



# New Residences and Additions

## Select application type below:

**Single Family Basic Plan Review**

- Construction Plan
- Energy Calculations
- Structural Calculations
- Manufacturer's Proprietary Floor System Design Layout with all requirements, (I-Joist, Open-web, etc.)
- Truss Drawings
- Base Plan Worksheet & Options List

**Site Specific Residence built from a Basic**

- Site Plan showing trench infiltration location
- Approved Construction Plan with applicable options only
- Basic Approval Letter
- Base Plan Worksheet and Options List
- Fire Flow Form (Contact your water purveyor. For City of Kent water customers, email DevelopmentEngineering@KentWA.gov)
- Fire Impact Fee Information Sheet

**New Single Family Residence or Residential Addition**

- Site Plan showing trench infiltration location
- Construction Plan
- 2018 Energy Code calculations (may be on plans)
- Structural Calculations
- Engineer Stamped Truss Drawings
- Manufacturer's Proprietary Floor System Design Layout with all requirements, (I-Joist, Open-web, etc.)
- Tree Plan (new residence only)
- Fire Flow Form - (Contact your water purveyor. For City of Kent water customers, email DevelopmentEngineering@KentWA.gov)
- Fire Impact Fee Information Sheet

**Residential Moved Buildings**

- Site Plan showing trench infiltration location
- Foundation Plan
- Plan showing all new and existing framing members and bearing walls
- Energy Code Calculations
- Fire Flow Form - (Contact your water purveyor. For City of Kent water customers, email DevelopmentEngineering@KentWA.gov)
- Fire Impact Fee Information Sheet

**\*\* Any new portions of the structure must comply with the requirements of the 2018 International Residential Code (IRC) or 2018 International Building Code (IBC); the 2018 Uniform Plumbing Code; and the 2018 Washington State Energy code as adopted and amended by the State of Washington and the City of Kent.**

**NOTE: Effective February 1, 2021, the City of Kent enforces the 2018 International Residential Code (IRC). Design Criteria for Kent for IRC Table R301.2.(1) are as follows:**

Ground Snow Load .....	25 lbs*
Wind Speed (mph): .....	85 IRC
.....	85 Vasd IRC**
.....	110 Vult IRC**
Seismic Design Category:.....	D2 - IRC
.....	D - IBC
Subject to Damage from:	
Weathering .....	Moderate
Frost Line Depth .....	12"***
Termite .....	Slight to Moderate
Decay .....	Slight to Moderate
Winter Design Temp .....	21F
Ice Shield Underlayment Required .....	No
Air Freezing Index .....	0-1000
Mean Annual Temperature .....	50
Flood Hazards:	
a) The City of Kent entered the National Flood Insurance Program November 4, 1974	
b) The date of the current FIRM and FBFM is May 16, 1995	
Assumed Soil Bearing Capacity (In most areas) .....	1500 psf
Climate Zone Marine .....	Marine 4c

Values determined for:

\* <https://www.wabo.org/assets/SEAWPapers/wabo-seaw%20wp%208%20final%202012.pdf>

\*\*International Residential Code (IRC) Section R301 Design Criteria

International Building Code (IBC) Table 1609.3.1 Wind Speed Conversions

\*\*\* IRC 403.1.4 & IBC 1809.4, ASCE32

## 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 24" x 36" or larger 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

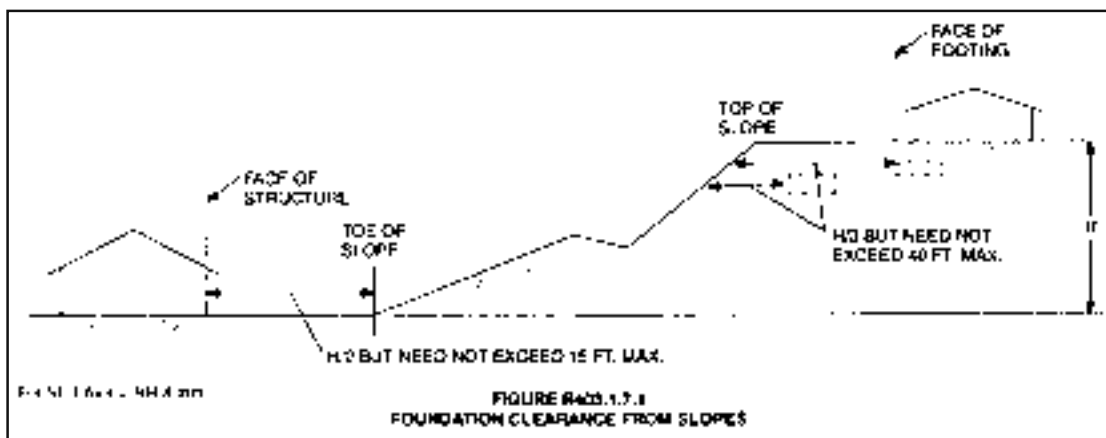
- 1. Provide scale and north arrow. Use an Engineering scale (**not** an architectural scale). Preferred scale 1"=20', or maximum 1"=40'.
- 2. Show property lines, including lengths and bearings.
- 3. Label streets and tracts on the site plan.
- 4. Show contour lines on lot at 2-foot intervals. For a 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 all trees to be retained or planted. (Not required for additions.)
- 13. 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.
- 14. List the lot square footage, total impervious area (including driveway) in square feet and the total percentage of lot coverage.
- 15. Show all manmade or natural features on-site or adjacent to the site, i.e. streams, creeks, drainage ditches, railroad tracks, lakes, etc.
- 16. Show and label any appurtenances adjacent to the property such as street lights, 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 is less than shown in IRC Figure R403.1.7.1 (below).



