



# **BROCHURE # 67** **FIRE CODE REQUIREMENTS** **FOR DEVELOPMENT**

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## I. INTRODUCTION: THE APPLICATION OF FIRE CODE REQUIREMENTS IN PRELIMINARY LAND USE REVIEW.

Specific fire code requirements are identified when a commercial building is being reviewed as part of a building permit submittal. Identification of design and occupancy. The preliminary land use approval process consists of a more general review of the conceptual proposal. At the preliminary level, the review is to determine a property's suitability for a use, and to identify appropriate fire protection site requirements to ensure construction is consistent with community standards. The final approval process is to ensure that the specific or final designs comply with the applicable code.

The review of the proposal will be performed using the codes in effect at the present time, which is the 2015 edition of the International Fire Code as amended by the state of Washington and Kitsap County, effective July 1, 2010. Land use application review shall not be construed as a complete review of the project and will cover the general requirements related to land use such as apparatus access design and required fire protection. The code in effect at the time of permit application will govern the regulations that will apply.

Some potentially devastating consequences can be prevented by identifying potential problems in the preliminary process. For instance, the existing water supply may not be sufficient for fire protection. This means a certain amount of water (gallons per minute, or gpm) must be available for a given period of time, typically two hours, for firefighting purposes. This requirement translates into a significant demand for a ready supply that only major water purveyors can provide. Small systems generally cannot meet this code requirement unless they build large water supplies, storage tanks and pumps with emergency generators. The cost of the water supplies needed for fire flow requirements can be significant. Therefore, before proceeding with other aspects of planning development for a site, the question of fire flow should be addressed for proposed buildings. Given the required fire flow, one must determine whether appropriate water service is available and if off-site improvements are necessary to get the required water to the property. The fire flow system needs to be installed and tested prior to the delivery of combustible materials to the site.

Fire protection systems requirements are based on occupancy and size of the building. Fire protection systems may be automatic fire sprinkler systems, fire alarm systems, smoke control systems, standpipes, or systems designed for specific operations such as cooking or spray painting. Buildings occupied by **Assembly**, **Business**, **Factory**, **Mercantile**, and **Storage** with 10,000 square feet or more of floor space must be protected with automatic fire sprinkler systems designed and installed by a state licensed sprinkler contractor. Restaurants, hotels, and apartments need sprinkler systems at 5,000 square feet and greater. **E**ducation facilities or schools with 50 or more people, **Institutional**, **A2** (Nightclubs) and several **Hazardous** occupancies require sprinklers at any size. Fire alarm systems are required for any commercial buildings that are 4,000 square feet or greater of total floor area. Some occupancy with higher hazards or life safety factors may be required to have fire alarm systems at any size. A state licensed designer with the appropriate experience should design fire alarm systems. A separate fire code permit is required for automatic fire sprinkler systems (above and underground) and fire alarm systems.

Emergency apparatus access is another component of fire protection and is reviewed during the preliminary land use approval. The site plan must be configured for emergency vehicle movement within the site as well as access to fire hydrants in appropriate locations. The specific requirements, with illustrations, have been included in this document. If you have any questions on fire flow, or need clarification of fire code issues, call the Kitsap County Fire Marshal's Office at (360) 337-5777.

## II. SITE & BUILDING ACCESS

1. Fire Apparatus Access Roads. In accordance with Chapters 5 and 14 of the International Fire Code, approved fire department access roads to all structures, completed or under construction, shall be provided at all times.
  - a. More than one fire apparatus access road may be required when determined by the Fire Code Official and local Fire Chief that access by a single road might be impaired by vehicle congestion, terrain, climatic conditions, or other factors that could limit access. Subdivisions with 100 or more homes will require an additional access road.
  - b. Fire apparatus access roads, including bridges, elevated surfaces and culverts, shall be designed and maintained to support a 60,000 pound fire apparatus and shall be provided with a surface to provide all-weather driving capabilities. Written verification from a registered professional engineer shall be sent to the Fire Code Official stating the road meets these imposed weight requirements.
  - c. Fire apparatus access roads shall have a minimum unobstructed width of 20 feet and a minimum unobstructed vertical clearance of 13 feet 6 inches.
  - d. Access roads shall be extended to within 150 feet of all parts of all exterior walls on all buildings or portions of buildings and to within 15 feet of all onsite hydrants. The 150-foot distance is measured by an approved route around the exterior of the building starting from apparatus access points. The distance may be increased when the building is protected throughout by an automatic sprinkler system. (See Figure 2.)

