

**Department of Development and Environmental Services (DDES)**

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# Private Residential Fire Sprinkler Systems

DDES Customer  
Information Bulletin #**39****• FREQUENTLY ASKED QUESTIONS •**

*Visit the DDES Web site at  
[www.kingcounty.gov/permits](http://www.kingcounty.gov/permits)  
for more information*

King County DDES has created customer information bulletins to inform the general public about the effect of codes and regulations on their projects. These bulletins are not intended to be complete statements of all laws and rules and should not be used as substitutes for them. If conflicts and questions arise, current codes and regulations are final authority. Because the codes and regulations may be revised or amended at any time, consult King County staff to be sure you understand all requirements before beginning work. It is the applicant's responsibility to ensure that the project meets all requirements of applicable codes and regulations.

For alternate formats, call 206-296-6600.

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If property owners are preparing to submit building plans for a residential building permit, this bulletin will help determine if there is a need to install an automatic fire sprinkler system. A separate permit is required before installing a sprinkler system. Sprinkler permits are issued by the King County Fire Marshal Division, located within the King County Department of Development and Environmental Services (DDES).

After permit intake, a site plan and particulars about the proposed building site will be sent to the Fire Marshal Division at DDES for review. Specifically, water availability and fire road access will be reviewed to determine whether the site is adequately served, or if a fire sprinkler system is required.

**What are water availability requirements?**

All building sites for a single-family residence will be reviewed to determine whether or not an automatic sprinkler system is required. Single family residences include but are not limited to: wood frame structures, mobile homes, modular homes, accessory dwellings, medical hardship dwellings, and remodels of those structures.

Note: Temporary and medical hardship mobile homes may be exempt from water, access and sprinkler conditions for one year only. Remodels requiring the installation of a sprinkler system will also require that the existing portion of the residence be retrofitted with sprinklers.

All residential structures in residentially zoned areas (UR, R-1, R-4, R-6, R-8, R-12, R-24, R-48) over 2,500 square feet in size are required to have the following:

- A fire hydrant within 350 feet of the property line, VEHICULAR TRAVEL. This means the route that the fire truck would have to travel from the fire hydrant to a proposed property. (In the case of a flag lot, the measurement is from the fire hydrant to 20 feet inside the main building envelope.)
- A flow of 1000 gallons per minute (gpm) or more at 20 pounds per square inch (psi) residual pressure.
- A flow for two hours duration or more.
- **Adult family homes shall meet the above requirements.**

ALL of these requirements have to be met, or fire sprinklers will be required in the residence. Customers may obtain information on the fire hydrant distances and flow from the local Water District in the form of a King County Certificate of Water Availability.

### **Certificate of Water Availability**

If ALL the fire hydrant requirements are not met, then a fire sprinkler system will be required in the residence. Residences in the rural zoning areas (those not mentioned above) are not required to have a fire hydrant available, AS LONG AS the lot is over 35,000 square feet in size. If the lot is less than 35,000 square feet, then the aforementioned fire hydrant requirements apply.

### **What are acceptable fire access road requirements?**

All portions of the exterior walls of residential structures (at grade) must be within 150 feet (as a person would walk via an approved route around the building) from an approved fire apparatus road/fire lane. A fire apparatus road/fire lane can be a driveway, easement, public or private road.

### **Approved fire apparatus access is defined as:**

- A 20-foot wide unobstructed permanent all-weather driving surface with 25-ton loading capability
- Having a maximum grade of 15 percent at all locations
- Having a vertical clearance of 13 feet 6 inches
- Having a minimum of 20-foot inside turning radius and 40-foot outside turning radius at all bends and turns. A firelane/access road over 150 feet long is required to have a circular 80 foot diameter turn-around (in SOME cases an approved hammer head configuration may be acceptable). A private road serving as a fire lane will be required to be signed as a fire lane per Chapter 17.04.070 of the King County Code (KCC).

ALL criteria must be met for the access to be considered as a fire apparatus access road/fire lane.

If ANY of these access requirements cannot be met, then a sprinkler system will be required for the residence.

ALL residences over 10,000 square feet in floor space will be required to install automatic sprinklers regardless of acceptable access and water availability.

ALL residential structures that are located in dead end areas, having more than 100 lots or living units, and are served by only ONE approved fire access road (minimum of two is required), will be required to have approved automatic sprinkler systems.

### Road improvement vs. sprinkler system?

It may be possible to perform road and driveway improvements to meet King County standards, BUT PROPERTY OWNERS MUST OBTAIN A GRADING PERMIT BEFORE ANY WORK IS DONE. When applicants revise a plot plan to meet access requirements, a revision will need to be resubmitted through the DDES Permit Center for review and approval. Other reviews and permits may be involved such as clearing, critical areas, wetland, drainage, and impervious surface limitations. The additional permits and reviews may delay the permit processing for the residence and add to the cost of the permit.

If an automatic sprinkler system is to be installed in the residence, then compliance with Fire Department access and water issues is NOT required. The sprinkler system must be designed by a Washington State certified sprinkler designer and installed in accordance with the National Fire Protection Standard (NFPA) 13D. A separate permit is required for the system and it is an additional cost. See DDES Bulletin 13, *Fire System Permits*, as well as information on applying for a fire system permit, available online from the DDES Web site at [www.kingcounty.gov/permits](http://www.kingcounty.gov/permits). A list of licensed sprinkler contractors is available by calling 206-296-6675. The sprinkler condition on the residential building permit will NOT hold up the permit process.

The inspection and functional flow test for the fire sprinkler system in a frame house must be completed before the framing inspection. In a mobile home, the inspection and flow test is required before a Certificate of Occupancy may be issued. At-the-factory installation of systems in mobile and modular homes is possible; consult with the Fire Engineering Section at 206-296-6675.

### Additional information

For additional information about water availability, access requirements or sprinkler installation, please contact the King County DDES Fire Marshal Division, Fire Engineering & Inspection Section at 206-296-6675.

For information about grading issues, customers can also call the King County DDES Clearing, Grading & Critical Areas general information line at 206-296-6759.

### Other bulletins that may be helpful

Bulletin 1	Building and Development Permit Telephone Numbers
Bulletin 7	Mobile Home Permits
Bulletin 9	Obtaining a Residential Building Permit
Bulletin 12	The Residential Building Permit Process
Bulletin 13	Fire System Permits
Bulletin 21	Critical Areas Review
Bulletin 26	SEPA Process
Bulletin 28	Clearing and Grading Permits
Bulletin 29	Drainage Review

These and other DDES bulletins are available via the department Web site at [www.kingcounty.gov/permits](http://www.kingcounty.gov/permits).



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King County complies with the Americans with Disabilities Act (ADA). If you require an accommodation to attend a meeting (two weeks' notice) or require this information in Braille, audiocassette, or large print, please call 206-296-6600 or TTY 206-296-7217.