
- ❑ 15. Show and label any appurtenances adjacent to the property such as streetlights, telephone or street light junction boxes, mailboxes or fire hydrants that may impede driveway access.

Soils Report

Investigation and analysis of soils per IRC Sec 401 prepared by a Washington State licensed geotechnical engineer will be required under the following conditions:

- ❑ 1. When foundations are supported by fill material.
- ❑ 2. Unless the foundation design is based on 1500 psf.
- ❑ 3. For structures on or adjacent to slopes when the building clearance from ascending or descending slopes are less than shown in IRC Figure R403.1.7.1 (below).



Foundation Plan - See IRC Chapter 4

- 1. Provide scale (1/4" or 1/8") and north arrow.

Table R401.4.1—Presumptive Load-bearing Values of Foundation Materials^a	
Class of Material	Load-Bearing Pressure (pounds per square foot)
Crystalline bedrock	12,000
Sedimentary and foliated rock	4,000
Sandy gravel and/or gravel (GW and GP)	3,000
Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM and GC)	2,000
Clay, sandy clay, silty clay, clayey silt, silt and sandy silt (Cl, ML, MH, and CH)	1,500 ^b
<p>For SI: 1 pound per square foot = 0.0479 kN/m².</p> <p>a. When soil tests are required by Section R401.4, the allowable bearing capacities of the soils shall be part of the recommendations.</p> <p>b. Where the building official determines that in-place soils with an allowable bearing capacity of less than 1,500 psf are likely to be present at the site, the allowable bearing capacity shall be determined by a soils investigations.</p>	

- 2. Show dimensions of perimeter foundation, isolated footings, concrete slabs, patios, porches, landings, and deck supports.
- 3. Provide complete foundation sections and details showing the minimum foundation sizes required by the *2012 IRC Sec. R403 and R404*, or approved structural design.
- 4. Clearly indicate the locations and sizes of exterior and interior bearing footings/ foundations.
- 5. Specify pier sizes (show thickened footings where posts are supported on exterior footings where necessary to support imposed loads).
- 6. All required hold-downs shall be shown on the foundation plans and shall be consistent with engineering when building has been engineered.
- 7. Show the locations, sizes, embedment and spacing of anchor bolts and hold-downs. Foundation plates or sills shall be bolted to the foundation or foundation wall with not less than 1/2" bolts embedded at least 7" into the concrete or masonry spaced not more than 6' apart. *There shall be a minimum of two bolts per piece with one bolt located not more than 12" or less than 7 bolt diameters from each end of the plate section.* IRC Sec. R403.1.6. and *IRC Sec. R403.1.6.1.*
- 8. A properly sized nut and washer shall be tightened on each bolt to the plate. *IRC Sec. Washer size to be 0.229 inch by 3 inches x 3 inches in size per IRC Sec. R602.11.1.*
- 9. For engineered buildings, the size and spacing of all anchor bolts shall be shown on the shear wall schedule. Shear wall schedule shall be shown on the plans and be consistent with foundation sections.
- 10. Foundations with stem walls shall be shown *with a minimum of one No. 4 horizontal bar located in the upper 12 inches of the wall per IRC Sec. R403.1.3. Additionally, stem walls shall be provided with a minimum of one No. 4 bar at the top of the wall and one No. 4 bar at the bottom of the footing per IRC Sec. R403.1.3.1. See IRC Sec. R403.1.3 for additional requirements from footing to wall connection.*
- 11. Specify the size and spacing of required reinforcing steel. Specify thickness of concrete cover over rebar.
- 12. A WA State licensed professional engineer shall design all foundation/retaining walls over eight feet in height (measured from the bottom of the footing to the top of the wall) to resist loads due to the lateral pressure of retained material in accordance with accepted engineering practices per IRC Sec. R404.1.4.2
- 13. *Foundation Walls up to 8' shall comply with IRC Section R404.1.4 and Table R404.1.2.(1)*
- 14. Specify at least a 3 1/2" thickness for concrete slab-on-ground floors. IRC Sec. R506.1.
- 15. Carport & Garage floors surfaces shall be of approved noncombustible material. Floors shall slope to a drain or vehicle door. IRC Sections R309.1.
- 16. Lots shall be graded so as to drain surface water away from foundation walls. Grade away from foundation walls shall fall 6" minimum within the first ten feet. IRC Sec. R401.3

Floor Plan

(1/4" or 1/8" scale)

