



**Bremerton Fire Marshal's Office
Design/Contractor Guide**

Preface

Construction is an aggressive and brutally competitive trade. Timelines are tight and profit margins slim. The entire process is demands careful attention to detail, proactive planning and coordination is mandatory.

This guide is the single most important resource a designer or contractor can have when working through the requirements of the Fire Department.

Long after the contractor gets their all-important “final inspection” signed the Bremerton Fire Department will be responding to and managing emergencies of all types in the newly created facility. For that reason we cautiously and carefully review all aspects of the facility and site conditions to provide the best opportunity for success in an emergency condition.

It is for that exact reason this guide has been developed. This guide should be taken as if you were in a one on one meeting with the Fire Marshal talking about your specific project. With that being said, I have created a number of lists to assist the project team in meeting or exceeding project deadlines. Below are my top suggestions.

1. Read and study this guide, all construction plans and permit documents carefully
2. Submit for deferred permits ASAP!!
3. Order signs early
4. Schedule inspections early (minimum two days in advance)
5. Refer to this document early and often
6. Pre-test every part of the system(s) before requesting inspections.
7. Don't rely on past experiences for processes and timelines.

A color code system has been developed to provide easy reference for relative information:

 Architect  Civil Engineer  Fire Sprinkler  Fire Alarm

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Section 1 **Site Development Guidelines**

1.1 Commercial Developments



Fire Department Access Roads

- Fire Apparatus Access Roads must be installed and marked per code prior to going vertical with any construction.
- All Exterior walls shall be within 150 feet of Fire Apparatus Access Road or street, center of nearest lane. Distance may increase to 250 feet if building is sprinkled.
- 10' path around building
- 5' path between cars or through gates
- Minimum unobstructed width of 24 feet; servicing greater than two-story structures a minimum of 26 feet is required.
- Required Radii
 - 23' inside,
 - 45' outside
- 14' height clearance over Fire Apparatus Access Roads
- All Fire Apparatus Access Roads shall be concrete/paved.
- Cul-de-sac length is 500' Maximum. Any distance past 500' shall be sprinkled.
- Two points of Fire Department access is required.

Fire Hydrants

- 300' spacing
- The number is based on Appendix C of the International Fire Code
- 2 to 6 feet behind curb
- Not located in the Fire Apparatus Access Road radii
- 50' from building or height of building + 10'
- Minimum 3' clearance around hydrants
- 12" looped main for more than 2 hydrants
- 12" for up to 2 hydrants (fire main is treated as a hydrant)
- City of Bremerton requires all hydrants to come with 4 ½ "-5" Hydra-Storz quick connection by Hydra-Shield.
- A hydrant shall be located within 100 feet of the FDC
- Fire Hydrants shall be painted to NFPA 291 Standards

Fire Sprinklers Required



- Buildings 10,000 sq. ft. or greater
- Highest floor level 35' or more above Fire Apparatus Access Road
- Underground fire mains shall be a minimum of 8"
- FDC's, where required, shall be remote from the building and adjacent to the Fire Apparatus Access Road. FDC location shall be shown and label on all site plans.

Underground Storage Tanks

- Off-street/Fire Apparatus Access Road loading space
- Distance to property lines, building easements
- Out of Fire Apparatus Access Road
- Separate permit required through the Fire Marshal's Office

Above Ground Storage Tanks

- In light industrial districts only
- Maximum of 30,000 gallons per site

- Distance to property lines, buildings, public ways
- Off-street/Fire Apparatus Access Road loading space
- Out of Fire Apparatus Access Road
- Variances must be approved by Fire Marshal in other than light industrial zoning

Gates & Fences

- Gates across Fire Apparatus Access Roads must provide full Fire Apparatus Access Road width and meet access requirements
- Gates through fences must be located to maintain 150' Fire Apparatus Access Road coverage and be a minimum of 5' wide

Section 1.2 Residential Site Development Guidelines

Residential Developments

Single Family Dwelling

Fire Department Access Roads

- Fire Apparatus Access Roads must be installed and marked per code prior to going vertical with any construction.
- All Exterior walls shall be within 150 feet of Fire Apparatus Access Road or street, center of nearest lane. Distance may increase to 250 feet if building is sprinkled.
- 10' path around building
- 5' path between cars or through gates
- Minimum unobstructed width of 24 feet; servicing greater than two-story structures a minimum of 26 feet is required.
- Required Radii
 - 23' inside,
 - 45' outside
- 14' height clearance over Fire Apparatus Access Roads
- All Fire Apparatus Access Roads shall be concrete/paved.
- Cul-de-sac length is 500' Maximum. Any distance past 500' shall be sprinkled.
- Two points of Fire Department access is required.

Fire Hydrants

- Building sprinkled – 600' spacing
- 2 to 6 feet behind curb
- Not located in the Fire Apparatus Access Road radii
- 50' from building or height of building + 10'
- Minimum 3' clearance around hydrants
- 8" looped main for more than 2 hydrants
- 8" for up to 2 hydrants

Access Gates

- Gates crossing Fire Apparatus Access Roads, require approved access control

Multi Family & Single Family Attached

Fire Department Access Roads

- Fire Apparatus Access Roads must be installed and marked per code prior to going vertical with any construction.
- All Exterior walls shall be within 150 feet of Fire Apparatus Access Road or street, center of nearest lane. Distance may increase to 250 feet if building is sprinkled.
- 10' path around building
- 5' path between cars or through gates
- Minimum unobstructed width of 24 feet; servicing greater than two-story structures a minimum of 26 feet is required.
- Required Radii
 - 23' inside,
 - 45' outside
- 14' height clearance over Fire Apparatus Access Roads
- All Fire Apparatus Access Roads shall be concrete/paved.
- Cul-de-sac length is 500' Maximum. Any distance past 500' shall be sprinkled.
- Two points of Fire Department access is required.

Fire Hydrants

- Building sprinkled – 600' spacing
- Building without sprinkler – 300' spacing
- 2 to 6 feet behind curb
- Not located in the Fire Apparatus Access Road radii
- 50' from building or height of building + 10'
- Minimum 3' clearance around hydrants
- 8" looped main for more than 2 hydrants
- 8" for up to 2 hydrants

Fire Sprinklers Required

- All Multi Unit Residential Require fire sprinkler Systems

Access Gates

- Gates crossing Fire Apparatus Access Roads, require approved access control

Fire Lane Markings

Markings. Fire apparatus access roads shall be marked whenever necessary to maintain the unobstructed minimum required width of roadways, as determined by the Fire Code Official. Subject to the Fire Code Official's prior written approval, marked fire apparatus access roads, or "fire lanes" as defined in section 502.1 of the code, may be established or relocated at the time of plan review, pre-construction site inspection, and/or post construction site inspection as well as any time during the life of the occupancy. Only those fire apparatus access roads established by the Fire Code Official can utilize red marking paint and the term "fire lane." Once a fire lane is established it shall be maintained in a clean and legible condition at all times or

repair/replaced to maintain visibility. Fire lanes shall be marked as directed by the Fire Code Official with one or more of the following types of marking:

Type 1. The following shall apply to Type 1 marking:

1. Curbs shall be identified by red traffic paint with a 6 inch wide stripe on the top and front, extending the length of the designated fire lane.
2. Rolled curbs shall be identified by red traffic paint with a 6 inch wide stripe on the curb, extending the length of the designated fire lane.
3. Lanes without curbs shall be identified by red traffic paint with a 6 inch wide stripe on the pavement, extending the length of the designated fire lane.
4. The words "NO PARKING - FIRE LANE" shall be in 3 inch stroke white letters 18 inches in height, and placed 8 inches measured perpendicular from the red paint stripe on the pavement. In most cases, both sides of the access road shall be marked. Where long drives are to be marked, the repetitions shall alternate sides of the drive.

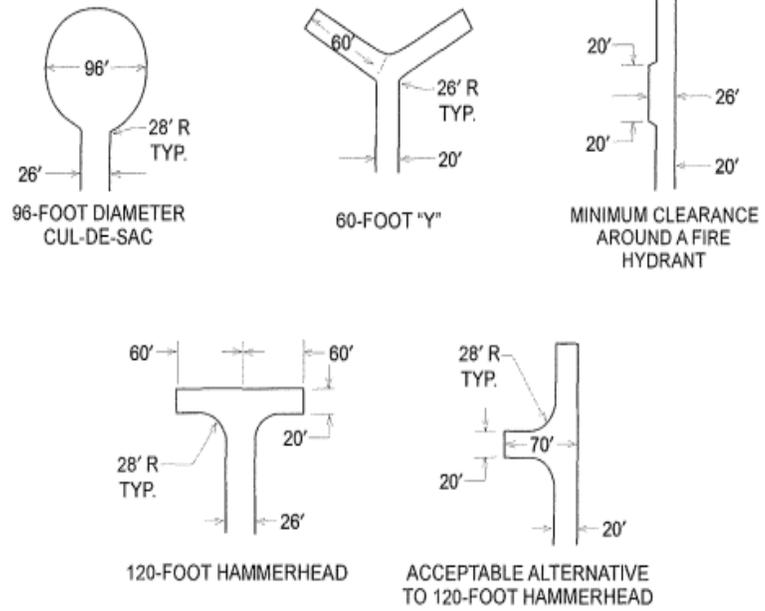
Type 2. The following shall apply to Type 2 marking:

In addition to the requirements for Type 1 marking, Type 2 marking shall also include the addition of metal signs stating "NO PARKING - FIRE LANE" to be installed at intervals or locations designated by the Fire Code Official. The signs shall be approximately 12 inches in width and 18 inches in height and have red letters on a white background. Metal signs shall be installed on either 2 inch metal pipes, for private property, or treated 4 inch by 4 inch wood posts, for public property, and shall be located so that the bottom of the sign is a minimum of 7 feet above the curb. Where fire lanes are adjacent to buildings or structures and when approved or directed by the Fire Code Official, the signs may be placed on the face of the building or structure.

Type 3. The following shall apply to Type 3 marking:

Where directed by the Fire Code Official, specific areas shall be designated and those areas are to be marked with diagonal striping across the width of the fire lane. Diagonal marking shall be used in conjunction with painted curbs and/or edge striping and shall run at an angle of 30 to 60 degrees from one side to the other. These diagonal lines shall be in red traffic paint, parallel with each other, at least 6 inches in width, and 24 inches apart. Lettering shall occur as with Type 1 marking.





For SI: 1 foot = 304.8 mm.

FIGURE D103.1
DEAD-END FIRE APPARATUS ACCESS ROAD TURNAROUND

Taken from Appendix D of the International Fire Code, 2012

SECTION 2
FEES

Section 2 FEES



COMMUNITY DEVELOPMENT – RATE TABLE C

All Rates Listed are "Not To Exceed" Fees

EXHIBIT 1 BUILDING AND OTHER PERMIT FEES

TOTAL VALUATION	FEE
\$1.00 TO \$500.00	\$26.00
\$501.00 TO \$2,000.00	\$26.00 for the first \$500.00 plus \$3.00 for each additional \$100.00, or fraction thereof, to and including \$2,000.00
\$2,001.00 to \$40,000	\$69.00 for the first \$2,000.00 plus \$11.00 for each additional \$1,000.00, or fraction thereof, to and including \$40,000
\$40,001.00 to \$100,000.00	\$487.00 for the first \$40,000; plus \$9.00 for each additional \$1,000.00, or fraction thereof, to and including \$100,000.00
\$100,001.00 to \$500,000.00	\$1,027.00 for the first \$100,000.00 plus \$7.00 for each additional \$1,000.00, or fraction thereof, to and including \$500,000.00
\$500,001.00 to \$1,000,000.00	\$3,827.00 for the first \$500,000.00 plus \$5.00 for each additional \$1,000.00, or fraction thereof, to and including \$1,000,000.00
\$1,000,001.00 to 5,000,000.00	\$6,327.00 for the first \$1,000,000.00 plus \$3.00 for each additional \$1,000.00, or fraction thereof, to include \$5,000,000.00
\$5,000,001.00 and over	\$18,327.00 for the first \$5,000,000.00; plus \$1.00 for each additional \$1,000.00 or fraction thereof
Other Inspections and fees:	
1 Inspections outside of normal business hours (minimum charge – two hours)	Hourly rate per Rate Table C – Miscellaneous Fees
2 Re-inspection fees assessed under provisions of this chapter shall be as follows (per inspection):	Hourly rate per Rate Table C – Miscellaneous Fees
3 Inspections for which no fee is specifically indicated (minimum charge – one-half hour)	Hourly rate per Rate Table C – Miscellaneous Fees
4 Additional plan review required by changes, additions or revisions to plans (minimum charge – one-half hour)	Hourly rate per Rate Table C – Miscellaneous Fees
5 For use of outside consultants for plan checking and inspections, or both	Actual Costs ¹
6 Manufactured Home Setup Fee	Bid Price valuation used in Exhibit 1
7 Moved Building Permit Fee (not including other required permits)	\$100.00
8 Demolition permit Fee: 3 cents per square foot, with a minimum charge of	\$56.00
9 Energy Code Plan Review Surcharge for New Single Family Residences	\$50.00

¹Actual costs include administrative and overhead costs.

BUILDING PERMIT FEES

Refer to Exhibit 1 10.

PLAN REVIEW FEE

65% of the building permit fee as set forth in Exhibit 1

SITE DEVELOPMENT PERMIT

\$500

All construction fire permits utilize this above table and information.

BREMERTON FD

DESIGN/CONTRACTORS GUIDE

JULY 1, 2015 v.1

SECTION 3
PLAN SUBMITTAL/PERMIT PROCESS
&SPECIAL DESIGNS

Section 3 Plan Submittal/Permit Process

Permit Required

General Information



This guide is written to assist general contractors and developers with plan submittals. Plan submittal, inspection, and testing of systems will be done by the subcontractor and will be witnessed by the Fire Department representative.

The general contractor can schedule a Fire Department final inspection; all other **inspections are to be scheduled by the subcontractor.**

Prior to moving office supplies, furniture, or similar items into the building, all fire and life safety systems must be approved by the Fire Department along with authorization from the Department of Community Development.

All sprinkler piping must be visible until the fire sprinkler system passes the hydrostatic test and component review. Ceilings must not be installed until these inspections have been passed by the Fire Department.

A framing inspection cannot be scheduled until automatic fire sprinkler plans and fire alarm plans have been submitted by the subcontractors.

When change of “occupancy” occurs, the entire occupancy must be brought up to current code requirements for the new occupancy classification.

Codes: (See Fire Code Amendments at www.ci.bremerton.wa.us)

2012 International Building Code and Local Amendments (IBC) 2012 International Fire Code and Local Amendments (IFC) Title 18 of the Bremerton Municipal Code.

**Where there is a conflict between code amendments, the most current amendment prevails.

GENERAL REQUIREMENTS for ALL Occupancies

A permit is required for all work performed in accordance with the International Building Code, 2012

If the work to be performed modifies or affects, in any way, any room or space equipped with any type of fire protection system a permit will be required to modify those systems.

Due to the abuse and subsequent poor installations and craftsmanship of fire protection system modifications when a permit was not required a permit and inspection are required for all work to any fire protection systems. Examples:

FIRE SPRINKLER SYSTEM



A permit is required for all new installations

A permit is required for all modifications to existing systems

Types of Fire Sprinkler Permits:

There are a number of choices for fire sprinkler permits generally separated by the work being performed.

FIRE SPRINKLER 13: This permit would be for the installation of a new or substantially new fire sprinkler system. This would include a change in hazard class if heads or pipe sizes were to be adjusted. The items necessary to submit for this permit are typical for a new fire sprinkler installation.