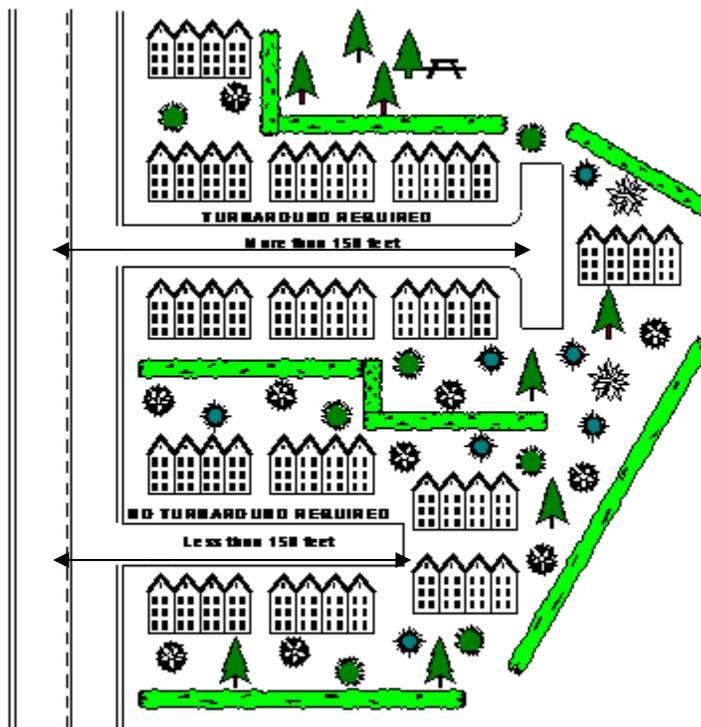


Figure 1.

- e. Dead-end fire apparatus access roads exceeding 150 feet in length shall be provided with an approved turn around (see Figure 1).
- f. A minimum turning radius of: 35 foot inside diameter for commercial or industrial sites and 25 foot inside diameter for single-family residential sites shall be provided (see Figure 2). Minimum turning radiuses shall be as shown in Figure 2.

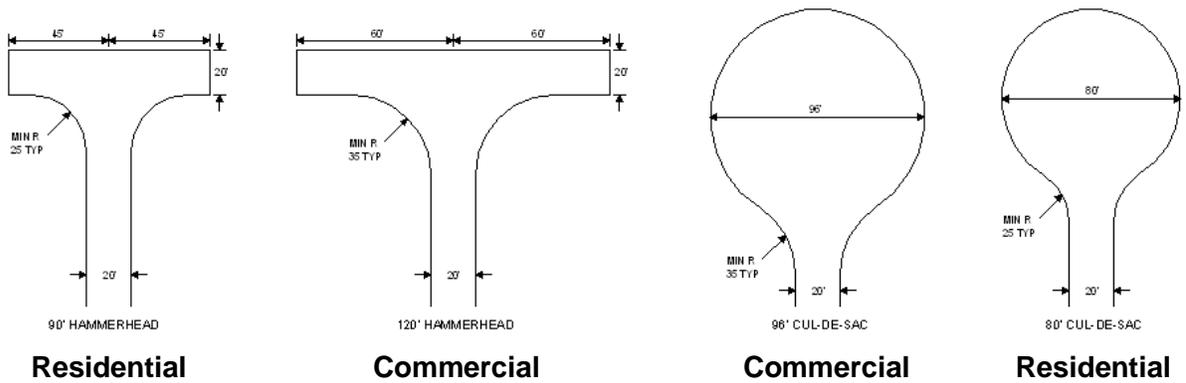


Figure 2

- g. The grade of any access road shall not exceed 12%. All buildings, commercial or residential, on site must be fully sprinklered if the grade exceeds 12% and must be approved by the Fire Code Official and the local Fire District. (See Figure 3.)

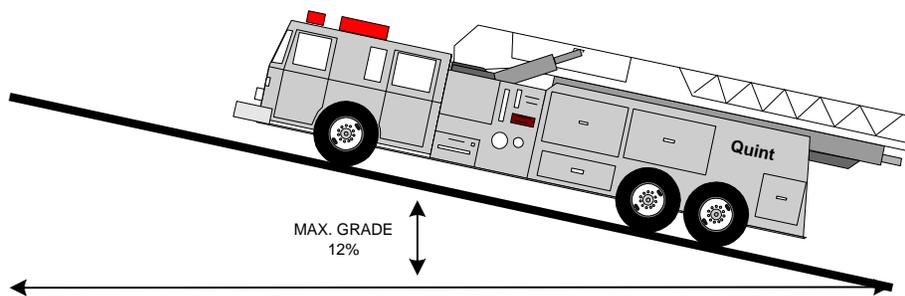
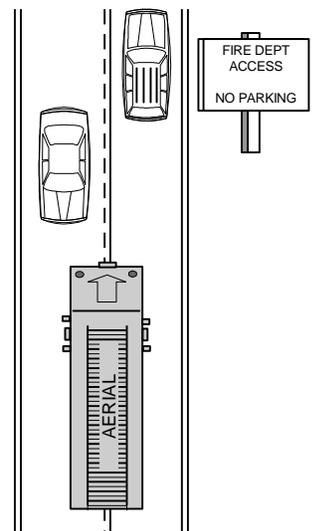


Figure 3.

- h. Special access requirements for special buildings or for buildings over 35 feet in height shall have co-approval by the Kitsap County Fire Marshal and the local fire department in order to provide sufficient access for ladder truck operations. A voluntary mitigation agreement may be in effect with local fire departments for building over 35' in height.
  - i. Under all other circumstances a temporary access road must be constructed prior to construction of the building and/or combustible materials being delivered to the site. (See Appendix A.)
2. **Fire Lane Marking.** When required by the Fire Code Official, fire apparatus access roads shall be posted with approved signs or marked as follows: All curbs shall be painted red on sides and top, and shall be labeled with 4-inch high white lettering at 25 foot intervals with the words "NO PARKING TOW AWAY ZONE". In addition to fire apparatus access roads as described above, fire lanes requiring marking include:
- a. Fire apparatus access roads identified during the site plan review or site inspection.
  - b. Any traffic aisle or roadway that passes in front of the fire department connection (FDC) to a sprinkler system or standpipe, for a distance of six



feet on each side of the FDC.