- 1. Submit a fully dimensioned floor plan. Label each room or area with intended use.
- 2. Specify project square footage on floor plans. Provide complete breakdown.
- 3. Show window and door locations, sizes and types.
- 4. Specify header size and type over each opening.
- 5. Show beam locations, materials, grades, spacing and sizes. Show posts under beams. Show post support.
- 6. Show locations of plumbing/heating fixtures and equipment.
- 7. Show the location of a minimum 18" x 24" crawl space access per *IRC Sec. R408.4*.
- 8. Show minimum 22" x 30" attic access per IRC Sec. R807.1.
- 9. Identify on the drawings all locations of safety glazing as required by IRC Sec. R308 and R308.4, such as but not limited to windows, adjacent doors, glazing in walls and surrounds for bathtubs and showers, and glazing within 5 feet of stairs.
- 10. *Construction, projections, openings, and penetrations of exterior walls shall comply with IRC Sec. R302.*

Framing Plans

(1/4" or 1/8" scale)

- 1. Identify on the drawings all interior and exterior braced wall lines and braced wall sections as required by IRC Sections R602.10 and R602.11.
- 2. Braced wall lines shall not exceed 25 feet on center in both the longitudinal and transverse directions in each story, unless excepted in *IRC Sec. R602.10.1.3*.
- 3. All braced wall panels shall be clearly indicated on the plans. Braced wall panels shall start at not more than 10 feet from each end of a braced wall line. *IRC Sec. R602.10.2.2.1*.
- 4. Braced wall panel minimum lengths must conform to IRC Sec. R602.10.3.
- 5. Buildings that are not provided with braced wall lines in accordance with IRC Sec. R602.10. and Table R602.10.1 or that are of unusual shape as described in IRC Sec. *R301.2.2.2.5* shall have a lateral-force-resisting system designed to resist the forces specified in IRC Sec. R301. A Washington State licensed professional engineer shall stamp structural calculations. Plans shall be consistent with engineer's calculations and a complete shear wall schedule shall be shown on the plans.
- 6. Drawings must clearly show the sizes, species, grades, spacing and spans of all framing members.
- 7. Show floor joists sizes, directions of run, spans and spacing.
- 8. If I-joists, also submit the manufacturer's proprietary floor system design layout with all requirements.
- 9. Show ceiling joists, trusses, and roof rafter sizes, directions of run, spans and spacing. If trusses, also submit engineered truss sheets and cross-referenced lay-out plan.
- 10. Show on the drawings the numbers and sizes of nails connecting wood members, or include on the drawings *IRC Tables 602.3.(1) & 602.3.(2)*
- 11. Connections that resist seismic forces shall be completely and clearly detailed on the drawings. All of the engineer's requirements must be shown on the drawings. Show the locations and specify the brand names and model numbers of all framing connectors.
- 12. Specify on the drawings the panel identification indexes for plywood and particle board floor and roof sheathing. IRC Sec. R503.2, R604, and R605 respectively.
- 13. Clearly show bearing and shear walls. Provide nailing schedules.
- 14. Show posts under all beams. Specify sizes, grades, species and heights. Show connections top/bottom.
- 15. Each dwelling unit shall have one exit door that is side-hinged and provides a minimum clear width of not less than 32 inches and a minimum clear opening height of not less than 78 inches. IRC Sec. R311.2. The means of egress from the dwelling unit to this required door cannot require travel through a garage. IRC R311.1.