- Fire Flow Test (per City Policy)
- Plans
- Cut-sheets
- Hydraulic Calculations

FIRE SPRINKLER 13 MODIFICATION: This permit was designed to be a simple and rapid process for the change or modification which does not affect the hydraulics of the system in any way. Although there is no specific limit to the amount of work to be included in this type of permit, it would generally be considered the area of about 10 sprinkler heads. If the scope of work is too excessive, the permit type will be changed to FIRE SPRINKLER 13. The items necessary to submit for this type of permit are:

- Floor Plan of the affected area-This can be an old floor plan or simple (neat) drawing
- Photos of the area affected
- A copy of a recent 5 year inspection of the system

ALL OF THE ABOVE ITEMS ARE REQUIRED, FAILURE TO FULLY SUBMIT WILL RESULT IN A DELAY OF PERMIT APPROVAL

FIRE SPRINKLER 13R: Same details as above in FIRE SPRINKLER 13 but within the parameters of a NFPA 13-R Fire Sprinkler System.

FIRE SPRINKLER 13R MODIFICATION: Same details as above in FIRE SPRINKLER 13 MODIFICATION but within the parameters of a NFPA 13-R Fire Sprinkler System.

FIRE SPRINKLER 13D: This permit covers all work being done to a NFPA 13D fire sprinkler system, new and existing.

FIRE PUMPS



A permit is required for all new installations

A permit is required for all modifications to existing systems

There is no specific permit for a fire pump. This item would be considered part of the fire sprinkler system and would be included within that permit type.

STANDPIPE SYSTEM

A permit is required for all new installations

A permit is required for all modifications to existing systems

FIRE ALARM SYSTEM

A permit is required for all new installations

A permit is required for all modifications to existing systems

There are two types of fire alarm permit types.

FIRE ALARM: This permit covers all new and major renovations to a fire alarm system. To apply for this type of permit you will need:

- Floor Plans
- Cut-sheets of all equipment being installed
- Battery Calculations

FIRE ALARM MODIFICATON:

This permit is intended to be a quick permit for those small jobs. Items needed to apply for this permit are:

- Simple floor plan
- Battery Calculations for the NAC circuit affected
- Cut-sheets for the new equipment
- Copy of the current inspection for the system

ALL OF THE ITEMS LISTED ABOVE ARE REQUIRED, FAILURE TO SUPPLY ALL OF THE ABOVE INFORMATION WILL RESULT IN A DELAY IN YOUR APPLICATION.

HOOD SUPPRESSION SYSTEMS

A permit is required for all new installations

A permit is required for all modifications to existing systems

FM 200 SYSTEMS

A permit is required for all new installations

A permit is required for all modifications to existing systems

SPRAY BOOTH SUPPRESSION SYSTEMS

A permit is required for all new installations

A permit is required for all modifications to existing systems

GENERATOR

A permit is required for all new installations

A permit is required for all modifications to existing systems

There are very few requirements in the Fire Code related to the generator itself, unless part of a formal EMERGENCY system, however the fuel tank and venting have significant fire code applications. Pay particular attention to:

Venting: Normal and Emergency

Tank Filling: Inside building and outside (different requirements)

Signage: NO SMOKING, COMBUSTIBLE, FLAMMABLE, ETC.

Flame Arrestors: Per code

Tank Access:

Pumping Stations: if equipped

Other construction permits required by the Bremerton Fire Department Fire Marshal's Office:

- Flammable Liquid Storage Tank/Piping
- Alternative Extinguishing Systems
- Smoke Control Systems
- High Piled Storage
- Battery Systems
- Access Control Systems
- Gate Access Systems
- LP Gas Systems
- Compressed Gas Systems
- Medical Gas Systems
- Hazardous Material Use/Storage
- Spray/Dipping Operations
- Covered Mall Buildings
- Special Amusement Buildings

IN ADDITION TO CONSTRUCTION PERMITS THE CITY OF BREMERTON ALSO REQUIRES OPERATIONAL PERMITS FOR: (under construction)

Aerosol Products	<input type="checkbox"/>	Welding/Cutting	<input type="checkbox"/>	Hazardous Materials	<input type="checkbox"/>
Amusement Buildings	<input type="checkbox"/>	Dry Cleaning	<input type="checkbox"/>	Hazardous Production Materials	<input type="checkbox"/>
Aviation Facilities	<input type="checkbox"/>	Exhibits/Trade Show	<input type="checkbox"/>	High Piled Storage ($\geq 12'$)	<input type="checkbox"/>
Carnivals/Fairs	<input type="checkbox"/>	Explosives	<input type="checkbox"/>	Hot-work Operations	<input type="checkbox"/>
Cellulose Nitrate Film	<input type="checkbox"/>	Operating Fire Hydrants/Valves	<input type="checkbox"/>	Industrial Ovens	<input type="checkbox"/>
Produce Combustible Dust	<input type="checkbox"/>	Flammable/Combustible Liquids	<input type="checkbox"/>	Lumber (Storage or processing of >100,000 board feet)	<input type="checkbox"/>
Compressed Gases	<input type="checkbox"/>	Floor Finishing	<input type="checkbox"/>	Vehicles inside buildings	<input type="checkbox"/>
Covered/Open Mall Building	<input type="checkbox"/>	Fruit/Crop Ripening	<input type="checkbox"/>	Magnesium	<input type="checkbox"/>
Cryogenic Fluids	<input type="checkbox"/>	Fumigation/Insecticidal Fogging	<input type="checkbox"/>	Miscellaneous Combustible Storage in excess of 2500ft ³	<input type="checkbox"/>
Open Burning	<input type="checkbox"/>	Open Flames/Torches	<input type="checkbox"/>	Open Flames/Candles	<input type="checkbox"/>
Organic Coatings	<input type="checkbox"/>	Places of Assembly	<input type="checkbox"/>	Private Fire Hydrants	<input type="checkbox"/>
Pyrotechnic/Special Effects Material	<input type="checkbox"/>	Pyroxlin Plastics	<input type="checkbox"/>	Refrigeration Equipment	<input type="checkbox"/>
Repair Garage/Fuel Dispensing Facilities	<input type="checkbox"/>	Rooftop Heliports	<input type="checkbox"/>	Spraying or Dipping	<input type="checkbox"/>
Storage of Tires/Tire by-products	<input type="checkbox"/>	Tents or temporary shelters	<input type="checkbox"/>	Tire Rebuilding	<input type="checkbox"/>
Waste Handling	<input type="checkbox"/>	Wood Products	<input type="checkbox"/>		

FIRE ALARM 

Fire alarm systems are required to be designed in accordance with NFPA 72/City of Bremerton specific requirements and are to be installed where required by IFC 2012 and local amendments.

- Smoke detection shall be provided in all spaces/areas as a means of egress. Smoke detection can be omitted where the area is consistently dirty and likely to cause nuisance alarms.
- Fire alarm must be audible from ALL POINTS in the building; additional devices maybe required at time of test/inspection.
- All fire alarm systems shall be addressible
- Fire alarms must be visible in all accessible public and common areas, lobbies, corridors, hallways, bathrooms, apartment bedrooms, common areas, and hotel guest rooms.
- Alarm must sound in three-pulse temporal pattern.
- Duct detectors shall sound as supervisory signal only
- All trouble and supervisory signals shall be set to non-latching.
- Fire alarm panel must be supplied with a secondary transient surge suppressor on the incoming power line (in addition to any suppressor built in to the panel.)
- Weatherproof horn strobe is required outside in the direct vicinity of the FDC and visible from the Fire Apparatus Access Road.
- A functional remote annunciator is required at the main entrance and in the fire sprinkler riser room.
- The FACP may be placed in the fire sprinkler riser room in place of the remote annunciator.
- The annunciator shall have a sign posted identifying the location of the main FACP. "FACP located in _____" Letters shall be white on a red background.
- A zone map shall be place at the annunciator and/or FACP.

CENTRAL STATION MONITORING (Waterflow Monitoring System) 

- **Internal horns / strobes only when provided through out facility**
- Plans shall provide:
 - Dialer specifications
 - Service type (UL listed central station monitoring company is required)
 - Phone service type
 - Runner service (where required)

- Battery back-up for 24 hours
- Signals shall be sent for:
 - Sprinklers:
 - Tamper
 - Water flow
 - Supervisory
 - General
 - With Fire Pump;
 - Notify Fire Department on the following indicators
 - Water flow
 - Pump running
 - Notify Property Owner/Manager on the following indicators
 - Tamper
 - Supervisory
 - Phase reversal
 - Power loss

UNDERGROUND FIRE MAIN



- Fire Department will permit and inspect the main from tap/valve to the base of riser. The permit will be combined with the site plan development permit, if one is needed. If no site plan development permit is done, then the underground fire main permit will be part of the fire sprinkler permit.
- Provide a minimum of 2 feet of vertical clearance when crossing other utilities
- Rods and nuts shall be stainless steel
- If PVC is used, class 200 at a minimum will be used for any main size
- Thrust blocks shall be provided in accordance to NFPA 13/NFPA 24
- Underground embedment shall be No. 4 crushed stone.

ACCESS CONTROL SYSTEMS



Doors in the means of egress shall be permitted to be equipped with an approved entrance and egress access control system provided that it complies with NFPA and IFC requirements, including but not limited to:

- A sensor is provided on the egress side arranged to detect an occupant approaching the doors and the doors are arranged to unlock upon detection of approaching occupant or loss of power to the sensor; and,
- Loss of power to that part of the access control system that locks the doors automatically unlocks the doors; and,
- The doors are arranged to unlock from a manual release device located 40 inches to

48 inches vertically above the floor and within 5 feet of the secured doors. The manual release shall be readily accessible and clearly identified by a sign that reads "PUSH TO EXIT". A touch sensor panic hardware device may be used in lieu of the manual release button.

- When operated, the manual release device shall result in direct interruption of power to the lock – independent of the access control system electronics – and the doors shall remain unlocked for at least 30 seconds; and,
- Activation of the building fire sprinkler or fire detection system, if provided, automatically unlocks the doors and the doors remain unlocked until the fire protective signaling system has been manually reset.
- A 4400 Knox Box shall be provided on all buildings having an magnetic access control system and shall be provided with a Knox toggle switch that when activated will disconnect the entire buildings access control system.

EXHAUST HOOD FIRE SUPPRESSION SYSTEM



Hood systems shall be designed and installed in accordance with the appropriate NFPA standard.

- All hood systems shall be UL300 Listed
- Class K extinguisher and appropriate signage must be supplied and mounted in the path of egress.
- If a fire alarm is present in the building, the hood system shall interface with the alarm
- Rubber nozzle caps shall not be used below the filter level. Metal or foil caps are the only acceptable covers.
- Domestic ranges when used for commercial purposes shall be provided with a Type I hood and therefore shall be covered by an exhaust hood fire suppression system (IFC 609).

FIRE SUPPRESSION EXTINGUISHING SYSTEMS (SPRINKLERS)



****SEE 'Fire Department Connection Requirements' for specific rules for FDCs.**

- Fire flow test done within 180 days of the sprinkler design. Policy and forms are contained in this guide. (Appendix A)
- Hydraulic Calculations will have a shown "cushion" of 10 psi or 10% whichever is greater between the system demand and the available curve.
- All inspectors' test, ball-drips, and main-drains shall be piped directly to the outside of the building.
- Reduced pressure zone valves shall be used on antifreeze systems (when permitted)
- Riser shall be located in heated areas. Riser-room electric heater shall be hard wired.
- The riser room shall be large enough to facilitate maintenance and testing of the sprinkler

system.

- Elevator shaft tops shall not be sprinkled.
- Each floor shall be equipped with a control valve and water-flow switch.
- Porches and balconies shall be sprinkled on all R-1/R-2 occupancies requiring sprinkler protection.
- Drip drums shall be in heated areas.
- Dry-system air compressors shall be hard wired
- A high and low-pressure alarm is required for all dry system. (10-psi/50-psi)
- Pre-action system solenoids shall be wired for alarm activation upon current loss.
- Provide a 1-inch (minimum) water meter for single family residential systems.
- Hose valves shall be 2.5 inch with a 1.5 reducer cap and chain.
- Atriums shall have water curtains.
- Pressure-reducing valves shall have a 3 inch pipe to drain directly to the outside.
- Fire pumps shall be equipped with a properly sized test header.
- Back-flow protection is required and shall meet City of Bremerton requirements
- A PIV is required unless there is direct access to the fire sprinkler riser room.
- High-piled Storage
 - Under 12,000 ft²
 - Rack plans are required prior to sprinkler plan approval.
 - Over 12,000 ft²
 - Rack plans are required prior to sprinkler plan approval
 - Smoke and heat vents shall be shown as an overlay to the sprinkler plans

REMOTE FIRE DEPARTMENT CONNECTION



- **All FDCs shall be remote** from the building and placed adjacent to the Fire Apparatus Access Road
- **FDCs shall be located at a maximum of 100 feet from a fire hydrant**
- FDC shall not be placed where obstructed by parking spaces, landscaping, or building components.
- FDCs shall be 5" Storz connections.
- See Remote FDC detail

STANDPIPE PIPES



- All Standpipes shall be automatic wet, unless specifically exempt
- Standpipe Connections shall be located at the floor level

UNDERGROUND FLAMMABLE/COMBUSTIBLE LIQUID STORAGE



- An approved method of secondary containment shall be provided for underground tank systems, including tanks, piping, and related components.
- Approved sampling tubes of a minimum of 6 inches in diameter shall be installed in the backfill material
- The tubes shall extend from a point 12 inches below the average grade of the excavation to the ground level and shall be provided with suitable access caps
- Each tank site shall have sampling sump at the corners of the excavation with a minimum of 4 sumps. Sampling tubes shall be placed in the product line excavation within 10 feet of the tank excavation and one every 50 feet routed along product lines toward the dispenser; a minimum of two are required.

SECTION 4
SITE & BUILDING ACCESS

Section 4 Site & Building Access

Site and Building Access

- o Knox Boxes and Key Switches
- o Automatic Gates
- o Manual and Pedestrian Gates
- o Access Control Systems
- o Building Address and Identification
- o Fire Department Signage Specifications

GENERAL NOTES:



Security Gates or Access Control Gates

- Please see the Bremerton Fire Department Guide to Automatic and Manual Gate Systems.
- A separate permit is required for the installation of this type of system.

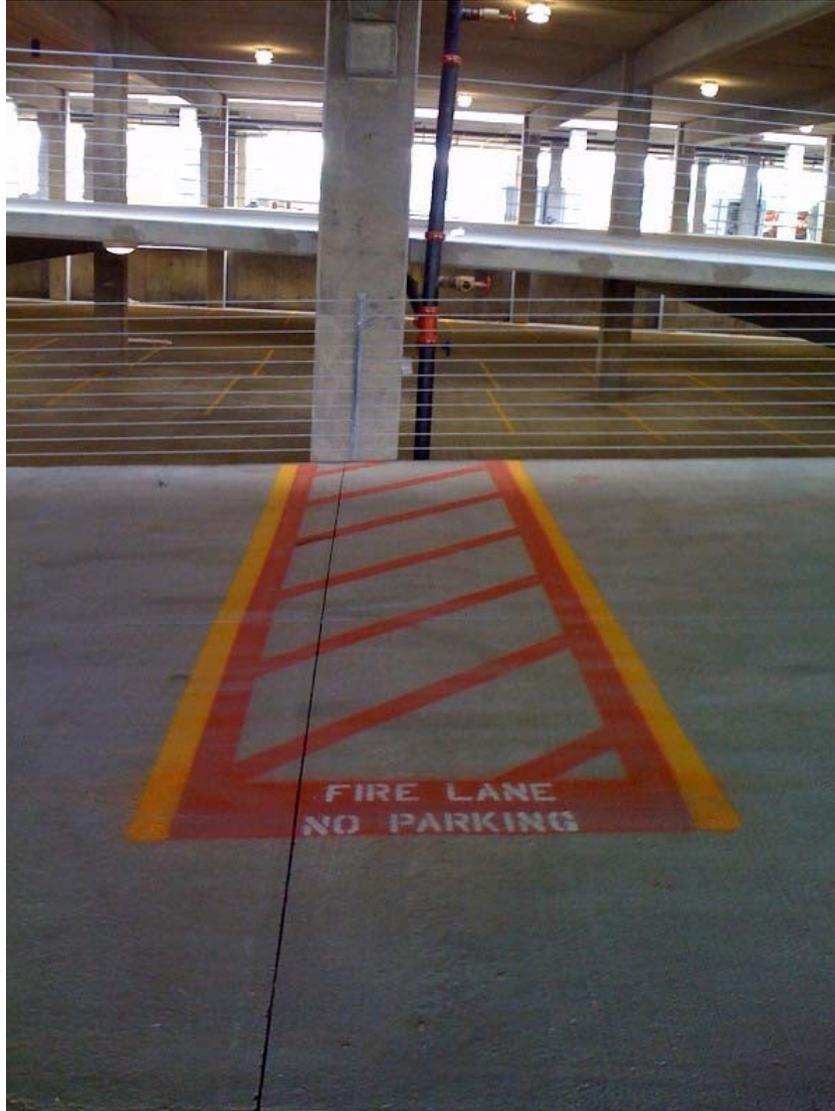
Speed Control Devices



- A separate permit is required for the installation of speed control devices located in a Fire Apparatus Access Road.
- These devices shall be constructed of durable molded plastic or of concrete.
- Suggested dimensions of a speed control device are 2' wide and no greater than 6" tall.
- The speed control device shall be a continuous curve.