- c. Any traffic aisle or roadway that passes in front of a fire hydrant not located within the public right-of-way, for a distance of 15 feet on each side of the hydrant.
3. **Fences or Gates.** Fences and gates require co-approval by the Fire Code Official and the local Fire District. If approved, each fence or gate shall provide a clear width of at least 20 feet when open. Gates may be chained and locked only if they are equipped with a Rapid Access padlock. Electric gates shall be provided with a Rapid Access key-operated switch. Authorization/ purchase forms may be obtained from the local Fire District Prevention Office. All gates that cross access roadways shall be signed "NO PARKING TOW AWAY ZONE."
4. **Rapid Access Key Box.** A rapid access secured key box will be required for buildings with a fire alarm, fire sprinkler or other fire protection system because immediate access is necessary for lifesaving and firefighting purposes. The owner or occupant will be required to provide keys to gain access to all portions of the building, including sprinkler-system control valves and fire alarm panels. The key box should be located adjacent to the main entrance or as approved by the local Fire District. An application for a key box must be obtained from the local fire district (see Appendix B). Multiple key boxes may be required for large structures or facilities, depending on operational considerations. The local fire district will identify the required model for the applicable structure.
5. **Access to Building Openings.** Exterior doors and openings required by the International Fire Code or the International Building Code shall be maintained readily accessible for emergency access by the fire department. An approved access walkway leading from fire apparatus roads to all exterior openings shall be provided.

### III. FIRE FLOW AND HYDRANT REQUIREMENTS

Fire flow is the water supply available for firefighting and may be supplied from a public water source or an approved private source. Verification of fire flow is required before any construction permits may be approved.

1. **Commercial Fire Flow.** The fire-flow requirement for new buildings or existing buildings undergoing substantial remodel or renovation is determined by:
  - a. Size of the building= Combined square footage **total fire area**, which is the total floor area of all floor levels within the exterior walls, and under the horizontal projections of the roof of a building, See Appendix C for the fire flow table.
  - b. Type of construction
  - c. Presence of fire protection systems.
2. **Residential Fire Flow.** The minimum fire-flow requirements for one- and two-family dwellings in subdivisions shall be 500 gallons per minute (gpm) at 20 psi for minimum of thirty (30) minutes. In areas where fire flow or water supply is inadequate or not available, developers may use Fire Protection Credits as listed in Appendix D – Approved Fire Protection, provided the total fire protection credits equal or exceed 500 gpm.
3. **Reduction in Fire Flow.** For buildings other than one- and two-family dwellings, a reduction in total required fire flow of 50 percent may be allowed when the building is protected throughout with an approved automatic sprinkler system designed and installed in accordance with National Fire Protection Association (NFPA) Standard 13, *Standard for the Installation of Sprinkler Systems* and monitored by an automatic fire alarm system installed in accordance with NFPA-72. However, the minimum fire flow shall be 1,500 gpm, unless otherwise approved by the Fire Code Official and local Fire Chief under a fire and life safety evaluation. Buildings with partial sprinkler protection or buildings with NFPA 13R or NFPA 13D systems do not qualify for any reduction in required fire flow because fires originating in areas unprotected by sprinklers may reach intensity beyond the capability of the sprinkler system.

4. Required Hydrants. On-site hydrants are required whenever any part of the structure is more than 400 feet from a hydrant on an approved fire apparatus access road, as measured by an approved route around the exterior of the building. Existing fire hydrants on public streets may be considered if their location will not significantly impede or interfere with conducting emergency operations at the building.
5. Spacing and Location of Hydrants. The location of on-site hydrants is primarily determined by operational emergency response considerations.
  - a. For one- and two-family dwellings in residential subdivisions, hydrants shall be spaced a maximum of 600 feet apart. In commercial and multi-family development, hydrants should be no more than 400 feet from each other, as measured along a normal vehicle route. Spacing may be increased to 600 feet when the building is protected throughout by an automatic fire sprinkler system. Hydrant locations will be determined by the local fire department based upon required fire flow determined by the Fire Code Official.
  - b. Where hydrants supply commercial or multi-family fire flows, a hydrant shall be placed between fifty (50) feet and one hundred fifty (150) feet from the protected building.
  - c. For buildings with automatic sprinkler systems, one on-site hydrant should be located within approximately 50 feet of the fire department connection(s).
  - d. Hydrants shall be no more than 15 feet from an approved Fire apparatus access road (see Figure 4).
  - e. Required hydrant locations differing from these criteria may be approved when the location is judged beneficial or necessary for fire-suppression operations.
6. Water Systems. An approved water supply or alternative capable of supplying the required fire flow or fire protection shall be provided to premises upon which facilities, buildings or portions of buildings are constructed or moved into Kitsap County.
  - a. Proof of fire flow availability from the water purveyor will be required to be submitted to the Fire Code Official before the building permit or site development activity permit (SDAP) may be issued.
  - b. Engineered calculations to verify the water system design will meet the required fire flow is required to be submitted to the Fire Code Official before the Building Permit or Site Development Activity Permit may be issued.
  - c. Site plan in the SDAP application and the Building Permit application will be required to have water utility line placements, size of water lines, hydrant locations, water purveyor information, building construction type, and total floor area identified.
  - d. The following conditions of approval apply for all water systems:
    - 1) Water systems shall be designed to supply the minimum fire flow by gravity or by pumping.
    - 2) Where fire flow is supplied by pumping, the following additional design requirements are imposed.
      - a. Minimum fire flow must be provided with the largest pump out of service.
      - b. Provisions for system and component reliability in accordance with WAC 246-290-420 (Reliability and emergency response) and WAC 246-293-660 (Minimum standards for system reliability).
    - 3) Water main size shall be adequate to deliver required fire flow and to maintain the approved design pressure, but in no case be less than 20 psi.
    - 4) Water system approvals are subject to review and acceptance of design criteria by the Fire Code Official.