- ❑ 16. Show landings at doors. The width of each landing shall not be less than the door served and a minimum length in the direction of travel of not less than 3 feet. Exterior door shall have an interior landing not more than 1½" lower than the top of the threshold and an exterior landing not more than 7 ¾ inches below the top of the threshold if the door does not swing over it. IRC Sec R311.3 and R311.3.1.
- ❑ 17. *Show exterior windows and glass doors comply with IRC Sec. R308.*
- ❑ 18. Wall construction, fire blocking (R602.8), notching and drilling (R602.6) shall comply with IRC Chapter 6.
- ❑ 19. Wall covering shall comply with IRC Chapter 7.
- ❑ 20. Roof-Ceiling construction shall comply with IRC Chapter 8.
- ❑ 21. Roof Assemblies shall comply with IRC Chapter 9.
- ❑ 5. Show components of wall construction including exterior and interior wall finishes and insulation R-value. Show double top plates at top of stud walls. IRC Sec. R602.3.2.
- ❑ 6. Habitable rooms above garage need minimum 5/8" Type X gypsum board or equivalent applied to garage side of ceiling. IRC Sec. and Table R302.6. See nailing schedule in IRC Table R702.3.5.
- ❑ 7. Show Roof structure (sizes and spacing of joists, rafters, or pre-manufactured trusses) and R-value of insulation. Show insulation baffles.
- ❑ 8. Show Roof structure (sizes and spacing of joists, rafters, or pre-manufactured trusses) and R-value of insulation. Show insulation baffles.
- ❑ 9. Enclosed accessible space understairs shall have walls, under stair surface and any soffits protected on the enclosed side with 1/2" gypsum wallboard. IRC Sec. R 302.7.
- ❑ 10. Provide full height section through stairways. Show riser and tread framing materials; riser height, thread width; handrail/guard height above thread nosing; and clearance to ceiling above the stairs measured from a line drawn at and parallel to thread nosing. IRC R311.7.
- ❑ 11. Stairways shall be 36" wide above the handrail which may project no more than 4 1/2" into the stairway. IRC R311.7.
- ❑ 12. Illumination required for all stairways IRC R303.7 and R303.8.
- ❑ 13. Balconies, porches or raised floor surface more than 30" above the floor or grade below shall have guards no less than 36" in height. The open sides of the stairs with a total rise of more than 30" above the floor or grade below shall have guards no less than 34" in height measured vertically from the nosing of the threads. IRC Sec. R312. The guards shall have intermediate rails or an ornamental pattern such that a sphere 4 inches in diameter cannot pass through per IRC Sec. R312.1.3 See exception for guard on stairs IRC Sections R312.1.3 exception #1 and R312.1.3 exception #2.

Elevations

- ❑ 1. Specify the height above finish grade to a) finished floor; b) top plate/ceiling; c) highest point of structure.
- ❑ 2. Specify all finished materials to be used.
- ❑ 3. Show all doors and windows (distinguish between openable and fixed).
- ❑ 4. Show finish grade elevations in relation to structure.

Building Cross Sections

- ❑ 1. Blocking, bridging, straps, approved framing anchors or mechanical fasteners shall be installed to provide continuous ties from the roof to the foundation system.
- ❑ 2. Specify mudsill material (decay-resistant heart wood of redwood, black locust, cedar, black walnut, or pressure treated). *IRC Sec. R317.1.*
- ❑ 3. Where post and beam or girder construction is used, the design shall be in accordance with the provisions of this code. Detail positive connections to ensure against uplift and lateral displacement. IRC Sec. R502.9.
- ❑ 4. Wood joists closer than 18 inches, or wood girders closer than 12 inches to grade shall be shown as an approved wood of natural resistance to decay or treated wood. *IRC Sec. R317.1*

Roof Plan

(1/4" or 1/8" scale)

IRC Chapter 8 – Roof-Ceiling Construction

- 1. Show roof drainage per IRC Sec R801.3 where required.
- 2. Show sizes, directions of run, spans, and spacing of framing members of all framing members.
- 3. Cutting and notching shall comply with IRC Sec R802.7.
- 4. If using trusses, provide engineer stamped truss drawings and cross-referenced lay-out sheet.
- 5. Show truss to truss connections on plans.
- 6. Show truss to beam connections on plans.
- 7. Show truss to wall connections on plans.
- 8. Show truss to top plate connection on plan.
- 9. Show compliance with ventilation requirements for attic space per IRC Sec R806.
- 10. Detail roof construction including sheathing, underlayment, and roofing material.
- 11. Indicate roof pitches.
- 12. Show attic access opening in attic areas that exceed 30 square feet and have a vertical height of 30 inches in buildings with combustible ceiling or roof construction. IRC Sec R807.

Energy/Ventilation

(if building is to be heated)

The plans shall show in sufficient detail all pertinent data and features of the building and the equipment and systems including, but not limited to: design criteria, exterior envelope component materials, U-factors of the envelope systems, R-values of insulating materials, size and type of apparatus and equipment, and equipment controls. Energy code forms should be incorporated into the construction drawings.

Any structures within designated flood areas as determined by City of Ken Public Works must comply with IRC Sec. R322.

Other Permits

Other permits such as water meter and sewer connection may be required. Fees for these permits may change and are not determined until application is made for that specific permit.