Hydrants / FDC Stripping

Fire hydrants, remote fire department connections, or other Fire Department equipment may require that an area be stripped to prevent obstruction of such by the parking of vehicles or other equipment. In these situations, stripping shall be approved by the Fire Marshal. Example of stripping is provided in the following figure.



Hose Valve Stripping

Brick Pavers ■

In lieu of painting brick pavers that are used for decorative purposes in Fire Apparatus Access Road, red brick pavers may be used to identify the Fire Apparatus Access Road and shall have stamped in the pavers “FIRE APPARATUS ACCESS ROAD NO PARKING” in white lettering. No other color scheme will be allowed.

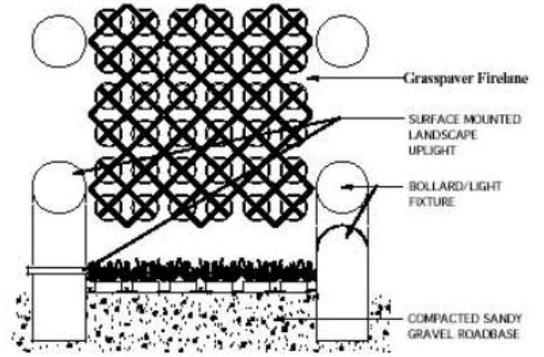
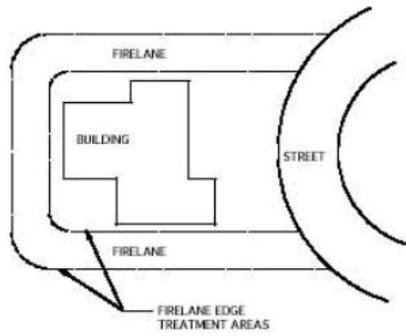
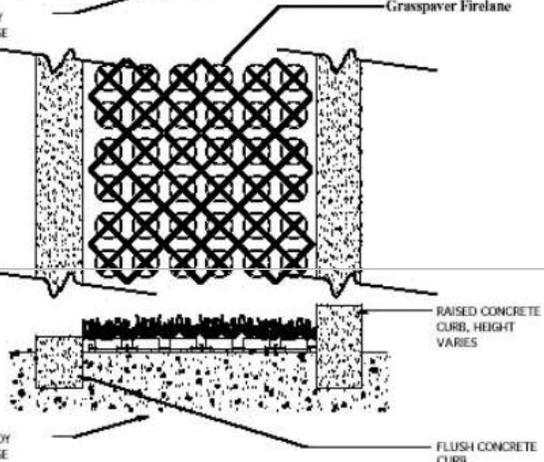
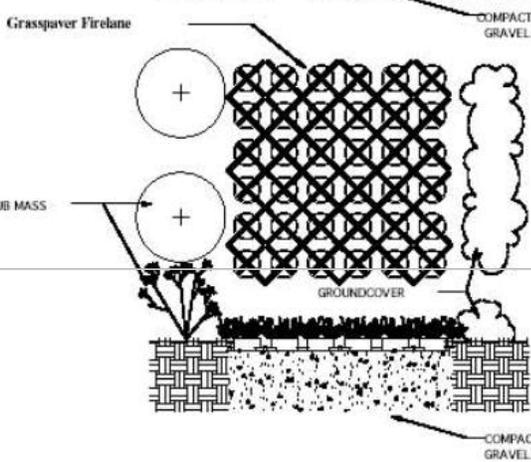
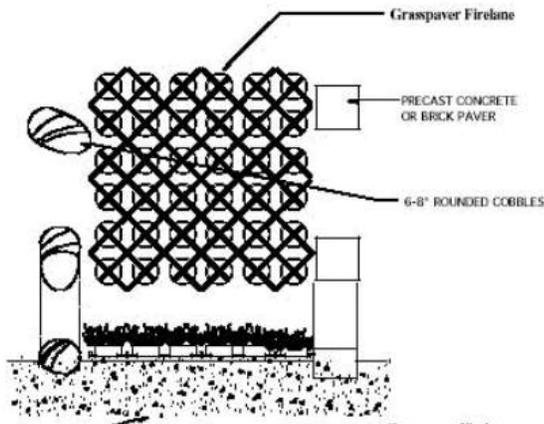
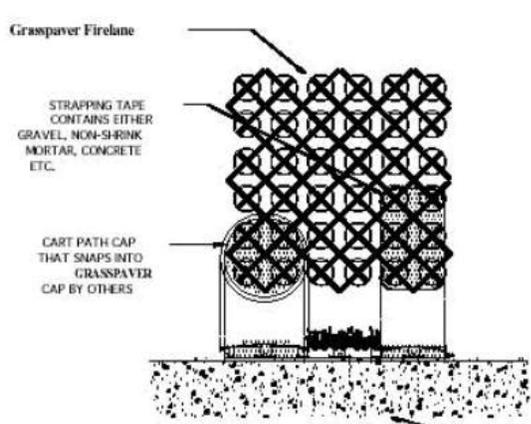


Brick Paver Fire Apparatus Access Road Example

“Grasspavers”

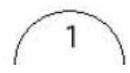
- When approved, ‘grasspavers’ may be used as an alternative to the standard concrete drive.
- An obvious delineation between the pavers and the non-paved area is required.
- Signage or stripping will be required of entrance and/or along the Fire Apparatus Access Road to prevent obstruction. Each situation will be unique and should be discussed with the Fire Marshal’s Office during development.

See next page for grasspaver detail....



NOTE: THIS DETAIL IS SCHEMATIC IN NATURE. DESIGNER SHALL SPECIFY SPACING AND DESIGN OF EDGE TREATMENTS. SPACING WILL VARY WITH TURF TYPE, SLOPE, FIRE DEPARTMENT REQUIREMENTS, ETC. (24 FOOT MINIMUM WIDTH/11 FOOT INSIDE RADIUS)

Grasspaver Firelane Detail



FD Key Boxes (Knox Box)

GENERAL NOTES FOR ALL PROPERTIES:

- All Knox Boxes are required to be installed at 5' above finished floor.
- Knox Boxes shall be installed no more than 10 feet horizontally from the entrance or door being served.
- All Knox Boxes shall be of the hinged door type (except residential use)
- When any building utilizes any card reader access systems (electric or magnetic) a minimum of a series 4400 Knox Box will be required.
- Knox Boxes that serve multiple tenants, difficult to locate or as required, shall be identified using the approved signage. *See Sign Specification Book.*
- All new projects require recessed Knox Boxes

Large Office, Warehouse and Big Box Retail Buildings

- A 4400 series Knox Box is required at the main entry.
- A 3200 series Knox Box is required at the riser room.
- An additional Knox Box may be required at the rear entry of the building.

Shopping Strip Centers

- A 4400 series Knox Box is required. The Box should be located by the riser room. If there is no riser room, the lock box should be centrally located on the building, identified by approved signage.

Small Commercial Buildings *(small single occupant buildings)*

- A 3200 series Knox Box is required.
- An additional Knox Box may be required at the rear of the building.

High Rise buildings *(Any building where any occupied floor is located greater than 75 feet from the lowest point of Fire Department Access)*

- A 4400 series Knox Box is required at the main entry of the building. More than one lock box may be required at other access points.
- A 4400 series Knox Box is required in any elevator lobbies in the building.
- A 1300 series Knox Box is required in the fire control room / fire command room.

Apartment Complex

- A 3200 series Knox Box shall be placed at the club house or leasing office.
- A 1658 series Knox box will be placed at all riser rooms.
- Individual apartment lessees shall be allowed to purchase and place a 1600 series Knox Box outside their front door.

One- or Two-Family Residential

- When a resident wishes to provide access to their home they may use a 1600 series Knox Box. The box should be placed at the main front entrance of the residence.

Special Hazard Occupancy

- Any occupancy containing special hazards must contact the Fire Marshal's Office for the amount and placement of lock boxes.
- A 1300 series Knox Box shall be required at a minimum for occupancies with hazardous materials or other high hazard occupancies.

Other Applications

MAGNETIC LOCKS

- If magnetic locks are used to secure any door in a facility, a 4400 series Knox Box, shall be required with a Knox multipurpose switch (Item # 3291, 4471). This switch will be connected to the mag-lock control panel and disengage all mag-lock devices.

PEDESTRIAN GATES

- Primary access points that have pedestrian gates require Fire Department access. This access may be provided with a 1600 series lock box or a 3500 series key switch. (A 3500 series key switch is required on electronically locked gates.)

KNOX BOX ORDERING INFORMATION:

NOTE: It is the responsibility of the General Contractor to order the appropriate box(es) and/or switch(es). Please Contact the Fire Marshal for proper number and series to order. Failure to order the appropriate item(s) will severely delay the issuance of a CO. Exceptions will not be made.

VIA INTERNET: Go to www.knoxbox.com, Click the "ONLINE PURCHASE link. You will be prompted to enter the Zip Code, **98337**. A list of departments in the area will be listed. Select **BREMERTON** and click continue. Select you product(s) and follow the instructions from that point.

VIA MAIL/FAX: Applications can be picked up at the Bremerton Fire Administration Offices at 911 Park Avenue, Bremerton, WA 98337. Follow instructions on the form.

VIA PHONE: Call 1-800-552-5669 to order.

NOTICE:

This is only intended to be used as a guide. Due to the variations of Fire Department access needs from property to property it is required that Fire Marshal's Office personnel approve all placement of lock boxes and key switches.

AUTOMATIC GATES

Scope: This policy is designed to facilitate emergency vehicle access into properties that are equipped with automatic security gates or vehicle access/egress gates installed across required Fire Apparatus Access Roads.

GENERAL NOTES:

- A **separate** fire permit is required for each automatic gate. (An approved site plan **is not** a permit.)
- Gate motor shall be the type that the drive gear disengages on power failure.
- The City approved Knox key switch (KS2) shall be used for 24 hour Fire Department access. The emergency key switch, when activated, shall bypass any occupant control and loop systems. When activated, the gate will remain in the open position until deactivated by the Fire Department.
- Only when deactivated will the gate resume normal operation
- The key switch shall open both the entrance and exit gate(s) when gate(s) are in close proximity to each other.
- The Knox key switch shall be mounted 5 ½ feet from grade (location shown on plan).
- The key switch shall be located below a sign labeled "FD ACCESS".
- Per Bremerton Fire Department Emergency Equipment Sign Requirements
- The minimum clear opening width shall not be less than the width of the required Fire Apparatus Access Road or access drive. A minimum of 24 feet and a minimum unobstructed height of 14 feet shall be maintained.
- Gate operator(s) shall open at a rate of one foot per second. Parking barrier arms will open or clear in approximately two seconds.
- The primary drive gate type that may be installed across Fire Apparatus Access Roads shall be the sliding type.
- In the event of power failure the gate shall open freely. It shall be capable of being opened manually by one person of average stature.

Primary or Main Gate

- Primary gate is defined as the drive or access point designed as the primary point or one of several primary points of ingress/egress for emergency vehicles.
- The following access systems shall be installed on Primary Gates.
 - "Opticom" receiver switches
 - KS2 Knox switches
 - Electrical disconnect
 - Red emergency activation strobe

Automatic Secondary Gates (including Main Gates to Storage Facilities)

- Shall mean the drive or access point designed as a secondary or backup means of ingress/egress for emergency vehicles.
 - KS2 switches
 - Electrical disconnect
 - Red emergency activation strobe light
 - “Exit Only sign” (see *illustrations below, must meet Fire Department Emergency Equipment Sign Specifications*)
- The Fire Marshal may require the “Opticom” system on any automated gates across Fire Apparatus Access Roads as deemed necessary.*

Electrical Disconnect

The gate shall be opened by means of an electrical power disconnect switch in a weather proof box:

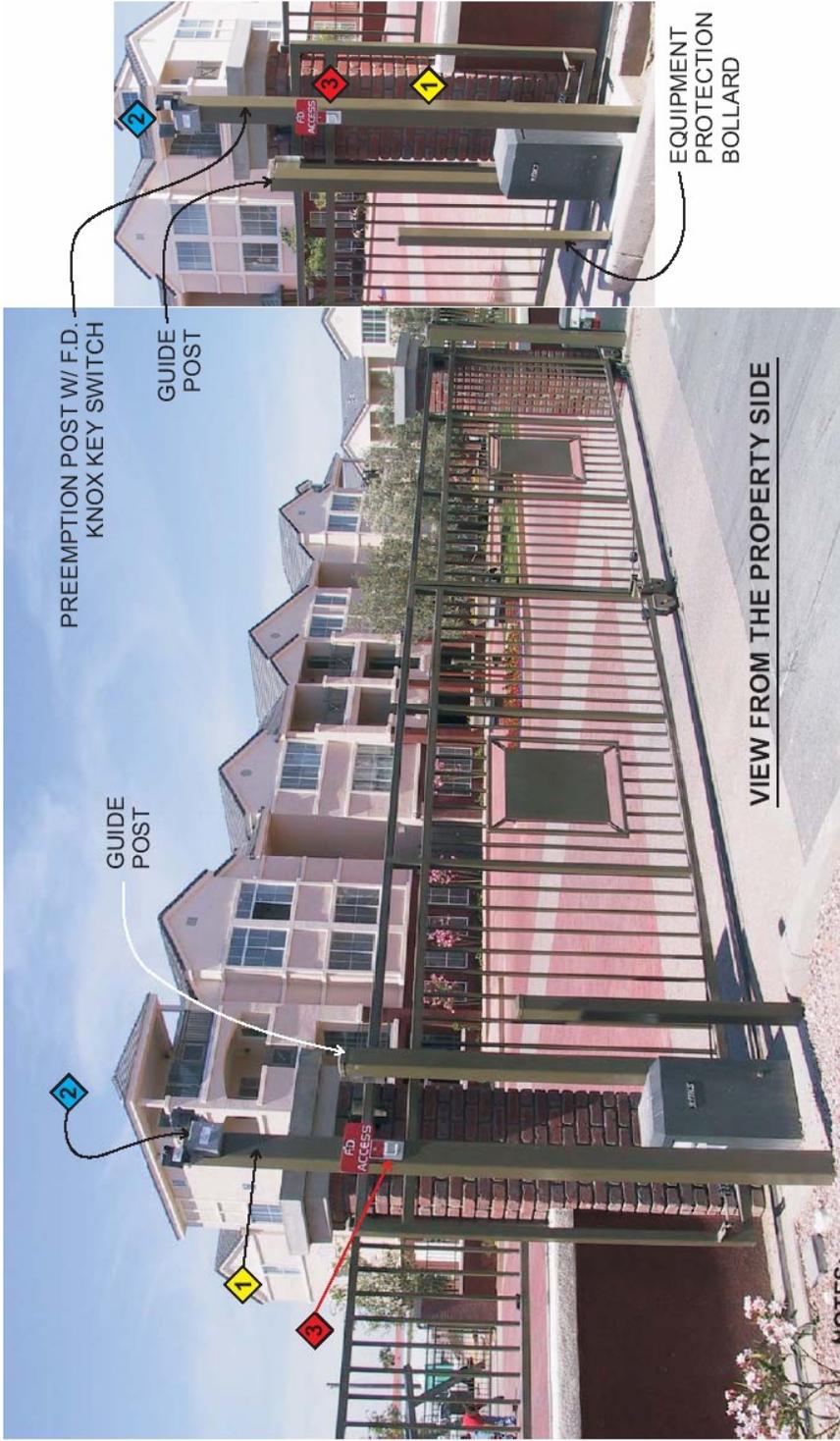
- The box shall be red.
- The box shall be mounted on the entry side of the gate within 5 feet of the gate.
- The box shall be at least 5 inches high and 5 inches wide.
- The box shall be clearly labeled “Fire Dept.” in white letters 1 inch tall with ¼ - inch stroke.
- A Knox padlock shall secure the box.
- The box must be clearly visible and accessible.