#### IV. KITSAP COUNTY FIRE MARSHAL'S OFFICE FIRE PROTECTION REQUIREMENTS

1. Automatic Fire Sprinkler Systems. A fire automatic sprinkler system is required for buildings greater than 10,000 square feet or when special operations require a sprinkler system such as wood working, nightclubs, restaurants, hotels and apartments, etc. Fire sprinkler systems may be required for buildings 10,000 square feet or less depending upon their usage and type of occupancy. A separate fire code permit is required to be approved and issued before installation of any portion of the system. The approved set of plans shall be on site at all times. The sprinkler system may be used to lower the fire flow requirement to 50% when the sprinkler plans are designed for such purpose, but the minimum fire flow shall be 1500 gpm. An automatic Fire Alarm System is required to monitor the fire sprinkler system for activation and operational status.
2. Automatic Fire Alarm Systems. A total(complete), monitored automatic addressable fire alarm system is required for buildings greater than 4000 square feet or for special occupancies such as a daycare center with an occupant load greater than 50, storage or use of hazardous materials, etc when an automatic fire sprinkler system is not installed. A partial, automatic addressable fire alarm system may be approved for a building completely protected by an automatic fire sprinkler system. Automatic Fire Alarm Systems shall be designed, installed and maintained per the International Fire Code as amended by Kitsap County and NFPA 72. A separate fire code permit is required to be approved and issued before installation of any portion of the system. The approved set of plans shall be on site.
3. Hazardous Materials Plan. A Kitsap County Unified Hazardous Materials Plan (KCUHMP) may be required for your project due to the amount of hazardous materials in the business. A complete listing of each hazardous material, Material Safety Data Sheets, quantities of each material to be used and stored, and a description of the operation will be required at the time of building permit application. An electronic version is available of the KCUHMP at [www.kitsapgov.com/dcd/fm](http://www.kitsapgov.com/dcd/fm)
4. Fire Code Permits. Separate Fire Code Permits may be required to maintain, store, use or handle materials, or to conduct processes, which produce conditions hazardous to life or property. Fire code permits are used as regulatory measure to ensure compliance with fire and building codes. The fire code permit is either based on the operation of a business, or the quantities of hazardous materials that are used or stored, or both. An inspection or review is conducted at periodic intervals to determine compliance with the appropriate regulations. If the business, operations or process requires a fire code permit, it shall not be permitted to be operated without a valid fire code permit being issued. If the condition changes, a new permit is required. Fire code permits are not transferable. Contact the Fire Code Official to determine if your particular operations, process or business requires a separate fire code permit. The building or property owner is responsible to ensure that all required permits are obtained and maintained for any business, operation or process conducted on their property.

**V. CIVIL OR LANDSCAPE ARCHITECTURAL PLANS.**

1. Landscaping. If the landscape plan suggests that proposed fire hydrants shown on the utility plan are obstructed by vegetation, changes in the landscape plan are required.
  - a. Posts, fences, vehicles, vegetation growth, trash, storage and other materials or objects shall not be placed or kept near fire hydrants, fire department inlet connections, or fire protection control valves in a manner that would prevent such equipment from being immediately discernible or being accessed. The fire department shall not be deterred or hindered from gaining immediate access to or use of fire-protection equipment or hydrants. A 3-foot (radius) clear space shall be maintained around the circumference of fire hydrants (see Figure 4)
  - b. A 6-foot-wide path leading directly to the hydrant may be provided with vegetation if maintained no higher than 4 inches and unobstructed vertical clearance of at least 13 feet 6 inches. Variations to this minimum clearance may be approved by the local fire department on a case by case basis.