## Foundation Plan - See IRC Chapter 4

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

<b>Table R401.4.1—Presumptive Load-bearing Values of Foundation Materials<sup>a</sup></b>	
<b>Class of Material</b>	<b>Load-Bearing Pressure (pounds per square foot)</b>
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 (CI, ML, MH, and CH)	1,500 <sup>b</sup>

For SI: 1 pound per square foot = 0.0479 kN/m<sup>2</sup>.

a. When soil tests are required by Section R401.4, the allowable bearing capacities of the soils shall be part of the recommendations.

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.

- 1. Show dimensions of perimeter foundation, isolated footings, concrete slabs, patios, porches, landings, and deck supports.
- 2. Provide complete foundation sections and details showing the minimum foundation sizes required by the 2015 IRC Sec. R403 and R404, or approved structural design.
- 3. Clearly indicate the locations and sizes of exterior and interior bearing footings/ foundations. Specify pier sizes (show thickened footings where posts are supported on exterior footings where necessary to support imposed loads).
- 4. All required hold-downs shall be shown on the foundation plans and shall be consistent with engineering when building has been engineered.
- 5. 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.
- 6. A properly sized nut and washer shall be tightened on each bolt to the plate. IRC Sec. 403.1.6.1. *Washer size to be 0.229 inch by 3 inches x 3 inches in size per IRC Sec. R602.11.1.*
- 7. 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.
- 8. 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.*
- 9. Specify the size and spacing of required reinforcing steel. Specify thickness of concrete cover over rebar.
- 10. 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 retained material in accordance with accepted engineering practices per IRC Sec. 404.1.3
- 11. *Foundation Walls up to 8' shall comply with IRC section R404.1.4 and Table R404.1.1.(1)*
- 12. Specify at least a 3 1/2" thickness for concrete slab-on-ground floors per IRC Sec. R506.1 and specify the concrete compression strength per IRC Sections R402.2.
- 13. Provide under-floor ventilation equal to 1 square foot of net opening for each 300 square feet of under floor space area per IRC Sec. R408.2 (*except space occupied by a basement*). One such ventilation opening shall be within 3 feet of each corner of said building, *except one side of the building shall be permitted to have no ventilation openings.* Ventilation openings shall be covered with materials listed at IRC Sec. R408.2.
- 14. Show a 6-mil black polyethylene ground cover (vapor retarder) overlapped 12 inches minimum at the joints and extending to the foundation wall per IRC Section R408 or beneath slab on grade per IRC Sections R506.2.3.
- 15. Carport & Garage floors surfaces shall be of approved noncombustible material. Floors shall slope to a drain or vehicle door. IRC Sections R309.1 & R309.2.
- 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 for each floor, including basements. 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. Show smoke detectors (alarms) installed in each sleeping room, at a point centrally located in the corridor giving access to each separate sleeping area, and on each floor including basements, and in each napping area of a family child day care home. *IRC Sec. R314.3*. When more than one smoke alarm is required, they shall be interconnected.
- 10. Additions, alterations, and repairs require smoke alarms located as required for new dwellings. For exceptions in existing dwellings, see *IRC Sec R314.3.1*.
- 11. Show location of carbon monoxide alarms and listing complying with UL 2075 per *IRC Sec R315*.
- 12. 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.
- 13. Show compliance with *IRC Sec. R302* for; construction, projections, openings, and penetrations of exterior walls.
- 14. Show hallway minimum width of 36". *IRC Sec. R311.6*
- 15. Bathroom fixtures shall be spaced as per *IRC Figure R307*.
- 16. Automatic garage openers, if provided, shall be listed and labeled in accordance with UL 325 per *IRC Sec. R309.4*.