Electrical Equipment Protection.

All electrical equipment shall be protected from physical damage and weather by approved weather tight boxes or housings.

Performance Test

Gates and gate systems shall be tested by the Fire Marshal’s Office upon completion of the installation of a gate or gate system or when required by the Fire Department. Gates shall not be placed into operation until after acceptance test is approved.

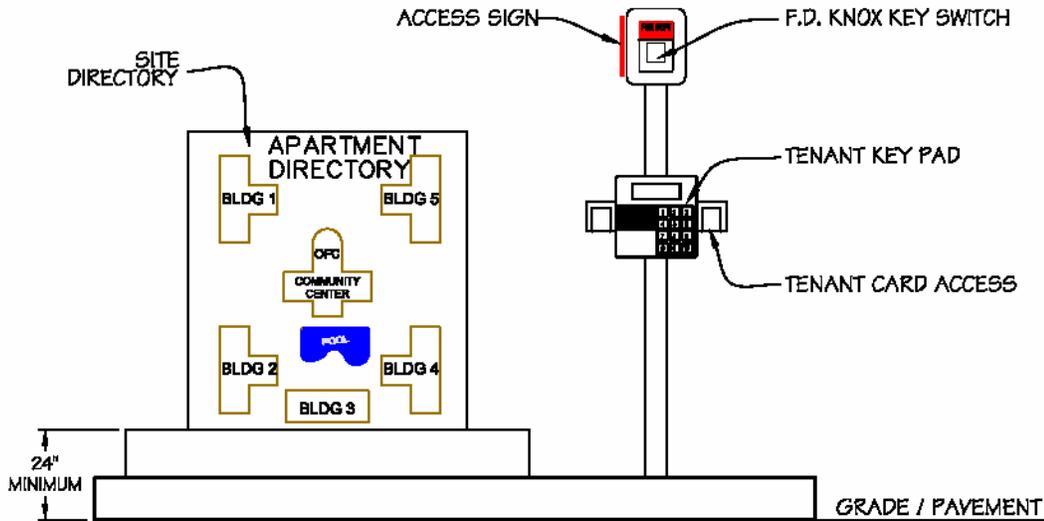


NOTES:

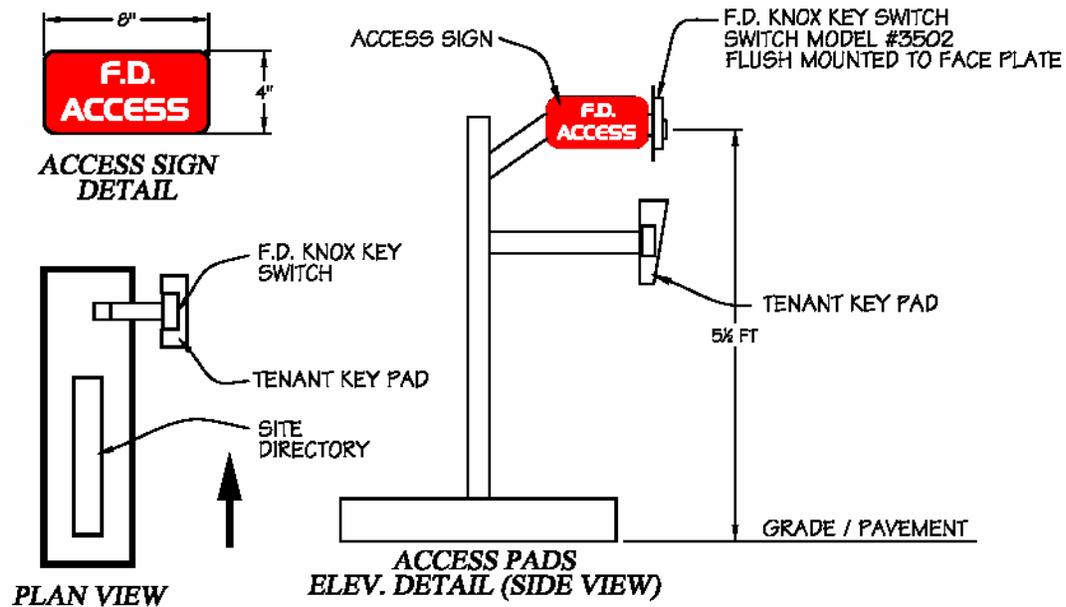
- ◆ 1 DETECTORS SHALL BE MOUNTED ON 4" X 4" POST 8FT TO 10 FT FROM GRADE
- ◆ 2 FIRE DEPT. APPROVED DUAL STROBE SWITCH I
- ◆ 3 F.D. APPROVED KNOX KEY SWITCH MODEL #3502 FLUSH MOUNTED IN 4" X 4" POST

FRAME PRE-INSTALLER

REQUIRES PERMIT



**ENTRANCE ISLAND
ELEV. DETAIL (FRONT VIEW)**



**SPECIAL FIRE DEPARTMENT
ACCESS O.K. SIGN**

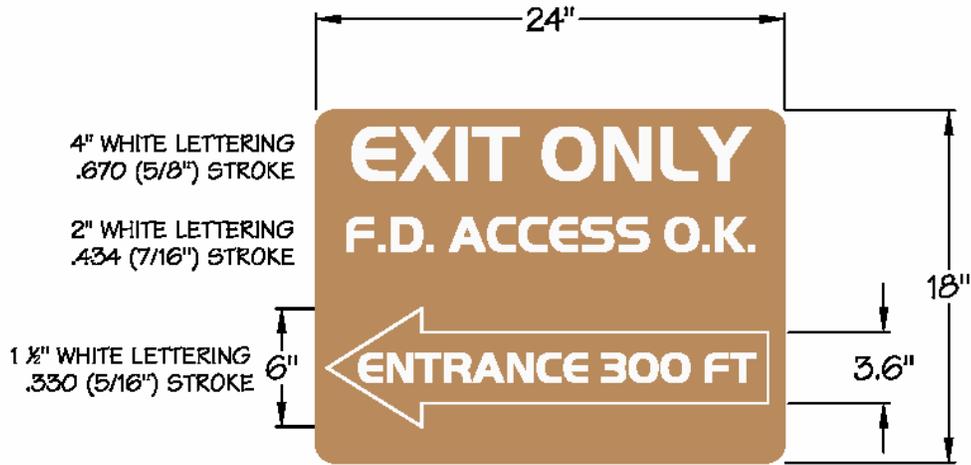


Figure 3 - Exit Only Gates

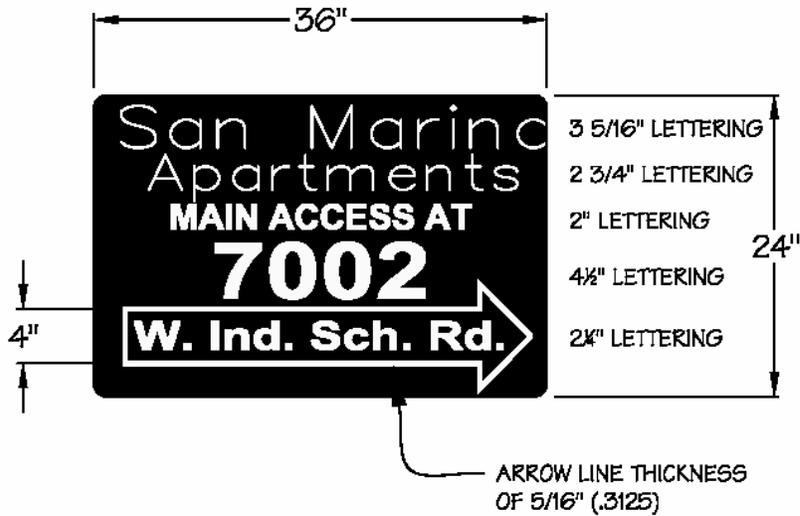


Figure 4 - Exit Gate Sign (main gate on different street or distant location)

NOTE: All signs must meet specifications as outlined in the City of Bremerton Fire Department Emergency Equipment Sign Guide

Manual and Pedestrian Gate Guidelines

Manual Gate General Notes

- A **separate** fire permit is required for each manual gate. (An approved site plan **is not** a permit.)
- All manual gates shall use a Knox padlock as a locking mechanism.
- An approved dual padlock locking bar and Fire Department padlock shall be used.
- Six-inch wide red striping shall be painted on the ground along the length of both sides of the gate. (not applicable for temporary gates)
- Fire Department approved “No Parking” signs, four total, two shall be bolted back to back on each side of gate(s).
- A sign that identifies the location of the property’s primary entrance shall be bolted on the street side of the gate(s).
- All clear access openings as shown on plans shall be a minimum of 24 ft. If gating an **existing** drive, the **current** width of drive must remain as the original approved clear access width.

Please see the following details

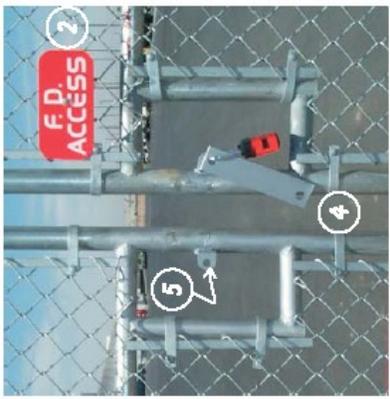
Manual Security (Chain Linked Gates).....	Figure 1
Manual Knox Locking Gate.....	Figure 2
Pedestrian Gates with Magnetic Locking Devices.....	Figure 3
Pedestrian Gates.....	Figure 4
Knox Locking Rolling Gate.....	Figure 5
Temporary Construction Security Gate.....	Figure 6



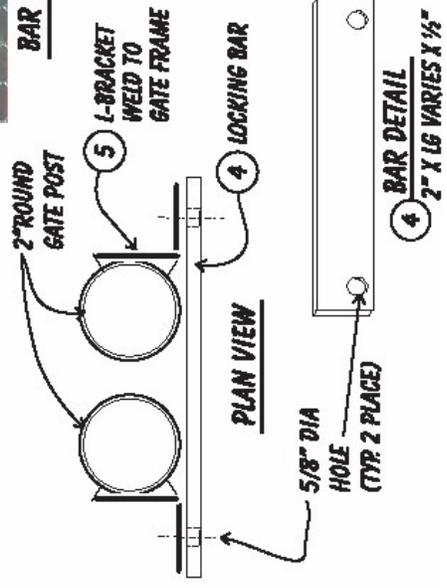
PROFILE VIEW
STREET SIDE



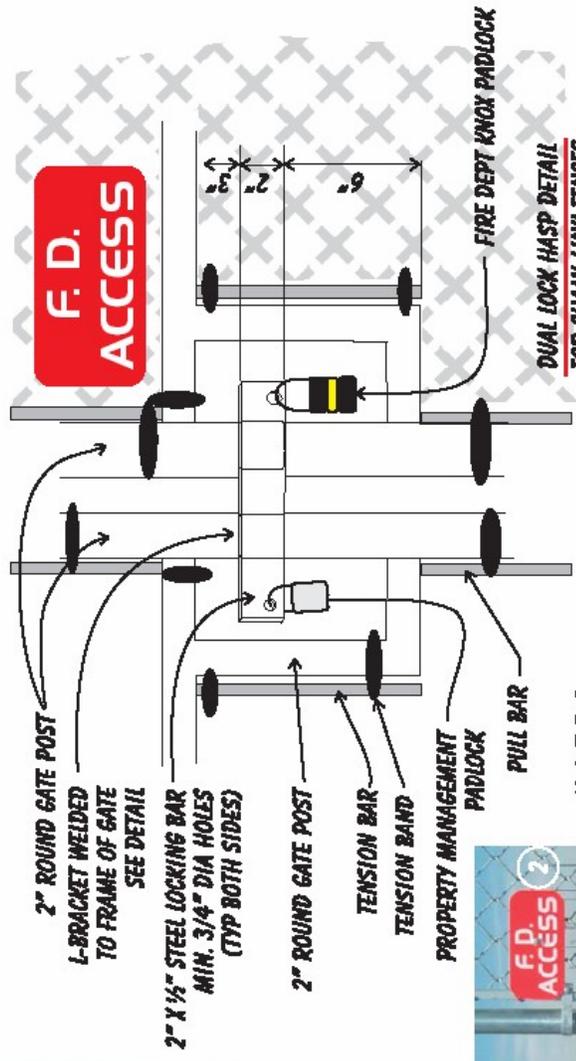
DUAL LOCK HASP DETAIL
STREET SIDE



BAR UNLOCKED DETAIL



L BRACKET
DETAIL



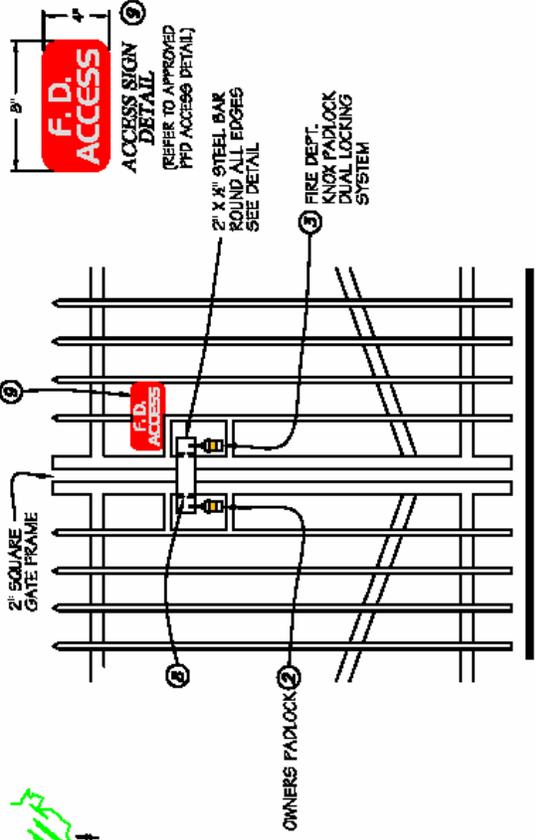
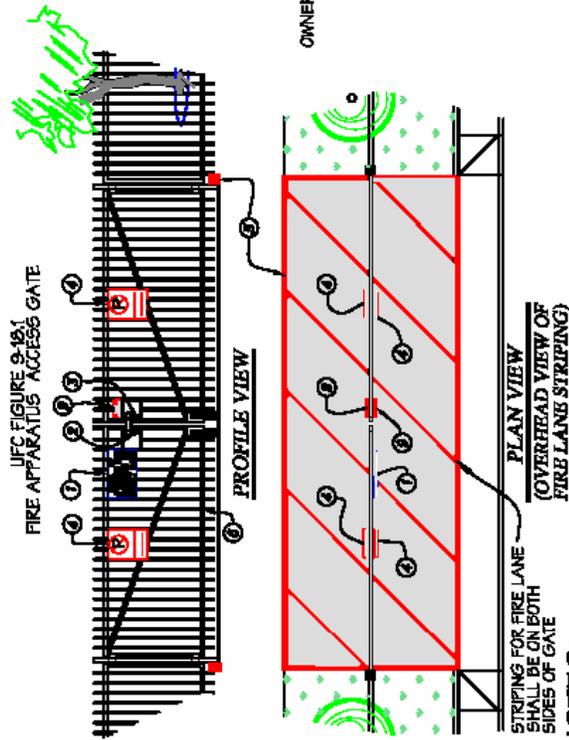
**F. D.
ACCESS**

NOTES:

1. APPROVED FIRE LANE SIGNS WITH REFLECTIVE BACKGROUND, PLACED BACK TO BACK AND FASTENED ON ALL 4 CORNERS (SEE UFC FIGURE 9-4)
2. APPROVED FIRE DEPT. ACCESS SIGN W/ REFLECTIVE BACKGROUND PLACED BACK TO BACK (SEE UFC FIGURE 9-17)
3. STRIPING SHALL BE PAINTED SAFETY RED. 6" WIDE HASH STRIPING APPROX. 4FT TO 6FT APART. (SEE DETAIL 8.5)
4. LOCKING BAR LENGTH IS DETERMINED BY THE FRAME WIDTH AND GAP WIDTH BETWEEN THE 2 GATES. REMOVE ALL SHARP EDGES/ROUND ALL CORNERS. 3/4" DIA HOLE MIN. HOLE DIAMETER DETERMINED BY SIZE OF PADLOCK.
5. WELD MODIFIED L-BRACKET TO GATE FRAME.
6. THE MINIMUM OVERALL WIDTH OF THE GATE OPENING SHALL BE 20 FT.
7. FIRE DEPT. KNOX PADLOCK CAN BE PURCHASED AT RED-FIRE PREVENTION, 150 SOUTH 12TH ST., HRS. B&M - 4:30 PM (MUST BRING COPY OF FIRE DEPT. GATE PERMIT & ORIGINAL KNOX ORDER FORM).