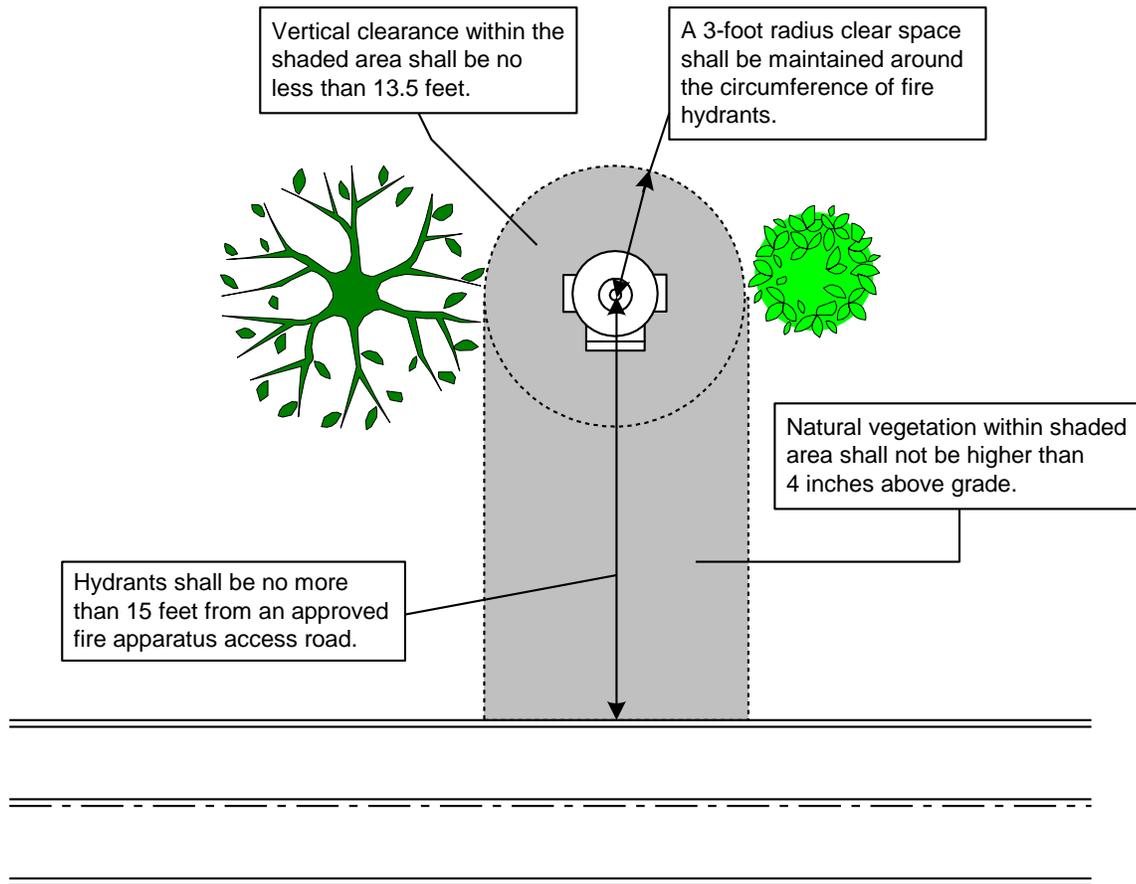
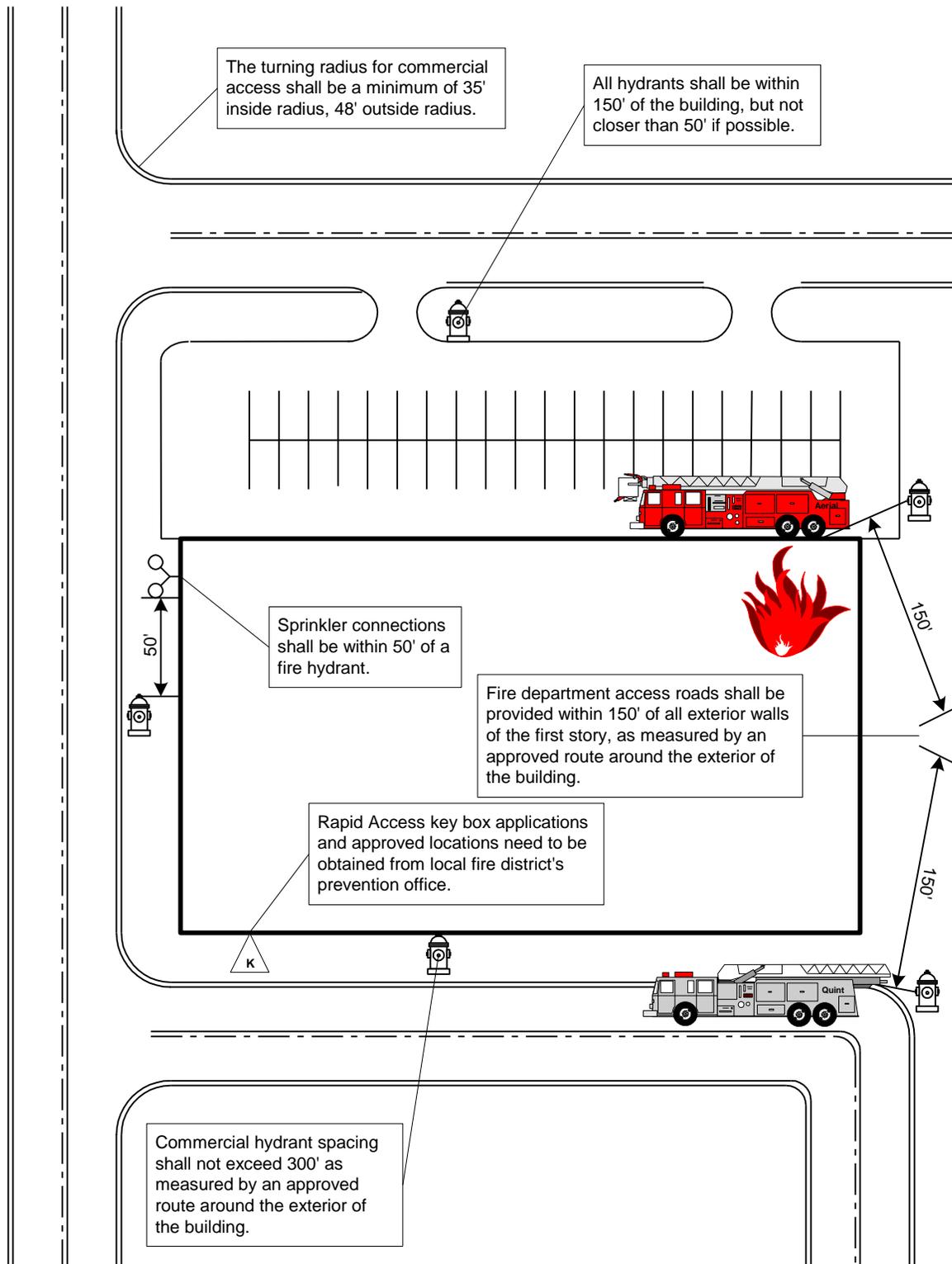