## 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. R602.10.1.5*.
- 3. All braced wall panels shall be clearly indicated on the plans. Braced wall panels shall start at not more than 8 feet from each end of a braced wall line. *IRC Sec. R602.10.1.4.1*
- 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 floor and roof sheathing. *IRC Sec. R503.2 & R604*, 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. Where decks are shown, provide complete framing plans including sizes, grades, spacing, and species of all framing members including posts, lateral bracing, and guards. Show sizes and depths of concrete footing pads. Show all connections.
- 16. Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable. Where positive connection to primary structure cannot be verified by inspection, deck must be self-supporting. *IRC Sec. R502.2.2.* Deck ledgers connected to a band joist must be connected with minimum one-half inch diameter hot-dipped galvanized or stainless steel lag screws or bolts. *IRC R507.* Lateral load connections are permitted to be in accordance R507.2.2.3 and Figure R507.2.3. Where positive connection to primary structure cannot be verified by inspection, deck must be self-supporting. *IRC Sec. R502.2.2.*
- 17. 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.*
- 18. 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 3/4" below the top of the threshold if the door does not swing over it. *IRC Sec R311.3 and R311.3.1.*
- 19. Show dimensions of stair treads & risers. Maximum riser height shall be 7¾" per *IRC Sec R311.7.5.1*, and minimum tread depth shall be 10" per *IRC Sec R311.7.5.2.*
- 20. Show 6'8" minimum headroom in stairway. *IRC Sec. R311.7.2.*
- 21. Show landings for stairways. *IRC Sec. R311.7.6.*
- 22. Show handrails for stairways. *IRC Sec. R311.7.8.*
- 23. *Show maximum slope of one unit vertical in twelve units horizontal for all ramps. IRC Sec. R311.8.1.*
- 24. *Show exterior windows and glass doors comply with IRC Sec. R308.*

- 25. Wall construction, including fire blocking (*IRC Sec. R302.11*), notching and drilling (*R602.6*) shall comply with *IRC Chapter 6* and *IRC R302.11*.
- 26. Wall covering shall comply with *IRC Chapter 7*.
- 27. Roof-Ceiling construction shall comply with *IRC Chapter 8*.
- 28. Roof Assemblies shall comply with *IRC Chapter 9*.
- 29. Chimneys and Fireplaces shall comply with *IRC Chapter 10*.

## 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 (naturally durable wood or wood that is preservative-treated). *IRC Sec. R317 and R318.*
- 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. R407.3.*
- 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*
- 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 per *IRC Sec. R602.3.2.*
- 6. Habitable rooms above a garage need minimum 5/8" Type X gypsum board or equivalent applied to garage side of ceiling per *IRC Sec. R302.6* and *Table R302.6*. See nailing schedule in *IRC Table R702.3.5.*
- 7. Show ceiling construction (sizes and spacing of joists) and R-value of insulation.

- 8. Roof structure (sizes and spacing of joists, rafters, or pre-manufactured trusses) and R-value of insulation. Show insulation baffles.
- 9. Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with ½" gypsum wallboard. IRC Sec. R302.7
- 10. Provide full height section through stairways. Show riser and tread framing materials; riser height, tread width; handrail/guard height above tread nosing; and clearance to ceiling above the stairs measured from a line drawn at and parallel to tread nosings per IRC Sec. R311.7.2.
- 11. Stairways shall be 36" wide above the handrail which may project no more than 4½" into the stairway. IRC R311.7.1.
- 12. *Illumination required for all stairways IRC R303.7.*
- 13. Balconies, porches or raised floor surfaces more than 30" above the floor or grade below shall have guards no less than 36" in height. The open sides of stairs with a total rise of more than 30" above the floor or grade below shall have guards not less than 34" in height measured vertically from the nosing of the treads. IRC Sec. R312.1. The guards shall have intermediate rails or an ornamental pattern such that a sphere 4" in diameter cannot pass through per IRC Sec. R312.2. See exception for guard on stairs IRC Sections R312.3 1 & 2.
- 14. Provide Window fall protection in accordance with IRC Sec R312.2.

## 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" in buildings with combustible ceiling or roof construction. IRC Sec R807.

## Energy/Ventilation

- 1. 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.

You can obtain proper forms and detailed instructions at <https://www.energy.wsu.edu/buildingefficiency/energycode.aspx#Permit>

- 2. Show compliance with the ventilation requirements of *IRC Sec. M150 and M1507.*

## Designated Flood Area

Any structures within designated flood areas as determined by City of Kent 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.