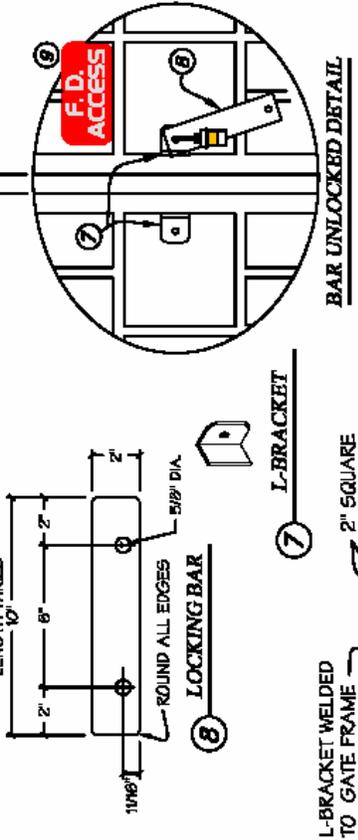
Requires Permit

FIRE DEPARTMENT
MANUAL CHAIN LINK
SECURITY GATE DETAILS



ELEVATION DETAIL

STREET SIDE



BAR UNLOCKED DETAIL

- NOTES:**
- APPROVED SIGN, WITH REFLECTIVE BACKGROUND, TO IDENTIFY THE NAME OF THE APARTMENT COMPLEX AND THE LOCATION OF THE ACCESS ENTRANCE. (SEE UFC FIGURE 9-16)
 - PROPERTY OWNER / MANAGEMENT PADLOCK
 - FIRE DEPT. PADLOCK SHALL BE ACCESSIBLE FROM BOTH SIDES OF THE GATE (ENTRANCE & EXT). KNOX PADLOCK CAN BE PURCHASED AT PHOENIX FIRE DEPT. FIRE PREVENTION, 150 SOUTH 12TH ST., HRS. 8 AM - 4:30 PM (MUST BRING COPY OF FIRE DEPT. GATE PERMIT & ORIGINAL KNOX ORDER FORM).
 - APPROVED FIRE LANE SIGNS WITH REFLECTIVE BACKGROUND, PLACED BACK TO BACK, AND FASTENED ON ALL 4 CORNERS (SEE UFC FIGURE 9-4)
 - 6" PARKING LOT STRIPING AT THE LOCATIONS SHOWN ON CONCRETE CURBS AND APPLIED TO ASPHALT (SEE DETAIL 8.5)
 - THE MINIMUM OVERALL WIDTH OF THE GATE OPENING SHALL BE 20 FT. (LARGER IS BETTER).
 - WELD MODIFIED L-BRACKET TO GATE FRAME. ROUND ALL EDGES. (TYPICAL 2 PLACES)
 - LOCKING BAR LENGTH IS DETERMINED BY THE FRAME WIDTH AND THE GAP WIDTH BETWEEN THE 2 GATES. REMOVE ALL SHARP EDGES & ROUND ALL CORNERS.
 - APPROVED FIRE DEPT. ACCESS SIGN WITH RED REFLECTIVE BACKGROUND PLACED BACK TO BACK (SEE UFC FIGURE 9-17)

E. NAME: Gate_DB_Surfracing

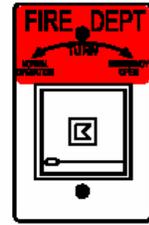
PLAN VIEW
POST & LOCKING BAR DETAIL

Requires Permit

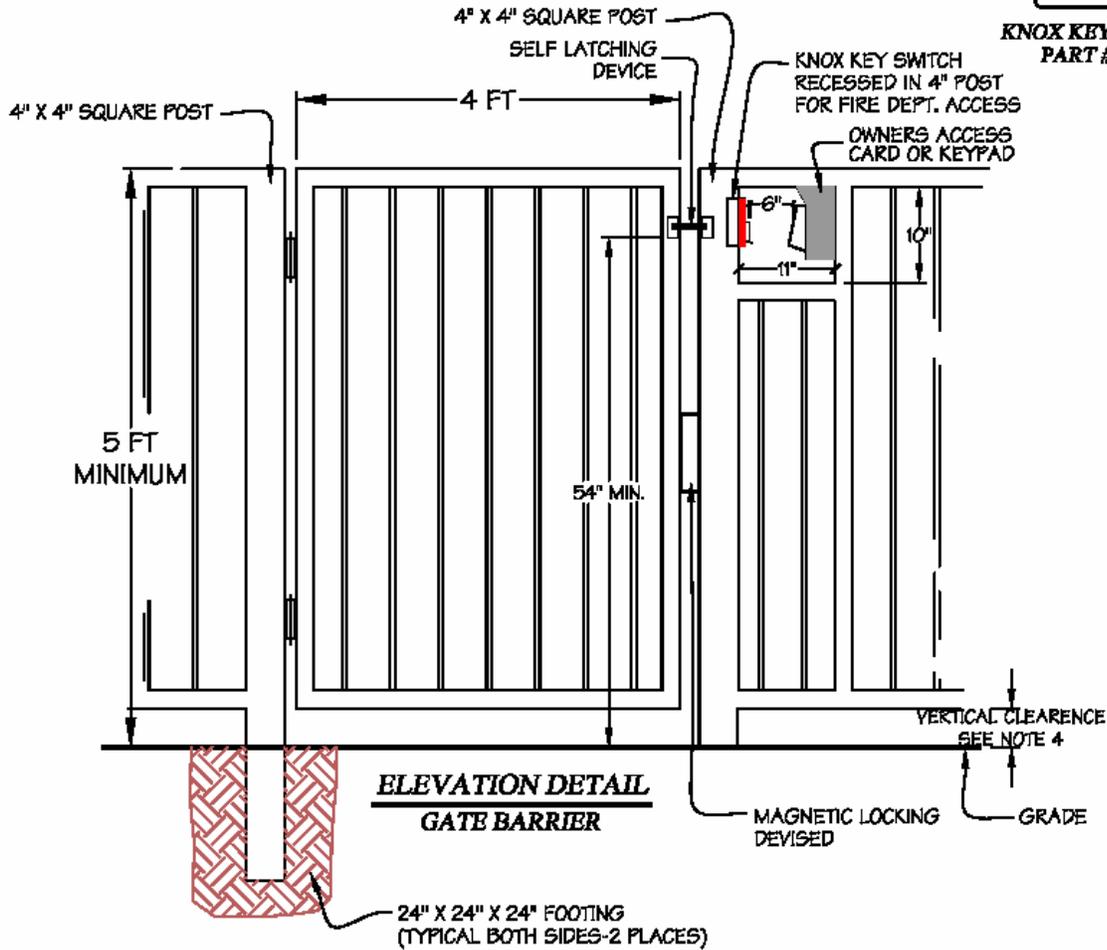
**FIRE DEPARTMENT
KNOX PADLOCK LOCKING
SYSTEM DETAIL**

7 20077 DWG 11 21 1000 0005

BARRIERS FOR SWIMMING POOLS SPAS & HOT TUBS

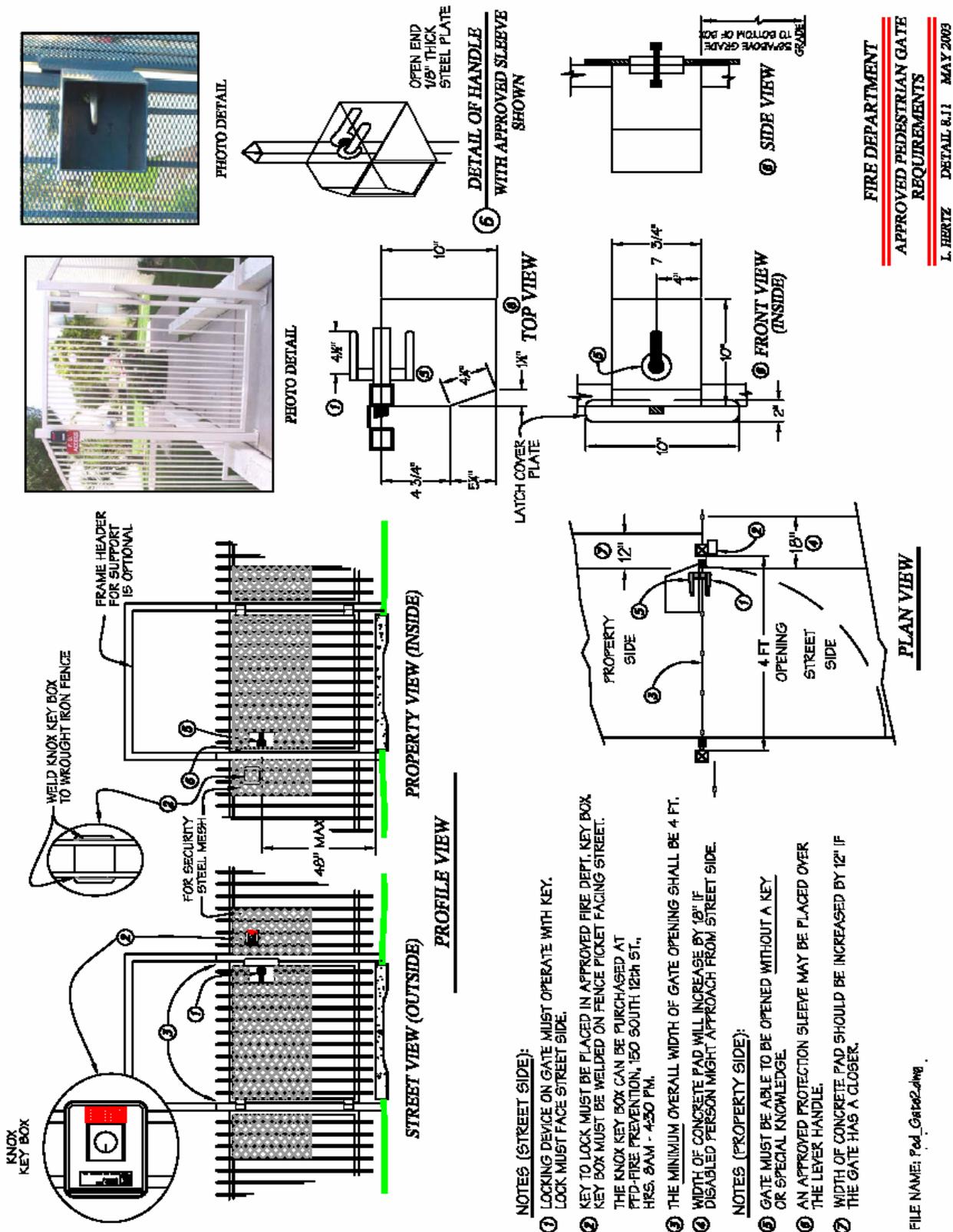


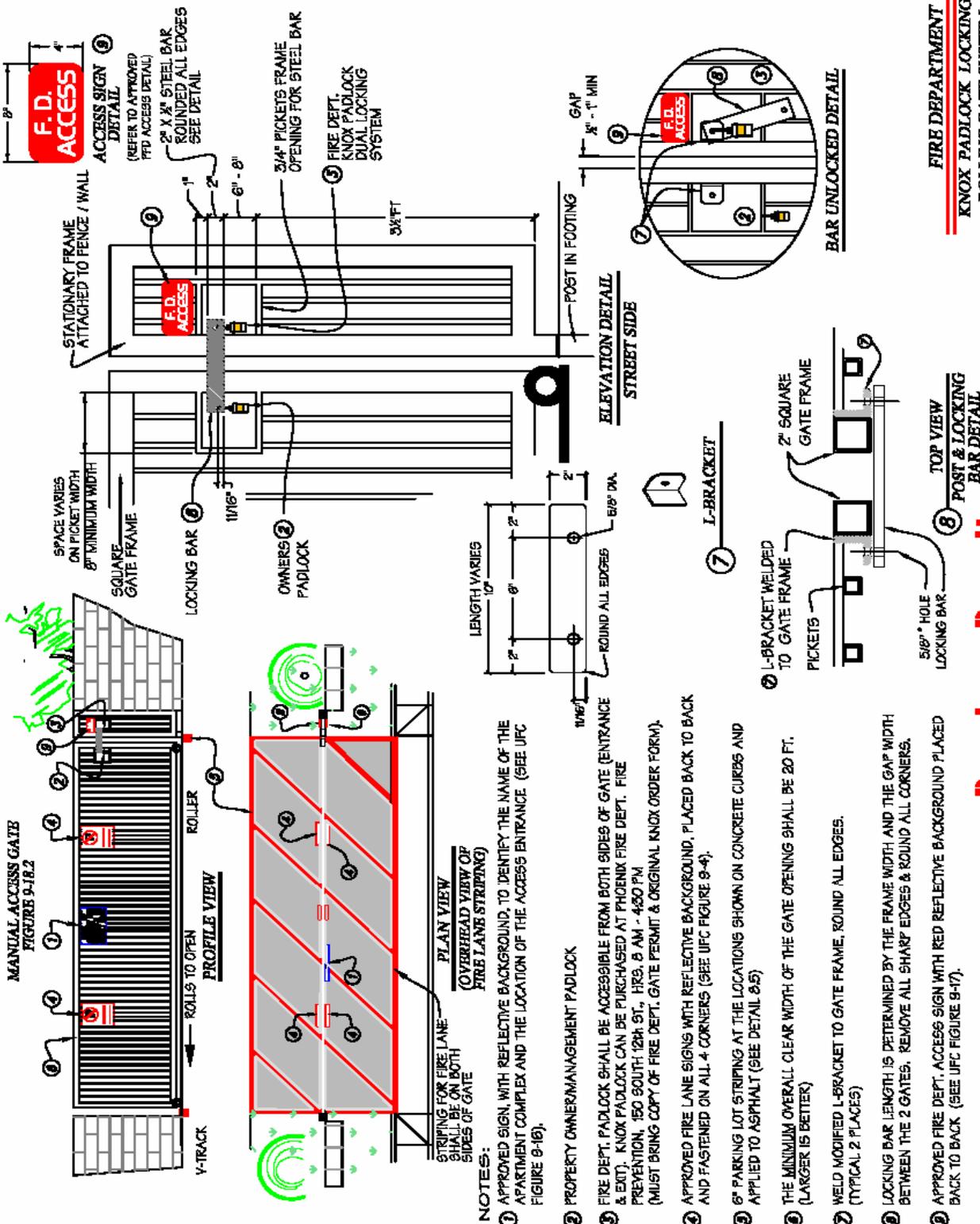
**KNOX KEY SWITCH
PART # 3502**



NOTES:

- ① KNOX KEY SWITCH ACCESSIBLE FROM BOTH SIDES OF GATE
- ② KNOX SWITCH CAN BE PURCHASED AT PFD - FIRE PREVENTION,
150 SOUTH 12th ST., HRS. 8AM - 4:30PM.
- ③ THE MINIMUM OVERALL WIDTH OF THE GATE OPENING SHALL BE 4 FT.
- ④ THE VERTICAL CLEARANCE MINIMUM OF 2" AND A MAXIMUM OF 4"
REFER TO BUILDING CODE REQUIREMENTS.