Figure 4.

# VI: COMMERCIAL DEVELOPMENT STANDARDS IN KITSAP COUNTY.



## **VII: APPENDIX A – STANDARD REQUIREMENTS FOR TEMPORARY ACCESS ROADS**

1. The minimum road width allowed for temporary roads is 20' unobstructed with 13'-6" vertical clearance maintained at all times.
2. The area of the proposed road shall be properly bladed and scarified.
3. The roadway shall then be rolled and compacted to achieve the proper moisture content for the soil conditions. Compaction shall be adequate to support the imposed weight of a 60,000-pound fire engine. Written verification shall be sent to the Fire Code Official and the local Fire District stating the road meets these imposed weight requirements, this document shall be from a registered professional engineer.
4. The temporary road shall be an all-weather surface of crushed rock, recycled asphalt or recycled concrete capable of supporting the imposed weight of a 60,000-pound fire engine. The temporary road shall be compacted in such a manner so as to provide adequate drainage for the purpose of preventing any pooling of water on the road itself.
5. The roadway shall be designed so as to direct any drainage away from the road, which will allow for continued use during moisture situations.
6. At any time the road base material becomes inadequate for fire apparatus use, the road shall be immediately restored to a condition acceptable to the local Fire District.
7. Temporary fire apparatus access roads differing from the requirements stated above are permitted in limited circumstances only during installation of utilities, or during construction of the foundations. Under all other circumstances, temporary access roads must be constructed prior to any other phases of construction. Prior to the building having the final inspection for occupancy, the permanent road shall be in place or the final road required by the County.
8. Should you have any questions, please contact the Fire Code Official.

## VIII: APPENDIX B – KEY BOX APPLICATION AND INSTALLATION GUIDELINES.

To apply for Key Box equipment, contact your areas Fire District member.

District	Phone Number	Contact Person
Central Kitsap Fire & Rescue	(360) 447-3629	Jay Lovato
South Kitsap Fire & Rescue	(360) 871-2411	
North Kitsap Fire & Rescue	(360) 297-3619	Asst Chief, Dan Smith
Poulsbo Fire	(360) 779-3997	

### Type of equipment required:

Commercial Building, 1-4 keys and no elevator	3200 Series (Grand Master Keyed)
Commercial Building with elevator or 5 + keys	4400 Series (Grand Master Keyed)
Road and Gate access (Sub Master Keyed)	1650, Padlocks, or Key Switches
Commercial Data Cabinets	Consult Fire Department

### Mounting requirements, general:

Commercial Key Boxes	<ol style="list-style-type: none"><li>1) Shall be mounted near the main entrance.</li><li>2) Within six feet of the Fire Alarm exterior strobe.</li><li>3) The location shall be approved by the Fire District.</li></ol>
Residential Access Gates	<ol style="list-style-type: none"><li>1) Sub Master key switch required or padlocks.</li><li>2) Shall meet county ordinance requirements.</li><li>3) Shall meet all Fire Department requirements.</li></ol>
Tamper Alarms	<ol style="list-style-type: none"><li>1) Tampered Key Boxes shall be labeled on their exterior. (ALARM TAMPER INSIDE.)</li></ol>
Key Box Label	<ol style="list-style-type: none"><li>1) Shall be posted by the Fire District.</li><li>2) On the main entrance door, conspicuously.</li></ol>
Keys Required	<ol style="list-style-type: none"><li>1) Building Master or Grand Master Keys for all rooms, except those areas of high security that would require an escort.</li><li>2) Fire Alarm panel and Sprinkler System keys.</li><li>3) Elevator Keys.</li><li>4) All keys shall be tagged and labeled individually.</li></ol>

### Note:

It is the building or business owner's responsibility to notify the local fire department within 72 hours whenever keys are changes, updated, added or modified.