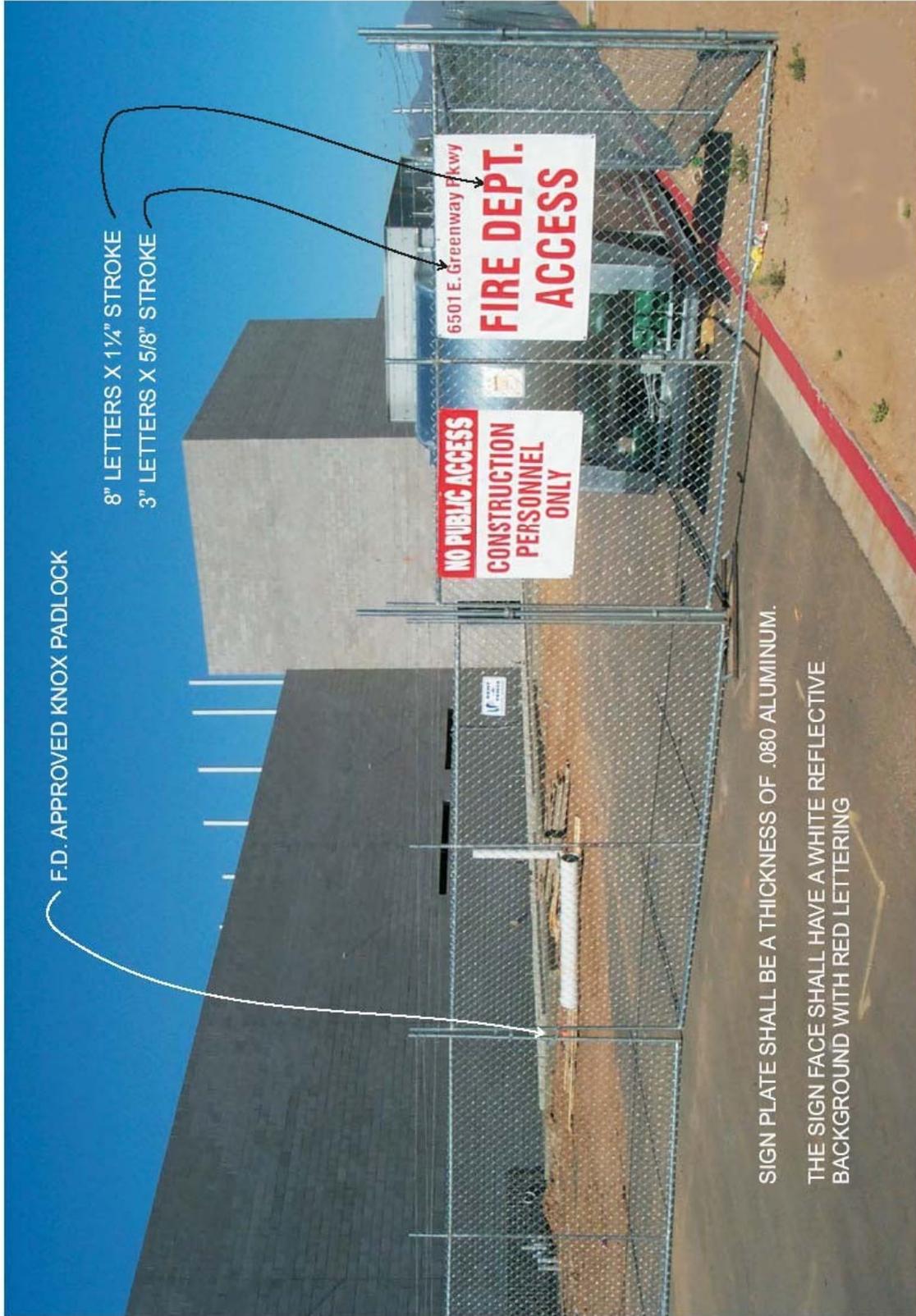




Requires Permit

FIRE DEPARTMENT
KNOX PADLOCK LOCKING
ROLLING GATE SYSTEM
 L.HERTZ
 DETAIL 8.12 DEC. 2003

FILE NAME: Gate_Rolling



F.D. APPROVED KNOX PADLOCK

8" LETTERS X 1 1/4" STROKE
 3" LETTERS X 5/8" STROKE

SIGN PLATE SHALL BE A THICKNESS OF .080 ALUMINUM.

THE SIGN FACE SHALL HAVE A WHITE REFLECTIVE
 BACKGROUND WITH RED LETTERING

ALL PERMANENT GATES REQUIRE FIRE PERMITS

FIRE DEPARTMENT
TEMPORARY
CONSTRUCTION GATE
 L. HERTZ DETAIL 8.14 NOV. 2001

14457EMP_GATE.GCR

ADDRESSING GUIDELINES



Single family homes.

Minimum 4" high, 5/8" stroke

Multi-family Communities.

Street address shall be a minimum of 12" high with a 2" stroke. Individual building numbers shall be a minimum of 18" high with a 3" stroke. Buildings over 100 feet in length require a minimum of two numbers per building. Apartment spread numbers shall be a minimum of 7" high with a 1 inch stroke and corridor spread numbers shall be a minimum of 4" high with a 5/8 inch brush stroke. Individual apartment unit numbers shall be a minimum of 4" in height with a 5/8 inch stroke.

Large Office and Warehouse Buildings.

Address must be visible from all access directions. Number shall be a minimum of 12 inches in height with a 2 inch stroke. Buildings over 500 feet long shall have two address locations if more than one access point is visible. Suite numbers shall be required for multi-tenant complexes and shall be located over the front door and on the rear door, 6 inches in height with a 1 inch brush stroke.

Shopping Centers, High Rise Buildings and Other Applications.

A minimum of 12" high numbers with a 2" brush stroke shall be visible from all access directions. Suite numbers are required over the door with 4" high numbers with a 5/8 inch brush stroke. Buildings beyond 100 feet from the street and 10,000 square feet shall install 18 inch numbers with a 3 inch stroke.

Marquee and Monument.

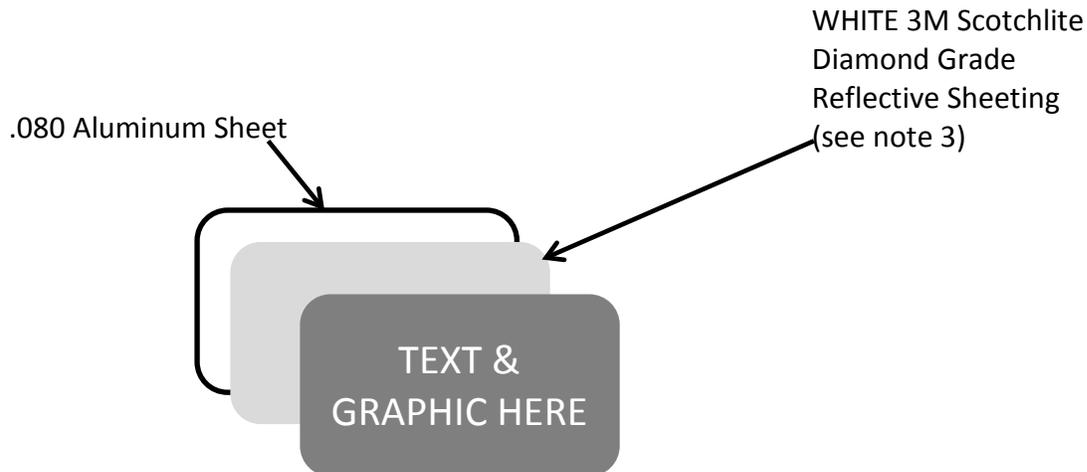
Addresses installed on a marquee located next to the street will require numbers 12" high with a 2 inch brush stroke to be located a minimum of 3 feet above grade. Marquee and Monument signs must meet City of Bremerton Sign Ordinance requirements.

SIGN SPECIFICATIONS (Sign Manual)

Pursuant to the International Fire Code (IFC); in an attempt to standardize IFC signage requirements and to facilitate Fire Department operations, the Fire Marshal's Office has established the following specifications of sign size, text, font, design, and construction that indicate the location of Fire Department equipment and/or identifies location hazards.

The signs in this document are the most common used signs in construction; however, this document is not intended to cover all circumstances. In the event that additional signs are required and are not listed in this document, the Fire Marshal will provide the specifications to use.

NOTE: THE DIAGRAMS CONTAINED WITHIN THIS DOCUMENT ARE PROVIDED AS EXAMPLES ONLY. PLEASE VERIFY WITH THE FIRE MARSHAL'S OFFICE FOR THE CORRECT VERBAGE AND REQUIRED SIGNS. ALL SIGN LAYOUTS MUST BE APPROVED BY THE FIRE MARSHAL'S OFFICE.



1. THE SIGN FACE SHALL BE SIZED AS INDICATED IN COORESPONDING SPECIFICATIONS AND FABRICATED FROM .080 ALUMINUM SHEET WITH MINIMUM OF .75" RADIUS CORNERS.
2. FONT STYLE USED IS ARIAL FONTS WITH ADDITIONAL KERNING BETWEEN LETTERS.
3. THE SIGN FACE SHALL HAVE A WHITE 3M DIAMOND GRADE REFLECTIVE SHEETING (3990 SERIES VIP TYPE IX) APPLIED AS A BACKGROUND.
4. LETTERING / GRAPHICS SHALL BE ONE OF THE FOLLOWING:
 - A.) 3M ELECTROCUT FILM RED 1172 OR ORACAL 8300 TRANSPARENT CAL 201C RED, OR EQUIVELANT IN DURABILTY, INVERSE CUT TO ALLOW WHITE REFLECTIVE BACKGROUND TO SHOW THROUGH LETTERING.
 - B.) SCREEN PRINTED USING 3M 8801 SERIES TRAFFIC SIGN RED TRANSLUCENT INK. BOTH PROCESSES (A or B) WILL ACCOMPLISH A **RED**

FIELD WITH WHITE COPY.

5. WHEN SIGN IS TO BE USED IN BUILDING INTERIORS IT MAY NOT BE REQUIRED TO USE REFLECTIVE BACKGROUND.
6. ALL SIGNAGE AND CHANGES MUST BE PRE-APPROVED BY THE FIRE MARSHAL'S OFFICE.

FIRE DEPARTMENT CONNECTION SIGNAGE

Any building that has an automatic fire suppression (sprinkler) system requiring a Fire Department construction (FDC) shall indicate the location of the FDC with the appropriate signage.



12x12 - .080 Aluminum substrate "FDC" 3" Height

Address - 1" Height

Sign Construction shall be as indicated above

The FDC sign shall be lettered as shown in the examples and must have the address and suite / suite range (where applicable) that the FDC / sprinkler system covers.

The Fire Marshal's Office understands that there are unique situation to each building/site and have provided several options to facilitate fire suppression activities; however, due to the complexity of some buildings/sites, the Fire Marshal may require specific lettering or and/or additional signage.

Please note: ALL SIGN LAYOUTS MUST BE APPROVED BY THE FIRE MARSHAL'S OFFICE.

It is suggested that the approval is obtained prior to ordering any signage. This will help reduce cost in the event of an error. Below are several examples.

All FDC(s) for new construction shall be remote. In the event that an existing building has a wall mounted FDC or that FDC is adjacent to the building, the FDC sign may, with approval, be mounted to the wall behind/directly above the FDC seven (7) feet AFF.

For true remote FDC locations, the mounting of the FDC sign shall be on a sign post that extends a minimum of 6 feet AFF; or, shall be mounted using pipe bolts directly to the FDC Pipe. If the pipe is too low for the sign a sign post will be required. This allows the arriving fire apparatus to locate the remote FDC promptly. In addition the street number shall be included as noted in the previous section on FDC signage.

Fire sprinkler control rooms (riser rooms) shall be identified with a 12" x 12" sign. In the event the fire alarm system panel and/or other Fire Department equipment is in the same room as the riser, the sign shall include lettering identifying both.



12x12 - .080 Aluminum substrate

**Top Line ("Fire Alarm / Pump) - 1" Height "Riser Room" - 2" Height
Address; Suite / Suite Range - .75" "Storage Prohibited" - .75"
Sign Construction shall be as indicated above**

If a **Pump** is utilized, the term "FIRE PUMP" shall replace "FIRE ALARM".

All signage must be approved by the Fire Marshal's Office and additional verbiage or signage may be required.

If the Alarm Panel is not located in the Riser Room the Term "FIRE ALARM" shall be deleted and the remainder of the text adjusted appropriately.

FIRE DEPARTMENT RISER ZONE SIGNS

(for multiple riser systems)

If a sprinkler system is supplied with multiple risers, each riser zone shall be identified using the required signage.

The following are examples of Zone Signs:
Each zone shall be uniquely identified by geographic service area or by other means and shall be accompanied by a reduced zone map (sprinkler plans) mounted to the wall (protected) and colored keyed.



*4x8 - .080 Aluminum substrate Letters - 1" Height
Sign Construction shall be as indicated above*

POST INDICATOR VALVES

Post indicator valves shall be identified. Sign specifications at the beginning of this document shall be used. Signs shall be posted, with the base of the sign located at 4 feet above grade, on the wall above the PIV or secured to a heavy duty U channel post and secured in the ground with cement. Lettering must be approved by the Fire Marshal's Office.



FOR Single PIV

12" x 12" - .080 Aluminum substrate Letters - 3" Height
Sign Construction shall be as indicated above



FOR PIV with Bldg. Number

12" x 12" - .080 Aluminum substrate Letters - 2.5" Height
Sign Construction shall be as indicated above

PUMP TEST HEADER

If a fire pump is installed as part of the building's fire suppression system, the following sign shall be placed above the pump test header and shall follow the sign construction specs at the beginning of this document.



*18x12 - .080 Aluminum substrate "Do Not" - 2" Height
"Pump" - 2.5" Height "Into These Fittings"- 1.5"
Sign Construction shall be as indicated above*



FIRE ALARM



*18x12 - .080 Aluminum Substrate "Do Not" - 2" Height
"Pump" - 2.5" Height "Into These Fittings"- 1.5"
Sign Construction shall be as indicated above*

Rooms that contain the fire alarm panel shall be identified with a 6" x 8" sign that reads, "F.D. ALARM PANEL".

Remote annunciators shall have a sign posted that indicates the location of the main FACP. Letter shall be a minimum of one (1) inch in height and shall read "FACP LOCATED_"

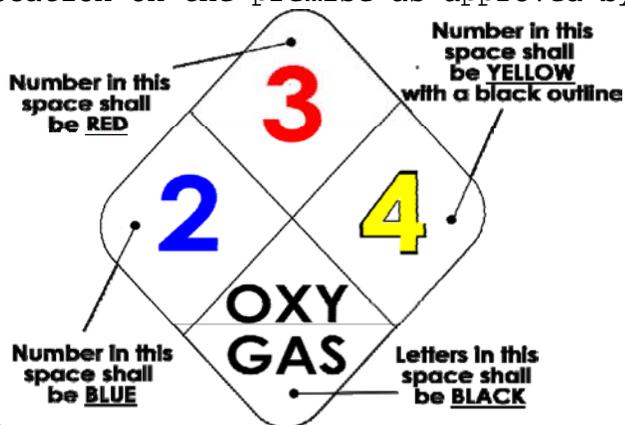
In the event any Fire Department access systems (i.e. Knox box, key switches, etc.) serves multiple tenants or is in an area that is not obvious, confusing, not readily identifiable, or where required by the Fire Marshal the following sign shall be provided and located as approved. Sign specifications at the beginning of this document shall be used.