**IX: APPENDIX C – MINIMUM REQUIREMENTS FIRE FLOW AND FLOW DURATION FOR BUILDINGS<sup>3</sup>**

FIRE-FLOW CALCULATION AREA (square feet) <sup>1</sup>					FIRE FLOW (gallons per minute) <sup>2</sup>	FLOW DURATION (hours)
Type IA and IB <sup>1</sup>	Type IIA and IIIA <sup>1</sup>	Type IV and V-A <sup>1</sup>	Type IIB and IIIB <sup>1</sup>	Type V-B <sup>1</sup>		
0-5,000	0-5,000	0-5,000	0-5,000		1,500	
5,001- 30,200	5,001- 17,000	5,001- 10,900	5,001-7,900	3,601-4,800	1,750	
30,201- 38,700	17,001- 21,800	10,901- 12,900	7,901-9,800	4,801-6,200	2,000	
38,701- 48,300	21,801- 24,200	12,901- 17,400	9,801- 12,600	6,201-7,700	2,250	
48,301- 59,000	24,201- 33,200	17,401- 21,300	12,601- 15,400	7,701-9,400	2,500	
59,001- 70,900	33,201- 39,700	21,301- 25,500	15,401- 18,400	9,401- 11,300	2,750	
70,901- 83,700	39,701- 47,100	25,501- 30,100	18,401- 21,800	11,301- 13,400	3,000	2
83,701- 97,700	47,101- 54,900	30,101- 35,200	21,801- 25,900	13,401- 15,600	3,250	
97,701- 112,700	54,901- 63,400	35,201- 40,600	25,901- 29,300	15,601- 18,000	3,500	
112,701- 128,700	63,401- 72,400	40,601- 46,400	29,301- 33,500	18,001- 20,600	3,750	
128,701- 145,900	72,401- 82,100	46,401- 52,500	33,501- 37,900	20,601- 23,300	4,000	
145,901- 164,200	82,101- 92,400	52,501- 59,100	37,901- 42,700	23,301- 26,300	4,250	
164,201- 183,400	92,401- 103,100	59,101- 66,000	42,701- 47,700	26,301- 29,300	4,500	
183,401- 203,700	103,101- 114,600	66,001- 73,300	47,701- 53,000	29,301- 32,600	4,750	
203,701- 225,200	114,601- 126,700	73,301- 81,100	53,001- 58,600	32,601- 36,000	5,000	
225,201- 247,700	126,701- 139,400	81,101- 89,200	58,601- 65,400	36,001- 39,600	5,250	
247,701- 271,200	139,401- 152,600	89,201- 97,700	65,401- 70,600	39,601- 43,400	5,500	
271,201- 295,900	152,601- 166,500	97,701- 106,500	70,601- 77,000	43,401- 47,400	5,570	
295,901- Greater	166,501- Greater	106,501- 115,800	77,001- 83,700	47,401- 51,500	6,000	
“	“	115,801- 125,500	83,701- 90,600	51,501- 55,700	6,250	

FIRE-FLOW CALCULATION AREA (square feet) <sup>1</sup>					FIRE FLOW (gallons per minute) <sup>2</sup>	FLOW DURATION (hours)
Type IA and IB <sup>1</sup>	Type IIA and IIIA <sup>1</sup>	Type IV and V-A <sup>1</sup>	Type IIB and IIIB <sup>1</sup>	Type V-B <sup>1</sup>		
“	“	125,501- 135,500	90,601- 97,900	55,701- 60,200	6,500	
“	“	135,501- 145,800	97,901- 106,800	60,201- 64,800	6,750	
“	“	145,801- 156,700	106,801- 113,200	64,801- 69,600	7,000	
“	“	156,701- 167,900	113,201- 121,300	69,601- 74,600	7,250	2
“	“	167,901- 179,400	121,301- 129,600	74,601- 79,800	7,500	
“	“	179,401- 191,400	129,601- 138,300	79,801- 85,100	7,750	
		191,401- Greater	138,301- Greater	85,101- Greater	8,000	

1. Types of construction are based on the International Building Code.
2. Measured at 20 psi (137.9 kPa). See Appendix B, Section 105 of the International Fire Code.
3. Fire flow for one-and two-family dwellings, when required, may be reduced by the fire code official when the building is provided with an approved automatic sprinkler system.

**X: APPENDIX D – PROVISIONS FOR APPROVED FIRE PROTECTION IN AREAS WHERE FIRE FLOW IS INADEQUATE OR NOT AVAILABLE.**

**Scope:** The following fire protection standards may apply to one and two-family residential dwellings. Any combination of fire protection credits listed in the table can be used in areas where fire flow is inadequate or not available. The total fire protection credits shall equal or exceed 500 gallons per minute (gpm).