*6" x 8" - .080 Aluminum substrate
Letter - 1.25"
Sign Construction shall be as indicated above*

HAZARDOUS MATERIALS IDENTIFICATION

Where compressed gases, hazardous materials, or required by the Fire Marshal, an NFPA 704 (Fire Diamond) shall be posted at a location on the premise as approved by the Fire Marshal's



Office.

The sign shall be constructed out of .080 aluminum construction with rounded corners. The sign face shall have a white diamond grade reflective background. Numbers and letters shall be arranged by color as shown above and be constructed of an engineer grade reflective vinyl.

The materials on site will dictate the numbers in each category. In the event of multiple hazardous materials, the numbers shall reflect the highest hazard of each category.

Numbering shall be a minimum of 3.5" high with an 11/16" stroke width. Lettering for the Special Hazard Box shall be as follows:

One Line: 1 3/4" high w/ 9/16" stroke width
Two Lines: 1 3/8" high w/ 7/16" stroke with
Three Lines: 1 1/4" high w/ 3/8" stroke width

Plan Review Process



Scope

The plan review process has historically been applied as a tool to improve the construction process by providing a mechanism to review the project in advance and allow a method for comment before the construction is complete. You can imagine a building complete and not be able to occupy it because it is not compliant.

For this reason the Bremerton FD, Fire Marshal's Office (FMO) reviews all projects/permits except permits for single family dwellings.

FMO plan review philosophy

The FMO reviews all plans with the philosophy that these same plans, after approval, will be used to construct or otherwise build or install the system or project outlined within the reviewed documents. For this reason plans will continue to be returned to the design team as many times as necessary to ensure the project is code compliant and within the design parameters of the Bremerton Fire Department. If the plans are not correct the project will not be built in a compliant condition.

The second important philosophy point is the review is conducted from the stand point "the construction documents (plans) represent the desired building/project etc. to be built". What this means is if the plans show a gas station and no tank details are included the logical question would be why not. This would cause the permit to be held until those details are figured out. Another example would be if the plans show a space listed as storage but no storage type details, the plans will require this additional information.

Process

1. Plans, specifications and other design related documents are submitted to the Department of Community Development.
2. These documents are then processed and given a permit number.
3. Then documents are routed to respective city departments for review in their particular area of responsibility. (*This document only defines the process for the fire department review*)
4. The communications process is initiated between fire department reviewer and the project design team.
5. When that respective reviewer is satisfied the design complies with the codes, guidelines and department policies they will approve their workflow step in the permit processing database. When all the department reviewers have approved their workflow steps the permit is eligible to be issued.

General Rules/Process for Fire Marshal's Office plan review:

1. All formal issues/communication will be in writing. Conversations not documented and agreed to by all parties is non-binding and deemed simple conversation.

2. The FMO does not waive requirements; the approved method for deviating from the strict letter of the fire code and related standards is the Alternative Means & Method as outlined in the International Fire Code. This request will be from the design team to the Fire Marshal. The Fire Marshal will then evaluate that request and accept or deny that request. Appeals of that decision may be taken to the City of Bremerton Hearing examiner at your request. Fees apply
3. The FMO does not give timelines for when a review will be complete; there are too many factors in place to make such an estimate.
4. The methods and procedures used by other Fire Departments are not taken into consideration.
5. When the FMO has completed their respective review, a letter will be sent outlining the specifics of the issues requiring further detail, changes or additions. The permit will then be placed in “RTND” status which means the permit, from the standpoint of that reviewer, is on hold and no action is being taken on their part to move that permit closer to being issued. This can be seen if the applicant creates a City of Bremerton portal account and follows the instructions for accessing this permit on-line. This is a valuable tool for the applicant/designer. Often times the review letter will be uploaded into this same location and can be accessed as needed.
6. All documents to be re-submitted to the reviewer (FMO) should be sent by some method which can be tracked. **DO NOT STOP BY THE OFFICE AND DROP THEM OFF AT THE COUNTER.** Email, FedEx, US Postal Service Certified, UPS are all acceptable methods.
7. The permit workflow step will then be placed back in “PEND” status and scheduled for review. And the process continues until the workflow step is placed in AP status.

Tips for a rapid plan review



1. Provide as much detail as possible on the first plan submittal. Provide details and elevations for all areas not CLEARLY shown on the plan view.
2. Do not attempt to slip one past the plan reviewer. The simple fact it does not work. If by some chance a clearly non-compliant situation passes plan review, it will be addressed on inspection. The point it passed plan review does not establish it as “Approved by the AHJ”. If this situation develops the permit will be immediately frozen and no work will be allowed to continue on that permit until the discrepancy is resolved. This will cause a significant delay and cost more money for the contractor and owner.
3. For situations that are allowed by the code, but not the typical situation include the code cite on the plan set. This shows the code research has been done and it likely to greatly reduce your plan review time.
4. Provide all documents for review to the FMO in PDF format.
5. The word “STORAGE” does not mean there are no requirements. Typically when there is a space where all of the information has not been determined the designer will show it as storage or some other causal type of space. This is a

bad idea, and will cause your plans to be delayed.

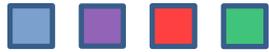
6. Do not submit plans that are only 50-60% in order to get them started in the review. This causes an enormous amount of confusion during the review and confusion equals time.

SECTION 5 
INSPECTION PROCEDURES

Section 5

INSPECTION PROCEDURES

GENERAL



- All fees due in reference the permit being inspected must be paid in full prior to requesting an inspection.
- ONLY the PERMITTING COMPANY may request the inspection and MUST be on-site for the inspection.
- No partial inspections will be performed.
- Inspections may be scheduled via the city on-line permitting system, by phone or email.
- ALL INSPECTIONS ARE SCHEDULED A MINIMUM OF 2 DAYS IN ADVANCE
- NO SAME DAY RE-INSPECTIONS
- The system being inspected shall be complete and ready to inspect at the time scheduled.
- Any work being done at the time of inspection or failure of any part of the system is an automatic failure. A re-inspection fee will be accessed and the inspection will have to be rescheduled. There will be no same day re-inspections.

FIRE ALARM



- NICET II in fire alarms shall be onsite for all inspections.
- A total of two personnel shall be provided by the alarm company, with working, two-way communication
- All trades tied to the alarm panel must have a representative available at the acceptance test, including but not limited, HVAC, elevator, sprinkler, hood suppression, access control, etc.
- Supervisory and Trouble signals shall set to non-latching.
- Central station monitoring must be set up and active at the time of inspection.
- All trades and final clean are required to be completed in accordance with NFPA prior to scheduling Alarm test.
- A complete pre-test is required to have been completed prior to performing the final inspection. Issues left for the inspector to find when the fire alarm technician was or should have been aware of the circumstance will be documented. A re-inspection will be required. There are no same day re-inspections and fees will apply. There may also be fines related to the violation of \$125 per violation.
- All fire alarm work requires the installation of a binder w/ hold or other approved system for holding documents related to fire protection systems.

Typical First Glance Inspection Items:

- Final Clean
- Initiating devices are labeled
- Binder/Holder in place

- Red Breaker in the Electrical Panel
- Sign on the FACP room
- Outdoor WP Horn-strobe

If any of the above items are not complete the inspection will have to be rescheduled.

FIRE ALARM INSPECTIONS/TESTING PROCEDURE

****Important Note****

A NICET II in Fire Alarms is required for all programming and Testing of Fire Alarms

1. Binder Review:
 - a. Review Permit/Plans
 - b. Review Certificate of completion
 - i. Must be fully completed
 - c. Review Pre-test signals
2. Site Review:
 - a. Detectors Labeled
 - b. Detector Placement (per plans)
 - c. Signage (Alarm Panel)
 - d. Notification Placement
3. System Review:
 - a. Wire Type
 - b. Batteries
 - c. Electrical Panel
 - d. Compliance with manufactures specifications
4. Functional Test:
 - a. AC Power off
 - b. Inspector will request a particular initiation device to be activated. The system will operate until the inspector is satisfied the system is providing notification in all areas as required by code.
 - c. Initiating device testing as requested by the inspector
 - d. Annunciator panel testing, all annunciator panels are functional.

Most commonly documented fire alarm inspection violations:

- Red Breaker in the electrical panel
- Batteries not marked/labeled
- Location of the Fire Alarm breaker not marked in the fire alarm panel
- Binder/holder
- Trouble & Supervisory signals not programmed as non-latching (these are required to be non-latching signals)
- Marked initiating devices
- Un-approved deviations from the approved plans
- Visual devices are not synchronized
- Strobes set to the wrong setting
- Door signage (see sign manual in this document)

FIRE SPRINKLER

- A main Flush is required prior to connecting to the underground
- Hydro and Cover inspections are done at the same time.
- All piping, hangers, connections, or other components shall be visible from the walking surface.

FIRE SPRINKLER INSPECTIONS/TESTING PROCEDURE

Hydro/Cover

This inspection will possibly be done without a scheduled appointment

1. Permit/Plans Review:
 - a. Site Walk reviewing plans for:
 - b. Pipe Size
 - c. Head Placement
 - d. Bracing Placement
 - e. Hangers
 - f. Conformance to submitted plans
 - g. Checking for leaks
 - h. Final System hydro pressure
2. Typical Fire Sprinkler System Inspections:
3. Visual Inspection (fire line)
4. Hydro (fire line)
5. Fire Line Flush (fire line)
6. Full Forward Flow (fire line)
7. Hydro/Cover (system)
8. Fire Pump
9. Final (fire line/system/PIV)

NFPA 13D SYSTEMS

1. Permit/Plans Review:
 - a. Site Walk reviewing plans for:
 - b. Pipe Size
 - c. Head Placement
 - d. Hangers
 - e. Conformance to submitted plans
 - f. Checking for leaks
 - g. Review results from the pre-test (a bucket test performed prior to scheduling the formal test)
2. Bucket Test (all systems get at least one bucket test)
 - a. Set up buckets for the performance of the most demanding area based on approved plans.

- b. Flow points are to have the sprinkler head sizes as indicated in the plans
- c. A working/functional pressure gauge not exceeding 100psi is to be placed immediately upstream of the two flow sprinklers.
- d. A reasonable method of measuring the amount of water from a full one minute flow is required to be provided.

HOOD SUPPRESSION SYSTEM

- All electrical, gas, and mechanical (vents) shall be operational in order to perform this inspection.
- If tied to an alarm system, the hood system inspection shall be conducted at the same time as the alarm.
- All appliances shall be in place and functional.
- A pre-test shall be completed prior to requesting a final inspection.
- Balloon shall be placed over the nozzles during testing to test the nozzles.
- Suppression system testing is expected to be pre-tested and fully complete whether in the suppression contractor's scope or not.

Suppression System Inspection Procedure

1. All Appliances MUST be in place at the time of final hood suppression inspection
2. The permit will be reviewed against the installed appliances, nozzle selection, number of flow points, pull-station location, class K extinguisher, cylinder size, nozzle height properly aimed
3. Once the inspection portion is complete, the functional test can begin.
4. Ensure gas/electricity is ready
5. Place tight fitting balloons on all nozzles



This photo was taken at the first test I had balloons used on a suppression test. Clearly shows the nozzle is not allowing the same volume through the orifice of the nozzle.

6. The first functional test should be nearly a full system test as if the system were in service.
7. A test link is used in the last link position and cut. The system should discharge compressed air or nitrogen, filling the balloons, shutting off gas/power, proper fan operation and activating the alarm system when applicable.
8. Second test is the pull-station

UNDERGROUND FIRE MAIN

- For visual inspection, all bells and connections shall be visible, as well as the pipe lettering (DR and Class No.) shall be facing up so it is readable from grade.
- Fire Department will inspect from the tap to the riser stub-out inside of the building.
- Visual inspection may be conducted separate from the hydro.
- A underground flush shall be conducted on all underground pipe. A minimum of two fire houses. The inspector will direct the test.

UNDERGROUND STORAGE TANKS

- Call the Fire Marshal's Office with tank delivery schedule.
- Air pressure reading will be taken / soap test performed, prior to setting tank.
- Once tank is in the excavation pit, air pressure will be read, strapping, and sump tubes will be inspected.
- Distribution lines will be tested as appropriate when installed.



FINAL BUILDING INSPECTIONS

- All Fire Department related permits must have successfully passed all required inspections and re-inspections, prior to scheduling final.
- A "key-safe" is required to be installed on all buildings. Location will be determined by the Fire Marshal's Office.
- Shell buildings shall have one Knox Box of appropriate size for all tenants. Each tenant is responsible to provide a key to the inspector at the time of fire final.
- Premise address must be permanently affixed to the building, front and rear. Suite numbers shall be placed over the main entrance and rear doors. See '*Building Address and Identification Guide*' for address placement and size/stroke requirements.
- All utility (electric/gas/etc.) shall have the suite number affixed to the meter.
- All required Fire Department signs shall be installed.
- Exiting systems shall be clear and unobstructed. Proper hardware shall be installed on all exit doors. Dead bolts, slide bolts, bars, or other similar type of securing device are not allowed on secondary exits.
- Exit signs and emergency lights shall transfer to battery backup and function properly when tested.
- Assembly occupancies must have a Maximum Occupancy Load Sign prominently displayed near the main entrance and assembly spaces.
- The Fire Department will not release their approval for CO issuance until all Fire Department related items are completed and the Fire Final has passed without exception.

Appendix A 
FIRE FLOW TEST PROCEDURE

INSTRUCTIONS

1. Prior to the final design of a fire sprinkler system, the system designer must request fireflow results from the City of Bremerton Engineering department at (360) 473-5270. The fireflow results will be provided and will identify both the fireflow available and the critical area in the water system which had a residual pressure of 20 psi. **The modeling results shall not be used for design purposes.**
2. Once the model results have been provided, the system designer may schedule an on-site fireflow test with Water Maintenance at (360) 473-5920.
3. The system designer must provide all flow test equipment, gages, and adapters necessary to conduct the fire flow test.
4. Water Maintenance staff will assist in operating all fire hydrants and monitoring of gages. Upon completion of the test the Water Maintenance staff will ensure that the system is flushed adequately to minimize any impacts to City of Bremerton Water customers.
5. During the test it is important obtain the residual pressure from a hydrant as close as possible to the critical location identified by the modeling results. It is also important to obtain the static pressure at both the flow hydrant and the residual hydrant. This will serve to validate the model results. Be sure to flow adequate volume to provide a valid flow curve.
6. If a fire flow test is requested in an area that is downstream of a pressure reducing valve or where the fire flow is provided by fire pumps, the fireflow test may not accurately reflect the fireflow available. In this case additional coordination with Engineering is required to properly evaluate the available fire flow and most appropriate way to conduct the flow test.
7. The form must be accompanied by the calculated results. These results must be presented in the form of a plotted curve with the flow rate available corresponding with a 20 psi residual clearly identified. An example form is provided on the following page.
8. **This form and the results must be submitted to the Fire Marshal within 7 days of performing the test. This form must also be provided as part of the final sprinkler permit submittal. It may be sent by mail, fax, or email. Please refer to the contact information below.**

Send form to: Captain Mike Six, Fire Marshal
City of Bremerton Fire Department 911 Park
Avenue
Bremerton, WA 98337
(360) 473-5386
(360) 473-5397 fax

Or email to: Michael.Six@ci.bremerton.wa.us

(RETURN THIS ORIGINAL SIGNED FORM WITH FIRE SPRINKLER PERMIT SUBMITTAL)

City of Bremerton
Fire Sprinkler Flow Test
Report

(See instructions on following page)

Date: _____ Testing Company: _____

Name of Tester: _____ Phone Number: _____
Print Name

Site Address: _____

Location of Flow Hydrant: _____

Static Pressure @ Flow Hydrant _____ psi Pitot Reading During Flow: _____ psi
1st port

Pitot Reading During Flow: _____ psi
2nd port (if req'd)

Orifice size: _____ inches Co-efficient: _____
1st port

Flow: _____ gpm

Orifice size: _____ inches Co-efficient: _____
2nd port (if req'd)

Flow: _____ gpm

Location of Critical Hydrant (from City Water Model): _____

Static Pressure @ Critical Hydrant: _____ psi Residual Pressure: _____ psi

Location of Test Hydrant: _____

Static Pressure @ Test Hydrant: _____ psi Residual Pressure: _____ psi

Calculated Fire Flow Available (if known): _____ gpm

City of Bremerton Employee who witnessed test: _____
Print Name

Signature

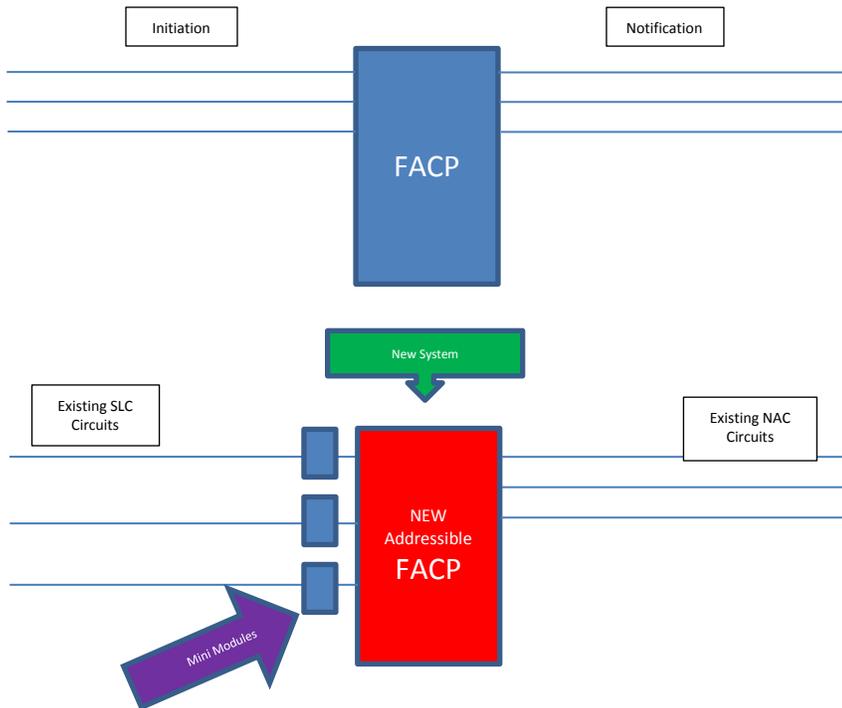
Remarks: _____

A flow test is required within 180 days for **ALL** sprinkler permit submittals.

Appendix B ■
Specific Fire Alarm Issues

Panel Swap: The primary issue with a panel swap is obviously if the City requires addressable systems and the panel being swapped is not addressable which means the devices are not addressable. Replace the panel with an addressable panel large enough to support the building as if the building were designed for current fire alarm requirements (initiating and notification devices) and place mini-modules on the initiating lines to "create"

The addressable system which can be expanded as needed from the addressable panel.



TI in an existing alarmed space with a conventional alarm system:

As long as the conventional system has the capability to fulfill the current design requirements of the system, simply extend the conventional system into the new space. If the conventional system cannot tolerate the additional devices then the system will need to be replaced with an addressable system.

Typically the resolution is combining the two situations where the new TI area is done addressable off a new panel and mini-modules are installed for the existing areas.

Permits

A fire alarm permit is required for ALL fire alarm work. At one point if the if the work was less than 10 devices then we would waive the permit, but then contractors argued the entire system was less than 10 devices, then the question of was the panel a device, then permits weren't pulled for systems arguing it was less than 10 devices when clearly more than 10 devices were needed. So, all work requires a fire alarm permit. There is a "fire alarm modification" permit if you are only adding a few devices to an existing system.

Appendix C High Piled/Rack Storage

- 1.1 PURPOSE** -The intent of this guideline is to provide the requirements for the protection of high-piled combustible storage (HPCS) for a variety of commodities. The following requirements will ensure that the minimum measures required by code have been taken to provide for public safety and that the required protection of these commodities has been designed in accordance with Chapter 32 of the 2012 International Fire Code(IFC), Chapter I2 of the 2010 NFPA I3, and other referenced standards.
- 1.2 Parameters** -The commodity classification and storage parameters for the rack areas are required prior to issuing a construction permit in order to determine the adequacy of the existing fire sprinkler system. Provide an analysis by a qualified professional that classifies the commodities. The analysis shall specify the minimum criteria for both the overhead and rack sprinkler systems based on the type of commodity and storage height as per the International Fire Code(IFC) and NFPA I3, 2010 edition. Provide construction documents as per IFC Section 320I.3.
- 1.3 Technical Assistance** -Due to the complexity of the designs specified within the IFC and adopted standards, it may be necessary to obtain the service of a fire protection design professional to assist with developing a protection scheme that meets the requirements of the IFC and other applicable regulations.

2.0 DEFINITIONS:

- 2.1 This guideline provides the requirements for all HPCS within the City of Bremerton. For the purposes of this guideline, certain terms are defined as follows:
- 2.1.1 **Commodity** -A combination of products, packing materials and containers.
- 2.1.2 **Commodity Classification** -Commodities shall be classified as Class I, II, III, IV, or High Hazard, in accordance with IFC Chapter 32, Section 3203. Plastics shall be classified as Group A, B, or C in accordance with IFC Chapter 32. To determine the proper commodity classification of products with limited quantities of Group A plastics in mixed commodities, use IFC Figure 3203.7.4. This figure identifies the quantity of Group A plastics allowed to be stored in a package, carton, or on a pallet without increasing the hazard and commodity classification to “high hazard.” The designation and protection features of a high-piled combustible storage area intended for storage of different commodity classes shall be based on the highest hazard commodity stored, except as otherwise provided for by engineering analysis in IFC 3204.2.
- 2.1.3 **High-Piled Combustible Storage** -The storage of combustible materials in closely packed piles, on pallets, in racks, or on shelves where the top of storage is greater than I2 feet in height. High- piled combustible storage

also includes certain high hazard commodities, such as rubber tires, Group A plastics, flammable and combustible liquids, idle pallets, and similar commodities where the top of storage is greater than six feet in height.

- 2.1.4 **High-Piled Storage Area** -An area within a building that is designated, intended, proposed, or actually used for high-piled combustible storage. For purposes of selecting the applicable fire protection requirement row in Table 3206.2:
- 2.1.4.1 This area shall include the “footprint” of the actual storage array (racks, shelves, fixtures, or pallets), inclusive of aisles within the storage area(s). When individual storage arrays are separated by less than 15 foot spaces, the spaces shall be considered aisles and shall be included in a single storage area footprint. When individual storage arrays are separated by more than 15 foot spaces, the individual arrays shall be considered separate storage areas with their own footprint calculation.
 - 2.1.4.2 Each storage area shall also include a 48 inch perimeter aisle calculated in the footprint. This additional perimeter aisle is not required for areas that abut to a wall.
 - 2.1.4.3 For multiple storage areas within a building, the aggregate of all high-piled storage areas shall be used for selecting the applicable row in Table 3206.2, unless such areas are separated from each other by a one hour rated fire barrier wall constructed in accordance with Section 706 of the International Building Code (IBC). Openings in such walls shall be protected by fire assemblies having a one hour fire protection rating. IFC 3206.3.2.1.
- 2.1.5 **Rack Storage** -A combination of vertical, horizontal, and diagonal members that support stored materials. Racks can be fixed or portable.
- 2.1.5.1 Rack storage shall be in accordance with IFC 3206 and 3208. Racks with solid shelving having an area greater than 32 square feet measured between approved flue spaces at all four edges of the shelf shall be in accordance with IFC 3208.2.2.
- 2.1.6 **Solid Piled And Shelf Storage** - Shelf storage, storage in solid piles, solid piles on pallets, and storage in bin boxes not exceeding five feet in any dimension shall be in accordance with IFC 3206 and 3207.
- 2.1.6.1 **Solid Shelving** -Shelving that is solid, slatted, mesh, or grated located within racks that obstructs sprinkler water penetration through the racks.
 - 2.1.6.2 **Shelf Storage** - Shelf storage greater than 12 feet but less than 15 feet in height shall be in accordance with the fire protection requirements set forth in NFPA 13. Shelf storage 15 feet or more in height shall be protected in an *approved* manner with special fire protection, such as in-rack sprinklers.

3.0 PERMIT:

3.1 **Rack Systems** -A Building permit is required to be issued by the City of Bremerton Building Department for all racks over 5'-9" without regard to commodity classification.

3.2 **Fire Department:**

- 3.2.1 Plans for all HPCS shall be submitted to Bremerton FD for review.
- 3.2.2 A separate fire permit may be required for new or modifications of the Hazardous Materials Inventory Statements (HMIS). Contact the BREMERTON FD Hazardous Materials Program Division at City Hall to discuss the Building Occupancy Classification Inventory in conjunction with the Hazardous Materials Management Plans for the project.
- 3.2.3 Fire System Permit(s) will be required for any new installation or modifications of an existing HPCS area requiring fire suppression/detection system.
 - 3.2.3.1 Fire protection features for high-piled storage areas shall be in accordance with IFC Chapter 32 and other nationally recognized standards approved by the BREMERTON FD. Fire detection systems, smoke and heat removal, curtain boards, and fire sprinkler design densities shall extend to 15 feet beyond the high-piled storage area or to a permanent partition, whichever is least.
 - 3.2.3.2 The aggregate of all high-piled storage areas within a building shall be used to design the fire protection features found in IFC Table 3206.2 (attached), unless such areas are separated from each other by a one hour fire barrier wall constructed in accordance with CBC 706.
 - 3.2.3.3 Distinct occupancy groups shall be separated according to CBC 508.
- 3.2.4 A separate fire permit will be required for installation or modifications of the fire sprinkler system.
 - 3.2.4.1 **Fire Sprinkler Systems** - When fire sprinklers are required by IFC Table 3206.2 or the CBC (or if otherwise provided), the sprinkler system shall be installed in accordance with 2010 NFPA 13. If this permit is in association with other Fire Sprinkler work, a common permit for all work shall be required portraying all work in effect.
 - 3.2.4.2 Submittals shall comply with the criteria set forth in the BREMERTON FD handout "**Fire Sprinkler Systems Design, Installation, & Plan Submittal Requirements**".
- 3.2.5 A separate fire permit will be required for installation or modifications of the fire alarm system.
 - 3.2.5.1 **Fire Detection Systems** - When fire detection is required by IFC Table 3206.2 or otherwise required by the CBC/IFC , an approved automatic fire detection system shall be installed in accordance with 2010 NFPA 72 standard throughout the high-piled storage area or extended to the HPCS, as pertains. This system shall be installed and monitored as

required by IFC 907.

3.2.5.2 Submittals shall comply with the criteria set forth in the BREMERTON FD handouts “**Fire Alarm Systems Permit Application, Plan Submittal, Design, Installation, and Inspection Requirements**” or “**Dedicated Function Fire Alarm System Permit Application, Plan Submittal, Design, Installation, and Inspection Requirements**”.

3.3 **Application** -At the time of permit application, the plans and specifications, including but not limited to the information listed below, shall be submitted for review and approval. For certain HPCS reviews, the services of a design professional familiar with the requirements contained in IFC Chapter 32 may be of great assistance. A minimum of three sets of plans shall be submitted with the following information per IFC 3201.3:

3.3.I A letter of intent containing a detailed description of the products to be stored and the description of all containers, pallets, and packaging materials. This letter must also include a detailed description of the storage methods (racks, shelves, pallets, etc.), the total storage area in square feet, maximum storage height, and aisle widths. An authorized officer of the company or business must sign this letter. The letter shall be copied onto the plans.

3.3.2 A scaled site plan that shows the entire building, including all fire access lanes, fire hydrants, fire department connection, and fire sprinkler risers.

3.3.3 A scaled floor plan of the building showing locations and dimensions of the HPCS area, location of the racks, and access doors to the storage area.

3.3.4 The maximum desired/proposed storage height for each designated storage area per array. This height is measured from the finished floor to the highest point of the commodity stored (not shelf level).

3.3.5 The number of tiers within each rack.

3.3.6 The commodity clearance between the top of storage and the sprinkler deflector for each storage arrangement.

3.3.7 Aisle dimensions between each storage array. Aisles are measured from the actual edge of the commodity to commodity, not rack to rack.

3.3.8 Maximum pile volume for each storage array.

3.3.9 The location and classification of different commodity classes. 3.3.10 The location of commodities that is banded or encapsulated.

3.3.II The dimension and location of the transverse and longitudinal flue spaces.

3.3.I2 The sprinkler design requirements based on commodity type, aisle width, and sprinkler temperature rating as outlined in 2010 NFPA 13, Chapters 12 through 20 (e.g., .45/3000 with 286 degree heads). **A complete sprinkler design shall be submitted.**

I3 The location of all steel columns in relationship to the racks. All steel columns located within a rack flue space or immediately adjacent to a rack in an aisle will require protection. See 2010 NFPA 13, Sections 16.1.4. and 17.1.4.

3.3.14 **Smoke and Heat Removal** - When smoke and heat removal are required by IFC Table 3206.2, smoke and heat vents shall be of an approved type and shall operate automatically by a heat response device rated between 100°F and 200°F above ambient temperatures and contain a manual release roof handle. Vent size shall be in accordance with IFC Table Section 910 (attached). The fusible link temperature is required to be at least one temperature rating greater than that of the fire sprinkler head at the roof to prevent early venting.

3.3.14.1 **Note** -Smoke and heat vents are *not* required when storage areas are protected by early suppression fast response (ESFR) sprinkler systems installed in accordance with 2010 NFPA 13.

3.3.14.2 **Smoke Vents** -The location, make, model, type, and automatic link temperature of the automatic/manual release smoke vents. Fusible links shall be at least one temperature rating higher than the fire sprinklers. Also see item 4.4 below. **Note:** *New construction shall only use approved/labeled smoke vents as specified by IFC 3206.7.*

3.3.14.3 **Smoke Vents in Existing Buildings** -Required smoke vents in existing structures (constructed under the 1998 or previous codes) shall be inspected for proper operation (manual & automatic) and proper link temperature by an independent qualified contractor.

3.3.14.3.1 Non required existing vents shall be either treated as a required vent or shall have the automatic and manual mechanism deactivated including the removal of the release handles.

3.3.14.3.2 An inspection report by the inspecting contractor shall be provided to BREMERTON FD prior to plan approval. The report at a minimum shall identify the year the building was constructed, a listing of all vents inspected, the fusible link temperature rating, the presence of a manual release mechanism, and the operational status of each vent. Prior to submitting the report to BREMERTON FD, all identified deficiencies must be corrected and included within the report.

3.3.14.3.3 If the smoke vents do not contain manual release devices, and BREMERTON FD determines that the manual release devices were not specifically required at the time of construction or during any previously approved high piled storage use, then manual release devices will not be required.

3.3.14.3.4 BREMERTON FD staff will evaluate all other conditions on a case by case basis during the review process. If this requirement is placed, BREMERTON FD staff will indicate the requirement adjacent to the BREMERTON FD approval stamp on the final approved plans from the proposed operation. The vent inspection report shall be copied onto the plans prior to BREMERTON FD plan approval.

3.3.15 **Curtain Boards** - When required by IFC Table 3206.2, curtain boards shall be installed in

accordance with IFC 910.3.5. Demonstrate the design (construction), location, and depth of the curtain board assembly.

- 3.3.16 **Rack Flue Spaces** - Requirements for flue spaces within the rack storage are provided in IFCTable 3208.3 (attached). Double row racks shall be equipped with a pallet/commodity stop along the longitudinal flue space at each level. The stop shall be steel or other ferrous material, minimum ¼" thick, and in the mounted position shall extend a minimum of 4 inches above the shelf or cross member, or other method approved by the fire code official (IFC 3208.3).
- 3.3.17 **Automated Storage** - Automated storage including carousel storage shall be shown in accordance with IFC 3209.