<b>Method</b>	<b>Fire Protection Credit</b>
1. Automatic Fire Sprinkler System	100% or 500 gpm fire protection credits.
2. An existing fire hydrant within 1000 feet (1,000') of structure which is capable of supplying 500 gpm for 30 minutes and on an accessible road.	100 % fire protection credit.
3. NFPA-13D (partial system) Residential fire sprinkler system for target hazards (systems may use domestic water supply).	Kitchens = 50% or 250 gpm credit. Garages = 25% or 125 gpm credit. 75% or 375 gpm credit for protection of kitchen and attached garage.
4. Automatic fire extinguishing system for protection of cooking appliances.	25% or 125 gpm fire protection credit.
5. An approved monitored fire alarm system.	25% or 125 gpm fire protection credit.
6. Fire-rated sheetrock installed throughout structure and automatic door closure for attached garages.	50% or 250 gpm fire protection credit.
7. Class (A) or (B) Non-Combustible Roof Covering.	25% or 125 gpm fire protection credit.
8. Create defensible space within 30 feet (30') around the structure. Use of fire resistant landscaping plants and vegetation.	25% or 125 gpm fire protection credit.
9. Ignition-resistant construction in accordance with the International Urban Wildland Interface Code.	25% or 125 gpm fire flow credit.
10. Modified fire wall between an attached garage and the living spaces is installed with: Automatic door closure with solid core or 1-hour-rated door; Latched on all openings in ceiling of garage; Ceiling openings to be 22-inches by 36-inches minimum, to allow firefighter access; Fire-rated sheetrock, both sides of wall, from roof sheathing in attic to floor; penetrations sealed airtight.	25% or 125 gpm fire flow credit. 25% of the square footage of the garage shall be subtracted from the total residential dwelling size to determine need for fire flow or fire protection credits.

## XI: APPENDIX D

### Fire Hydrant Checklist

- 1. Where hydrants supply commercial or multi-family fire flows, at least one hydrant shall be placed between fifty feet (50') and one hundred fifty feet (150') from the protected building.
- 2. Where residential fire flow is required, fire hydrants shall be installed every six hundred feet (600'). Where commercial fire flow is required, fire hydrants shall be installed every four hundred feet (400'). Distance between hydrants may be increased to 600 feet when all the buildings are protected by an approved automatic sprinkler system.
- 3. Fire hydrants shall be clearly visible at all times and shall not be placed more than fifteen feet (15') from access roads.
- 4. Reflectorized standard blue hydrant identification markers shall be placed on the apparatus access to identify each hydrant. Markers shall be placed on the side nearest the hydrant 6 inches from the center line of the access roadway.
- 5. Fire hydrants shall have an auxiliary gate valve sufficient to permit repair or replacement without disruption of water service.
- 6. Fire hydrants shall have a minimum five-inch (5") main valve opening, two, two and one half inch (2-1/2 ") outlets and four and a one half inch (4-1/2") steamer/pumper port with a 5-inch (5") one-quarter quick connect Storz adapter; such outlets and ports shall have National Standard Threads or other connection devices consistent with local fire protection authority requirements.
- 7. Fire hydrants shall stand plumb and be set to finished grade; the center of the lowest outlet shall be no less than eighteen inches (18") and not more than twenty-eight inches (28") above grade.
- 8. Fire hydrants subject to possible vehicular damage shall be adequately protected with guard posts or curbs.
- 9. The fire hydrant steamer/pumper port shall face the fire apparatus access road or the most likely route of emergency approach.
- 10. Fire hydrants shall have a minimum of thirty-six inches (36") radius of clear area surrounding the outlets and control valves to permit the operation of a hydrant wrench.
- 12. Fire hydrant barrel shall be painted any bright, highly visible color. The top of the fire hydrant shall be color-coded.

#### Flow in GPM:

#### Color:

1,500 or greater  
1,000 – 1,499  
500 – 999

Blue  
Green  
Orange

**XII: APPENDIX E****Site & Building Access Checklist**

- 1. Fire apparatus access roads are a minimum of twenty feet (20') wide with vertical clearance of 13'6". Planters, medians, or landscape do not obstruct access road.
- 2. Fire apparatus access roads shall be designed and maintained to support a 60,000-pound fire apparatus, and shall be provided with a surface as to provide all-weather driving capabilities.
- 3. Temporary fire apparatus access roads shall meet all requirements of Appendix A.
- 4. All roadways shall be posted with their street name in accordance with the County Address Ordinance.
- 5. Fire lanes are posted with approved signs or painted red and are stenciled NO PARKING – TOW AWAY ZONE in accordance with the Kitsap County Building and Fire Code.
- 6. Dead end access roads exceeding 150 feet (150') in length shall be provided with an approved turnaround (see Appendix A).
- 7. Minimum turning radius of: 96 foot inside diameter for commercial, multi-family, or industrial site.
- 8. Minimum turning radius of: 80 foot inside diameter for single-family residential access.
- 9. Grades of fire department access roads meet one or more of the following:
  - Does not exceed 12%.
  - Grades 12% or greater must be approved by the local fire district.
- 10. Bridges, culverts and elevated surfaces are designed to meet load limits of fire apparatus access roads of 60,000 pounds and shall have load limits posted with durable signs at both entrances.
- 11. If fire apparatus roads have gates or barriers installed, then an approved opening device shall be installed in accordance with current ordinances. The fire district shall approve the operation of the gate or barrier (see Appendix B for contacts).
- 12. Fire apparatus access roads are within 150 feet of all exterior walls, as measured by an approved route around the building.
- 13. Fire apparatus access roads are provided within 15 feet of any fire hydrant or fire department connection.

